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# Upper Swan Development

## Biological Survey Report

Prepared for  
Satterley Property Group  
by Strategen

August 2016



# Upper Swan Development

## Biological Survey Report

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August 2016

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## **Client: Satterley Property Group**

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# 1. Introduction

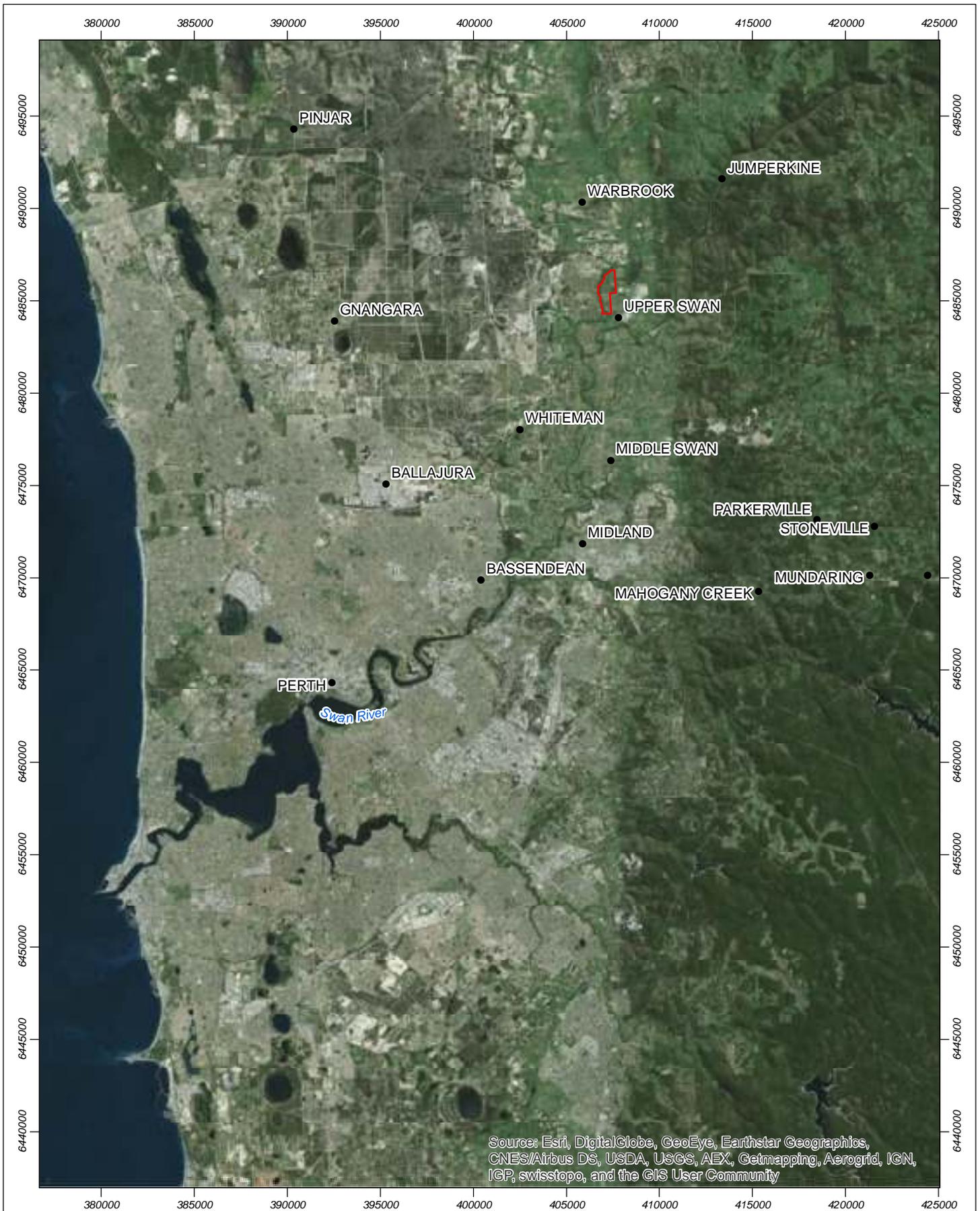
This report presents the findings of a biological survey undertaken to inform the development of the Upper Swan Urban Precinct (141.8 ha) within the City of Swan (CoS), approximately 25 kilometres northeast of the Perth CBD (Figure 1).

## 1.1 Background

Satterley Property Group (Satterley) is seeking to develop the Upper Swan Development. The survey area comprises of Metropolitan Region Scheme (MRS) Rural and Urban zonings. The proposed development will be limited to the MRS Urban zoning, which covers the majority of the survey area. An area of MRS Rural zoning on the western border of the survey area and adjacent to Ellen Brook is proposed to be retained and will not be developed (Figure 2). The survey area contains:

- approximately 18.9 hectares (ha) of native vegetation
- approximately 118.01 ha of cleared paddocks supporting intermittent non native vegetation.

A desktop assessment and field biological survey was undertaken to determine the environmental values of the survey area. The purpose of the survey was to delineate key vegetation, flora and fauna values within the survey area and potential sensitivity to impact.



**Figure 1: Regional location**

Scale 1:275,000 at A4



Coordinate System: GDA 1994 MGA Zone 50

Note that positional errors may occur in some areas

Date: 12/04/2016

Author: JCrute

Source: Aerial image: ESRI, approx. 2012. Survey area: Client 03/2016.

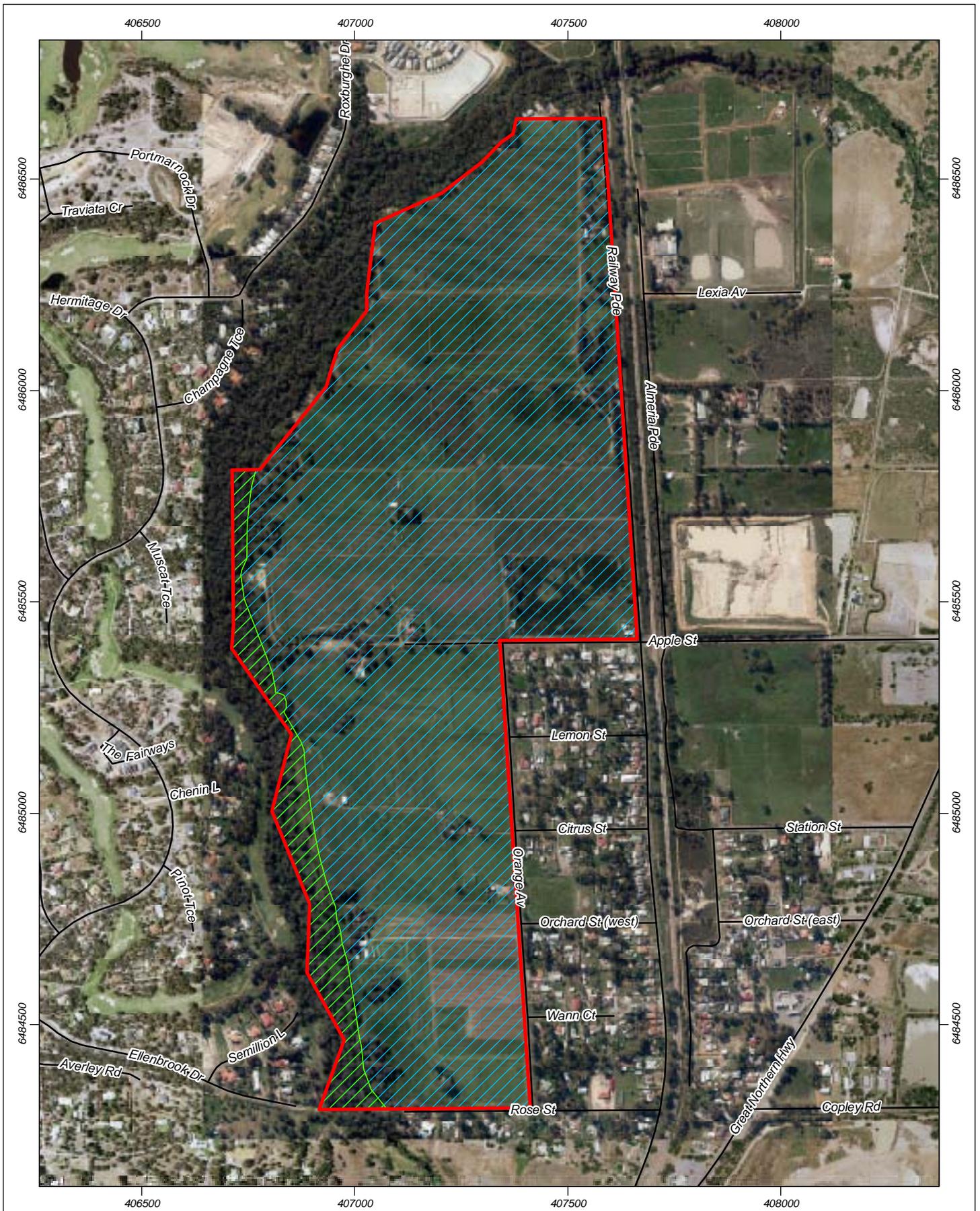
**Legend**

Survey area (141.8 ha)

● Town



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**Figure 2: Survey area**

Scale 1:12,000 at A4



Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas  
 Date: 13/05/2016  
 Author: JCrute

Source: Aerial image: Landgate, flown 09/2014. Survey area: Client 03/2016.

**Legend**

- Survey area (141.8 ha)
- Rural
- Urban

**MRS Zones**

- Rural
- Urban



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## 2. Legislative context

This biological survey has been conducted with reference to the following Australian and Western Australian legislation which provides for the environmental values addressed within this section:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) – Australian Government
- *Wildlife Conservation Act 1950* (WC Act) – State
- *Environmental Protection Act 1986* (EP Act) – State
- *Biosecurity and Agriculture Management Act 2007* (BAM Act) – State.

### 2.1.1 Conservation significant flora and ecological communities

Threatened species are listed under the EPBC Act at the Australian Government level and under the WC Act at the State level (Appendix 1). Priority species are listed by the Department of Parks and Wildlife (Parks and Wildlife) and include species of 'significant conservation value' (Appendix 1).

Threatened Ecological Communities (TECs) are listed under both the EPBC Act and EP Act (Appendix 1). Priority Ecological Communities (PECs) are listed by Parks and Wildlife and include species of significant conservation value (Appendix 1).

### 2.1.2 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are protected under the EP Act, and include the following:

- World Heritage areas
- areas included on the National Estate Register
- defined wetlands and associated buffers
- vegetation within 50 m of a listed Threatened species
- TECs.

### 2.1.3 Protection of native vegetation

Native vegetation is defined under the EP Act as "indigenous aquatic or terrestrial vegetation, and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition but does not include vegetation in a plantation".

This definition of native vegetation does not include vegetation that was intentionally sown, planted or propagated unless either of the following apply:

- (a) the vegetation was sown, planted or propagated as required under the EP Act or another written law
- (b) the vegetation is declared to be native under Regulation 4 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

Regulation 4 prescribes the kinds of intentionally planted indigenous vegetation that are “native vegetation” and which therefore require a clearing permit or exemption to clear and includes:

- (c) planting that was funded (fully or partly)
  - i. by a person who was not the owner of the land
  - ii. for the purpose of biodiversity conservation or land conservation
- (d) intentionally planted vegetation that has one of the following:
  - i. a conservation covenant or agreement to reserve under section 30B of the *Soil and Land Conservation Act 1945*
  - ii. a covenant to conserve under section 21A of the *National Trust of Australia (WA) Act 1964*
  - iii. restrictive covenant to conserve under section 129B of the *Transfer of Land Act 1983*
  - iv. some other form of binding or undertaking to establish and maintain, or maintain, the vegetation.

Native vegetation can only be cleared with a clearing permit, unless for some circumstances where exemptions apply pursuant to the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (the Regulations). Clearing permits issued pursuant to the Regulations may be issued as area permits or purpose permits. Exemptions for clearing under Regulation 5 of the Regulations do not apply within ESAs.

#### 2.1.4 Fauna

Species of fauna are defined as Threatened where their populations are under threat, require protection or are protected under an international agreement. The Department of Parks and Wildlife (Parks and Wildlife) recognises these threats of extinction and consequently applies regulations towards population and species protection.

Threatened fauna species are protected under section 16 of the WC Act. Under the Act, it is an offence to “take, destroy or possess” Threatened fauna without Ministerial approval.

Threatened fauna (Schedule 1) are further ranked by Parks and Wildlife according to their threat using International Union for Conservation of Nature (IUCN) Red List criteria that are described as follows:

- CR Critically Endangered – considered to be facing an extremely high risk of extinction in the wild
- EN Endangered – considered to be facing a very high risk of extinction in the wild
- VU Vulnerable – considered to be facing a high risk of extinction in the wild.

Priority fauna not listed as Threatened (Scheduled) under the WC Act, but are poorly known or poorly represented in the conservation estate are regarded as Priority and attention is given to their conservation by Parks and Wildlife.

Threats of extinction of fauna species are also recognised at a Commonwealth level and are categorised according to the EPBC Act, administered by DotE.

Migratory species are MNES under the EPBC Act. Migratory species are defined as animals that migrate to Australia and its external territories, or pass through or over Australian waters during their annual migrations (DotE 2015a). Recognised migratory species include any native species identified in an international agreement approved by the Minister and those listed under:

- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
- China-Australia Migratory Bird Agreement (CAMBA)
- Japan-Australia Migratory Bird Agreement (JAMBA)
- Republic of Korea – Australia Migratory Bird Agreement (ROKAMBA).

### 2.1.5 Introduced species

The BAM Act provides for management and control of listed organisms, including introduced flora species (weeds). Species listed as declared pests under the BAM Act are classified under three categories:

1. C1 Exclusion: Pests assigned under this category are not established in Western Australia, and control measures are to be taken to prevent them entering and establishing in the State.
2. C2 Eradication: Pests assigned under this category are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.
3. C3 Management: Pests assigned under this category are established in Western Australia, but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area that is currently free of that pest.

Under the BAM Act, land managers are required to manage populations of declared pests as outlined under the relevant category.

### 2.1.6 Regulatory guidance

The flora and vegetation survey component of this investigation has been designed to address the recommendations of the EPA as described in the following guidance:

- EPA Position Statement No. 2 *Environmental Protection of Native Vegetation in Western Australia* (EPA 2000)
- EPA Position Statement No. 3 *Terrestrial Biological Surveys as an Element of Biodiversity Protection* (EPA 2002)
- EPA Position Statement No. 10 *Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region* (EPA 2006)
- EPA Guidance Statement No. 51 *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA 2004).

### 3. Environmental setting

#### 3.1.1 Soils and topography

The survey area is located within the *Swan Coastal Plain 2 (SWA2 – Swan Coastal Plain subregion)* of Western Australia (Mitchell et al. 2002). The Swan Coastal Plain comprises five major geomorphological systems that lie parallel to the coast, namely (from west to east) the Quindalup Dunes, Spearwood Dunes, Bassendean Dunes, Pinjarra Plain and Ridge Hill Shelf (Churchward & McArthur 1980; Gibson et al. 1994). Each major system is composed of further subdivisions in the form of detailed geomorphological units (Churchward & McArthur 1980; Semeniuk 1990; Gibson et al. 1994). Beard (1990) describes the Swan Coastal Plain as a low-lying coastal plain, often swampy, with sandhills also containing dissected country rising to the duricrusted Dandaragan plateau on Mesozoic, mainly sandy, yellow soils.

#### 3.1.2 Climate

The Upper Swan locality experiences a Mediterranean climate characterised by mild, wet winters and warm to hot, dry summers. The nearest Bureau of Meteorology (BoM) weather station at Pearce RAAF Research Station (Station No. 009053) provides average monthly climate statistics for the Upper Swan locality (Figure 3). Average annual rainfall recorded at Upper Swan since 1937 is 651.1 mm (BoM 2016). Rainfall may occur at any time of year; however, most occurs in winter in association with cold fronts from the southwest. Highest temperatures occur between December and March, with average monthly maximums ranging from 30.3°C in December to 33.5°C in January (BoM 2016). Lowest temperatures occur between June and September, with average monthly minimums ranging from 8.2°C in July and August to 9.4°C in June (BoM 2016).

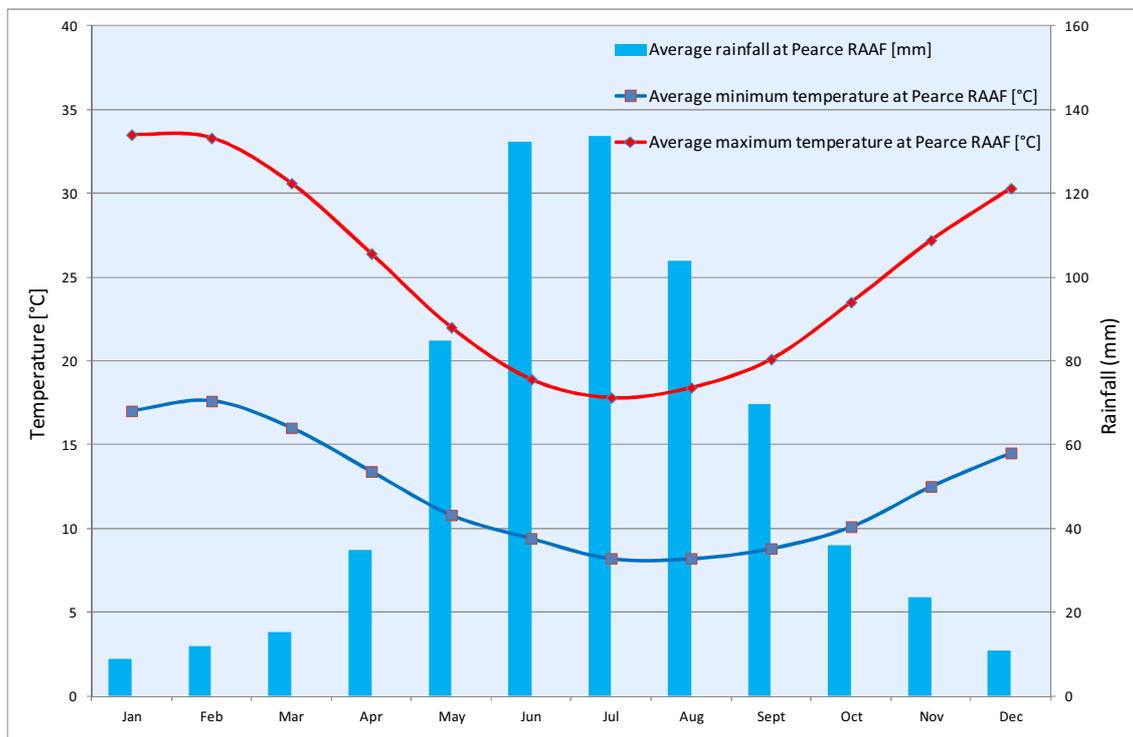


Figure 3: Mean monthly climatic data (temperature and rainfall) for Pearce RAAF Research Centre

### 3.1.3 Regional vegetation

Vegetation occurring within the region was initially mapped at a broad scale (1:1 000 000) by Beard during the 1970s. This dataset has formed the basis of several regional mapping systems, including physiographic regions defined by Beard (1981) which led to the delineation of botanical districts as described in Beard (1990); the biogeographical region dataset (Interim Biogeographic Regionalisation for Australia, IBRA) for Western Australia (DotE 2015a) and System 6 Vegetation Complex mapping undertaken by Heddle et al. (1980).

#### *Beard (1990) Botanical Subdistrict*

The survey area occurs within the Drummond Botanical Subdistrict which is characterised by low *Banksia* woodlands on leached sands; *Melaleuca* swamps on poorly-drained depressions; and *Eucalyptus gomphocephala* (Tuart), *Eucalyptus marginata* (Jarrah) and *Corymbia calophylla* (Marri) woodlands on less leached soils (Beard 1990).

#### *IBRA subregion*

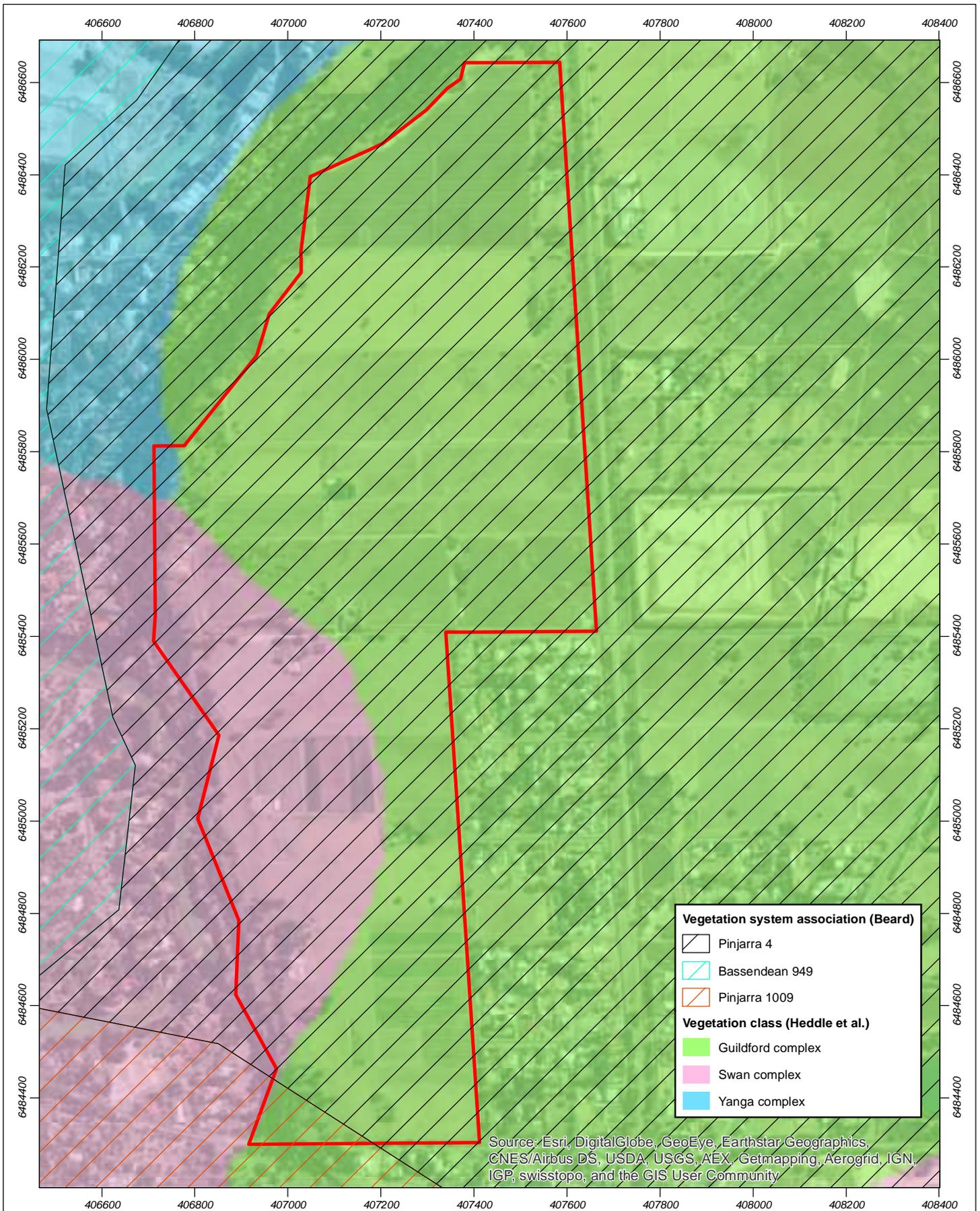
IBRA describes a system of 85 'biogeographic regions' (bioregions) and 403 subregions covering the entirety of the Australian continent (Thackway & Cresswell 1995). Bioregions are defined on the basis of climate, geology, landforms, vegetation and fauna.

The survey area occurs within the Swan Coastal Plain 2 IBRA subregion which is dominated by *Banksia* or Tuart on sandy soils, *Casuarina obesa* on outwash plains and paperbark (*Melaleuca*) in swampy areas (Mitchell et al. 2002).

#### *System 6 and vegetation system association mapping*

System 6 mapping refers to vegetation mapping undertaken at a Vegetation Complex scale by Heddle et al. (1980). This is the primary source of information used to calculate potential impacts of proposals to clear native vegetation on the Swan Coastal Plain. At a finer scale, the project area occurs at the interface of three vegetation complexes (Yanga, Swan and Guildford) as mapped by Heddle et al. 1980 and illustrated in Figure 4. These complexes can be described as:

- Yanga: a closed scrub of *Melaleuca* species and low open forest of *Casuarina obesa* on the flats subject to inundation. On drier sites, the vegetation reflects the adjacent vegetation complexes of Bassendean and Coonambidgee
- Swan: fringing woodland of *Eucalyptus rudis* and *Melaleuca raphiophylla* with localised occurrence of low open forest of *Casuarina obesa* and *Melaleuca cuticularis*
- Guildford: a mixture of open forest of *Corymbia calophylla*, *Eucalyptus wandoo*, *E. marginata* and woodland of *E. wandoo* (with rare occurrences of *E. lane-polei*). Minor components include *E. rudis* and *Melaleuca raphiophylla*.



**Figure 4: Regional vegetation mapping**

Scale 1:11,000 at A4



**Legend**

Survey area (141.8 ha)

Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas  
 Date: 1/07/2016

Author: JCrute

Source: Aerial image: ESRI, approx. 2012. Survey area: Client 03/2016. Vegetation: System6, Heddl et al. DEC 2014.



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## 4. Methods

### 4.1 Terrestrial flora and vegetation

#### 4.1.1 Desktop assessment

A desktop assessment was conducted using Florabase, Parks and Wildlife, and Department of the Environment (DotE) databases to identify the possible occurrence of TECs, PECs and Threatened and Priority flora potentially occurring within the survey area. Reports that document regional flora, vegetation and fauna within the surrounds of the survey area were also reviewed prior to the field assessment.

#### 4.1.2 Field assessment

The field survey was conducted according to standards set out in Guidance Statement 51 (EPA 2004a). The assessment of flora and vegetation within the survey area was undertaken by an ecologist from Strategen on 22 March 2016. Table 1 identifies staff involved in the field surveys, their role and flora collection permit registration details. The survey area was traversed on foot to record changes in vegetation structure and type and two formal vegetation quadrats were surveyed in addition to opportunistic recording of species to identify vegetation types (Appendix 2).

Table 1: Personnel

Name	Role	Flora collection permit
Mr. D. Panickar Strategen (Senior Ecologist)	Planning, fieldwork, plant identification, data interpretation and report preparation	SL010993

Site selection for vegetation mapping was based on differences in structure and species composition of the communities present within the survey area. Vegetation mapping sites were determined from aerial photographs. The survey area was traversed on foot, allowing for opportunistic sites to be placed where a change in vegetation structure or composition was observed.

Flora and vegetation was described and sampled systematically at each quadrat. At each site the following floristic and environmental parameters were noted:

- GPS location
- topography
- soil type and colour
- outcropping rocks and their type
- percentage cover and average height of each vegetation stratum.

For each vascular plant species, the average height, number of plants and percent cover were recorded.

#### 4.1.3 Data analysis and vegetation mapping

Due to the degraded nature and uniform distribution of vegetation within the survey area, quadrat data were grouped into a species by site matrix to delineate individual vegetation types (VTs) present within the survey area. Aerial photography interpretation and field notes taken during the survey were used to develop VT mapping polygon boundaries over the survey area. These polygon boundaries were then digitised using Geographic Information System (GIS) software.

VT descriptions (though floristic in origin) have been adapted from the National Vegetation Information System (NVIS) Australian Vegetation Attribute Manual Version 6.0 (ESCAVI 2003), a system of describing structural vegetation units (based on dominant taxa). This model follows nationally-agreed guidelines to describe and represent vegetation types, so that comparable and consistent data is produced nation-wide. For the purposes of this report, a VT is considered equivalent to a NVIS sub-association as described in ESCAVI (2003).

Vegetation condition was recorded at all quadrats, and also opportunistically within the survey area during the field assessment. Vegetation condition was described using the vegetation condition scale for the South West Botanical Province (Keighery 1994). Vegetation condition polygon boundaries were developed using this information in conjunction with aerial photography interpretation, and were digitised as for vegetation type mapping polygon boundaries.

## 4.2 Fauna

### 4.2.1 Desktop assessment

A desktop survey was undertaken to identify the fauna assemblage within 5 km of the survey area through accessing a wide range of sources including state and federal government databases and results of regional studies. Databases accessed were:

- Naturemap (Parks and Wildlife 2007-)
- Western Australian Museum's (WAM) FaunaBase
- Atlas of Living Australia (ALA) Database
- BirdLife Australia's (BA) Atlas Database including the 'Great cocky count' black cockatoo roost data from 2010-2014 (unpublished)
- the EPBC Protected Matters Search Tool (PMST).

Information from the above sources was supplemented with species expected in the area based on general patterns of distribution. Sources of information used for these general patterns were:

- Frogs: Tyler et. al. (2000) and Anstis (2013)
- Reptiles: Storr *et al.* (1983); Storr et al. (1990); Storr *et al.* (1999); Storr et al. (2002) and Wilson and Swan (2013)
- Birds: Blakers et al. (1984); Johnstone and Storr (1998, 2004) and Barrett et al. (2003)
- Mammals: Menkhorst and Knight (2004); Churchill (2008); and Van Dyck and Strahan (2008).

This desktop survey also identified conservation significant terrestrial fauna present within 5 km of the survey area. These species of terrestrial fauna are conservation significant and protected under the EPBC Act and/or the WC Act.

#### *Previous Fauna Surveys*

The desktop assessment also included a review of a fauna survey conducted by Bamford and McHarry (2014) in Bullsbrook approximately 12 km north-north-west of the survey area. The report provides data on locally occurring terrestrial vertebrate assemblages recorded in similarly highly degraded vegetation soil associations (VSAs) similar to that within the survey area. In addition, the desktop assessment examined the Everard and Bamford (2015) report on a long-term fauna monitoring project across wetlands in the Lexia and Gngalara area, with the closest site approximately 5 km west-north-west of the survey area.

#### 4.2.2 Field assessment

The Level 1 field survey was conducted on 16 March 2016 in accordance with Guidance Statement 56 and the *EPBC Act referral guidelines for three threatened black cockatoo species* (EPA 2004b; DSEWPaC 2012). The survey area was inspected by vehicle, with detailed on-foot inspections. The field survey included several components:

- identification and assessment of VSAs
- targeted search for evidence of conservation significant fauna (particularly Quenda (Bandicoot), Rakali (Water-Rat) and black cockatoos)
- assessment of the survey area for habitat values, particularly for conservation significant black cockatoos (i.e. significant habitat for foraging, significant trees for breeding and roosting)
- opportunistic fauna observations.

##### *Vegetation Soil Associations*

Vegetation and Soil Associations (VSAs) in the survey area were assessed during the desktop review and as part of the field investigations. Within the survey area, all major or remnant VSAs were visited to develop an understanding of major fauna habitat types present and to assess the likelihood of conservation significant species being present in the area.

##### *Targeted fauna search for species of conservation significance*

Targeted searches for conservation significant species (EPBC Act and/or WC Act) including the Quenda (*Isodon obesulus*) (P4, WC Act), Rakali (*Hydromys chrysogaster*) (P4, WC Act), and black cockatoos, particularly Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (CBC) (Endangered, EPBC Act) and the Forest Red-tailed Black Cockatoo (*C. banksii naso*) (FRTBC) (Vulnerable, EPBC Act), were conducted during the field survey including:

- tracks and diggings
- foraging excavations
- feeding residue
- marks on feeding material.

##### *Black cockatoo habitat assessment*

The survey area was inspected for black cockatoos as specified by the *EPBC Act Referral guidelines for three threatened black cockatoo species* (DSEWPaC 2012). The inspection included:

- a vegetation assessment to identify vegetation communities and potential black cockatoo foraging species
- a significant tree assessment to identify any trees with the potential to be utilised by black cockatoos for breeding.

##### Vegetation and foraging assessment

The survey area was traversed on foot to record any flora species with the potential to provide a food source for black cockatoos. Following the assessment, vegetation units defined as part of the flora and vegetation survey were assigned a foraging value based on the presence and quantity of potential food species and any evidence of foraging by black cockatoos. The areas of remnant vegetation within the site were assessed for foraging value based on the method outlined in Appendix 3.

### Significant tree assessment

Significant trees are defined as trees of suitable species with a diameter at breast height (DBH) greater than 500 mm (> 300 mm for salmon gum and wandoo) (DSEWPaC 2012). Tree species which are considered to be potential breeding or roosting trees are outlined in Table 2. Trees with a DBH greater than 500 mm (or >300 mm for salmon gum and wandoo) are large enough to potentially contain hollows suitable for nesting black cockatoos, or have the potential to develop suitable hollows over the next 50 years. Trees of this size may also be large enough to provide roosting habitat (i.e. trees which provide a roost or rest area for the birds).

Table 2: Black cockatoo potential breeding tree species (DSEWPaC 2012)

Scientific name	Common name	Breeding	Roosting
<i>Corymbia calophylla</i>	Marri	Yes	Yes
<i>Corymbia maculata</i>	Spotted Gum		Yes
<i>Eucalyptus accedens</i>	Powderbark	Yes	
<i>Eucalyptus camaldulensis</i>	River Red Gum		Yes
<i>Eucalyptus citriodora</i>	Lemon Scented Gum		Yes
<i>Eucalyptus diversicolor</i>	Karri	Yes	
<i>Eucalyptus globulus</i>	Tasmania Blue Gum		Yes
<i>Eucalyptus gomphocephala</i>	Tuart	Yes	Yes
<i>Eucalyptus grandis</i>	Flooded Gum, Rose Gum		Yes
<i>Eucalyptus longicornis</i>	Red Morrell	Yes	
<i>Eucalyptus loxophleba</i>	York Gum	Yes	
<i>Eucalyptus marginata</i>	Jarrah	Yes	Yes
<i>Eucalyptus megacarpa</i>	Bullich	Yes	Yes
<i>Eucalyptus occidentalis</i>	Swamp Yate	Yes	
<i>Eucalyptus patens</i>	Blackbutt	Yes	Yes
<i>Eucalyptus robusta</i>	Swamp Mahogany		Yes
<i>Eucalyptus rudis</i>	Flooded Gum	Yes	Yes
<i>Eucalyptus salmonophloia</i>	Salmon Gum	Yes	
<i>Eucalyptus salubris</i>	Gimlet	Yes	
<i>Eucalyptus wandoo</i>	Wandoo	Yes	Yes
<i>Pinus pinaster</i>	Pinaster, Maritime Pine		Yes
<i>Pinus radiata</i>	Monterey, Radiata Pine		Yes

The following data were recorded from each potential breeding tree in the survey area:

- tree species
- GPS waypoint location
- DBH
- tree status (alive or dead)
- tree categories in terms of Black cockatoo nest potential (Table 3).

Tree categories developed by Bamford Consulting ecologists (BCE) (Bamford M [Bamford Consulting Ecologists] 2016, pers. comm. 5 April 2016) are used with the understanding that:

- hollows are often obscured and/or not visible from ground-level
- hollows that appear suitable from ground-level are not after closer inspection (Table 3).

Table 3: Tree categories utilised for the fauna field survey (BCE 2016)

Tree category	Details
1	Tree has a black cockatoo at nest
2	Tree has what appears to be a suitable nest hollow, with chew marks around the entrance
3	Tree has what appears to be a suitable nest hollow, but without chew marks around the entrance, or potentially suitable hollow present (as suggested by structure of tree, such as large, vertical trunk broken off at a height of >10m)
4	Tree with or likely to have hollows of sufficient size but not to have hollows of the angle preferred by black cockatoos
5	Tree that meets DBH criterion but lacks large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown

### *Opportunistic observations*

At all times, observations of fauna were noted when they contributed to the accumulation of information on the fauna of the survey area. These included casual observations as birds or reptiles seen while walking through the survey area.

#### 4.2.3 Data analysis and interpretation

Species lists generated from the review of sources of information are generous as they include records drawn from a large region and possibly from environments not represented in the survey area. Therefore, some species that were returned by one or more of the data searches have been excluded as it was highly unlikely that these species would be present based on their ecology and/or preferred habitat. In general, however, majority of species returned by the desktop review process were considered to be potentially present in the survey area whether or not they were recorded during field investigations. This is because fauna are highly mobile, often seasonal and frequently cryptic. This is particularly important for significant species that are often rare and hard to find.

Interpretation of species lists generated through the desktop review included assigning an expected status within the survey area to species of conservation significance. This is particularly important for birds that may naturally be migratory or nomadic, and for some mammals that can also be mobile or irruptive. The status categories used are:

- Resident: species with a population permanently present in the survey area
- Regular migrant or visitor: species that occur within the survey area regularly in at least moderate numbers, such as part of annual cycle
- Irregular Visitor: species that occur within the survey area irregularly such as nomadic and irruptive species. The length of time between visitations could be decades but when the species is present, it uses the survey area in at least moderate numbers and for some time
- Vagrant: species that occur within the survey area unpredictably, in small numbers and/or for very brief periods. Therefore, the survey area is unlikely to be of importance for the species
- Locally extinct: species that has not been recently recorded in the local area and therefore is almost certainly no longer present in the survey area.

#### 4.3 Biological assessment limitations and constraints

Table 4 displays the evaluation of the flora, vegetation and fauna assessment against a range of potential limitations that may have an effect on that assessment. Based on this evaluation, the assessment has not been subject to constraints that would affect the thoroughness of the assessment and the conclusions reached.

Table 4: Biological assessment potential limitations and constraints

Potential limitation	Impact on assessment	Comment
Sources of information and availability of contextual information (i.e. pre-existing background versus new material).	<b>Not a constraint.</b>	The survey has been undertaken in the Drummond Botanical Subdistrict of the Swan Coastal Plain subregion which has been well studied and documented with ample literature available (Beard 1990).
Scope (i.e. what life forms, etc., were sampled).	<b>Not a constraint.</b>	Due to the degraded nature and uniform distribution of vegetation within the survey area, most flora life forms and fauna are likely to have been sampled adequately during the time of the survey.
Proportion of flora/fauna collected and identified (based on sampling, timing and intensity).	<b>Not a constraint.</b>	The proportion of flora surveyed was adequate. The entire site was traversed and flora/fauna species were recorded systematically.
Completeness and further work which might be needed (i.e. was the relevant survey area fully surveyed).	<b>Not a constraint</b>	The information collected during the survey was sufficient to assess the vegetation and fauna that was present during the time of the survey.
Mapping reliability.	<b>Not a constraint.</b>	Aerial photography of a suitable scale was used to map the survey area and identify potential fauna habitat. Sites were chosen from these aerials to reflect changes in community structure. Opportunistic sites were also used if differences were observed during on ground reconnaissance. Vegetation types were assigned to each site based on topography, soil type and presence/absence and percent foliage cover of vegetation.
Timing, weather, season, cycle.	<b>Not a constraint.</b>	Flora and vegetation surveys are normally conducted following winter rainfall in the South-West Province, ideally during spring (EPA 2004a). This is also the most important survey time for fauna surveys (EPA 2004b). The field assessment was conducted in March (i.e. Autumn) in fine weather conditions and despite the fact the survey was not conducted in spring, these factors are not deemed to be constraints due to the overall degraded nature, high weed density and low native flora species diversity within the survey area.
Disturbances (fire flood, accidental human intervention, etc.).	<b>Not a constraint.</b>	The survey area and regional surrounds have been subject to disturbance over a significant period of time. Given the wide range of this disturbance, this is not considered to be a limitation within the survey area.
Intensity (in retrospect, was the intensity adequate).	<b>Not a constraint.</b>	The entire site was traversed on foot and all observed fauna and differences in vegetation structure and fauna habitat were recorded appropriately.
Resources (i.e. were there adequate resources to complete the survey to the required standard).	<b>Not a constraint.</b>	The available resources were adequate to complete the survey. Sources include a previous fauna surveys in the Bullsbrook area (Bamford and McHarry 2014) and databases (BA, Parks and Wildlife, EPBC, BCE database).
Access problems (i.e. ability to access survey area).	<b>Not a constraint.</b>	Existing tracks enabled adequate access to survey the vegetation and fauna within the survey area. Where access was not available by car, the area was easily traversed by foot.
Experience levels (e.g. degree of expertise in species identification to taxon level).	<b>Not a constraint.</b>	The survey personnel has the appropriate training in sampling and identifying the flora and fauna of the region as listed below: <ul style="list-style-type: none"> <li>• D Panickar: 6 years experience in the region</li> <li>• Dr. M Bamford: 29 years experience in the region.</li> <li>• R Brown: &gt;5 years experience in the region.</li> </ul>

## 5. Results

### 5.1 Terrestrial flora and vegetation

#### 5.1.1 Desktop assessment results

A total of 733 native vascular plant taxa from 86 plant families have the potential to occur within a 3 km radius of the survey area (Parks and Wildlife 2007-; DotE 2015c). The highest number of taxa were within the Proteaceae (87 taxa), Fabaceae (74 taxa), and Asteraceae (64 taxa) families (Appendix 3, Appendix 4).

#### *Threatened and Priority flora*

Table 5 shows the Threatened and Priority flora (EPBC Act, WC Act) potentially occurring within the survey area. The desktop assessment identified 14 Threatened flora species listed under both the EPBC Act and WC Act and 26 Priority flora species possibly occurring within the survey area.

Table 5: Threatened and Priority flora potentially occurring within the survey area

Species	Conservation status		Description	Potential to occur
	EPBC Act	WC Act		
<i>Darwinia foetida</i>	<b>Threatened</b> – Critically Endangered	Threatened	An erect, or spreading, shrub to 70 cm tall, often using other shrubs for support. Young branches are slender, green-brown with prominent, decurrent leaf bases, becoming grey and woody (Keighery 2009). This species has green flowers and the flowering period is from October to November (Western Australian Herbarium 2006). Habitat for this species occurs in grey-white sand on swampy, seasonally wet sites. Plants are found alongside sumplands, where water collects (Western Australian Herbarium 1998-, DotE 2015d).	<b>Possible</b> – Preferred soil type/habitat occurs within the survey area.
<i>Caladenia huegelii</i>	<b>Threatened</b> – Endangered	Threatened	A slender orchid from 30 to 50 cm tall. One or two striking flowers characterised by a greenish-cream lower petal with a maroon tip. Other petals are cream with red or pink suffusions. Habitat for this species occurs within well-drained, deep sandy soils in low mixed Banksia, Allocasuarina and Jarrah woodlands (Western Australian Herbarium 1998-, DotE 2015d).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Andersonia gracilis</i>	<b>Threatened</b> – Endangered	Threatened	A slender, erect or open straggly shrub, 10 to 100 cm high. Flowers are white to pink to purple from September to November. Habitat for this species occurs in white/grey sand, sandy clay, gravelly loam within winter-wet areas and near swamps (Western Australian Herbarium 1998-).	<b>Possible</b> – Preferred soil type/habitat occurs within the survey area.
<i>Diuris purdiei</i>	<b>Threatened</b> – Endangered	Threatened	A slender orchid to 45 cm tall. Unusually flattened flowers, marked with brown blotches on their under surface. Habitat for this species occurs in areas subject to winter inundation within dense heath with scattered Myrtaceae trees (DotE 2015d).	<b>Possible</b> – Preferred soil type/habitat occurs within the survey area.
<i>Drakaea elastica</i>	<b>Threatened</b> – Endangered	Threatened	A slender orchid to 30 cm tall with a prostrate, round to heart shaped leaf. Singular, bright green, glossy flower. Habitat for this species is within bare patches of white sand over dark sandy loams on damp areas (DotE 2015d).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Eucalyptus balanites</i>	<b>Threatened</b> – Endangered	Threatened	A mallee up to 500 cm tall with rough, flaky bark. Flowers are white, occurring from October to December or January to February. Habitat for this species occurs in sandy soils with lateritic gravel (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Grevillea curviloba</i> subsp. <i>incurva</i>	<b>Threatened</b> – Endangered	Threatened	This species grows as a vigorous, sprawling shrub to 2.5 metres high and wide, with greyish-green leaves. The leaves are 1.8 to 5.2 cm long with 3 to 5 strongly incurved, weakly pungent, narrowly-linear lobes, 7 to 20 mm long. Flowering occurs from September to October. This species is confined to an area between Muchea and Badgingarra and grows in open heath in winter-wet areas on sand over limestone, or over ironstone at sites with a high water table. It is associated with the 'shrublands and woodlands on Perth to Gingin Ironstone' ('Northern Ironstone') and the 'Shrublands and Woodlands on Muchea Limestone' communities. These are both threatened ecological communities (DotE 2015d).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Grevillea curviloba</i> subsp. <i>incurva</i>	<b>Threatened</b> – Endangered	Threatened	A prostrate to erect shrub, 10 to 250 cm tall. Flowers are white-cream, occurring from August to September. Habitat for this species occurs in sand or sandy loam within winter-wet heath (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Lepidosperma rostratum</i>	<b>Threatened</b> – Endangered	Threatened	A rhizomatous, tufted perennial, grass-like or herb (sedge), 50 cm tall. Flowers are brown and flowering occurs from May to June. Habitat for this species occurs in peaty sand or clay and within seasonally wet swamps (Western Australian Herbarium 1998-, DotE 2015d).	<b>Possible</b> – Preferred soil type/habitat occurs within the survey area.
<i>Thelymitra dedmaniarum</i>	<b>Threatened</b> – Endangered	Threatened	A terrestrial orchid, herb, growing up to 80 cm tall. Flowers are yellow and have a strong cinnamon odour, occurring from November to December or January. This species inhabits open wandoo woodland on red-brown sandy loam, associated with dolerite and granite outcropping (Western Australian Herbarium 1998-, DotE 2015d).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.

Species	Conservation status		Description	Potential to occur
	EPBC Act	WC Act		
<i>Thelymitra stellata</i>	<b>Threatened – Endangered</b>	Threatened	A terrestrial orchid growing 15 to 50 cm tall with multiple (up to six) golden-brown flowers with yellow or orange sepals and petals on a single, robust stem. The column hood is deeply fringed on both sides and usually bright orange in colour. The central portion is woolly with dense papillate glands. Flowering occurs from October to November. A single, broad lily-like leaf, up to 9 cm long and 4 cm wide clasps the stem at the base. Habitat for this species is within sand, gravel, and lateritic loam on ridges, slopes, flats, riverbanks and breakaways (Western Australian Herbarium 1998-, DotE 2015d).	<b>Possible</b> – Preferred soil type/habitat occurs within the survey area.
<i>Trithuria occidentalis</i>	<b>Threatened – Endangered</b>	Threatened	Tufted, dioecious subaquatic annual herb, becoming red-tinted. Leaves are linear, flattened, acute, to 2.5 cm long and 1 mm wide; midveins prominent. Male plant with numerous capitula on erect terete scapes up to 3 cm long; two bracts, narrowly lanceolate, closely sheathing, 7-8 mm long (DotE 2015d). Limited information is available on the distribution and habitat of this species.	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Anigozanthos viridis</i> subsp. <i>terraspectans</i>	<b>Threatened – Vulnerable</b>	Vulnerable	A small rhizomatous herb with narrow leaves 5–20 cm long and 0.1–0.2 mm wide, that are almost semi-circular in cross-section. The flowering stem is 10–15 cm tall and is held at a 45o to 80o angle, with the curved, paw-like flowers opening away from the stalk. This species occurs in winter-wet depressions where it grows on grey sandy clay loam, or grey sand, in low post-fire regenerating heath. It is associated with species such as Slender-leaved Banksia ( <i>Banksia leptophylla</i> ), melaleucas, Compact Featherflower ( <i>Verticordia densiflora</i> ), coneflowers ( <i>Conostylis</i> spp.) and sedges (DotE 2015d).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Eleocharis keigheryi</i>	<b>Threatened – Vulnerable</b>	Vulnerable	A rhizomatous, tufted/clumped perennial herb, reaching a maximum diameter of 40 cm. It has erect, smooth, green stems that are 20–40 cm tall and hollow, supporting cross bars that are 2 mm in diameter. This species grows in small clumps in a substrate of clay or sandy loam. This species is emergent in freshwater creeks, and transient waterbodies such as drainage lines and claypans in water to approximately 15 cm deep. Fringing woodland species and associated species include Swamp Sheoak ( <i>Casuarina obesa</i> ), Flooded Gum ( <i>Eucalyptus rudis</i> ), Red Robin Bush ( <i>Melaleuca lateritia</i> ), Swamp Paperbark ( <i>M. raphiophylla</i> ), Common Spike-sedge ( <i>Eleocharis acuta</i> ), <i>Aponogeton hexatepalus</i> , Veined Swamp Wallaby Grass ( <i>Amphibromus nervosus</i> ) and herbs such as <i>Wurmbea</i> , <i>Tribonanthes</i> and <i>Leptocarpus</i> spp. (Western Australian Herbarium 1998-, DotE 2015d).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Grevillea bipinnatifida</i> subsp. <i>pagna</i>	Not listed	Priority 1	A prostrate, lignotuberous shrub, 0.2-0.7 m high. Flowers are red and orange and yellow, occurring in August or October to November. This species occurs on grey sandy clay and loam or ironstone in seasonal wetlands, swamps or roadsides. Preferred habitat is amongst tall (sclerophyll) shrubland, or low (sclerophyll) shrubland; in sand, or clay, or occupying wetlands (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Rinzia crassifolia</i>	Not listed	Priority 1	A prostrate or spreading to erect shrub, to 0.2 m high and 0.4 m wide. Flowers are white/pink, occurring in August to September. Habitat for this species includes lateritic sand or clay on rises and outcrops (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Senecio gilbertii</i>	Not listed	Priority 1	An erect, slender perennial, herb, to 1.5 m high. Flowers are yellow, occurring in September to November. Habitat for this species includes peaty sand associated with swamps and on slopes (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Vittadinia circularis</i> var. <i>oldfieldii</i>	Not listed	Priority 1	An annual, herb, 0.1-0.3 m high. Flowers are white-purple-blue, occurring in August to September. This species occurs in alluvium soils and has been recorded in semi-arid and arid regions (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.

Species	Conservation status		Description	Potential to occur
	EPBC Act	WC Act		
<i>Acacia drummondii</i> subsp. <i>affinis</i>	Not listed	Priority 3	An erect shrub, 0.3-1 m high. Flowers are yellow, occurring in July to August. This species occurs on lateritic gravelly soils (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Carex tereticaulis</i>	Not listed	Priority 3	A monoecious, rhizomatous, tufted perennial, grass-like or herb (sedge), 0.7 m high. Flowers are brown, occurring in September to October. This species grows in black peaty sand (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Conospermum eatoniae</i>	Not listed	Priority 3	A spreading, intricately branched shrub, 0.3-1 m high. Flowers are blue, occurring in August to October. Habitat for this species includes deep white sand or sandy clay loam (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Conostylis bracteata</i>	Not listed	Priority 3	A rhizomatous, tufted or shortly proliferous perennial, grass-like or herb, 0.2-0.45 m high. Flowers are yellow, occurring in August to September. Habitat for this species includes sand or limestone on consolidated sand dunes (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Cyathochaeta teretifolia</i>	Not listed	Priority 3	A rhizomatous, clumped, robust perennial, grass-like or herb (sedge), to 2 m high and to 1.0 m wide. Flowers are brown. Habitat for this species includes grey sand or sandy clay within swamps or creek edges (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Haemodorum loratum</i>	Not listed	Priority 3	A bulbaceous, perennial, herb, 0.45-1.2(-2) m high. Flowers are black/brown-black/green, occurring in November. Habitat for this species includes grey or yellow sand or gravel (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Hibbertia argentea</i>	Not listed	Priority 3	An erect shrub, 0.3-1.2 m high. Flowers are yellow, occurring in September to December. Habitat for this species includes clayey sand or rocky loam amongst granite hills and rocky slopes (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Meionectes tenuifolia</i>	Not listed	Priority 3	No habitat information is available for this species.	<b>Possible</b> – habitat information unknown, therefore may occur in the survey area
<i>Persoonia rudis</i>	Not listed	Priority 3	An erect, often spreading shrub, 0.2-1 m high. Flowers are yellow, occurring from September to December or January. Habitat for this species includes white, grey or yellow sand, often over laterite (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Schoenus capillifolius</i>	Not listed	Priority 3	A semi-aquatic tufted annual, grass-like or herb (sedge), 0.05 m high. Flowers are green, occurring from October to November. Habitat for this species includes brown mud and claypans (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Schoenus</i> sp. <i>Waroona</i>	Not listed	Priority 3	A tufted annual, grass-like or herb (sedge), 0.02-0.06 m high. Flowers are brown-red-green, occurring from October to November. Habitat for this species includes clay or sandy clay in winter-wet flats (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Tetradlea pilifera</i>	Not listed	Priority 3	A spreading shrub, 0.1-0.3 m high. Flowers are purple, occurring from August to October. Habitat for this species includes gravelly soils (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Verticordia serrata</i> var. <i>linearis</i>	Not listed	Priority 3	A shrub, to 1 m high, which differs from the other varieties in the linear acuminate leaves 6-20 mm long; cilia to 1.2 mm long. Flowers occur from September to October. Habitat for this species includes white sand or gravel in open woodland (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Cyanicula ixioides</i> subsp. <i>ixioides</i>	Not listed	Priority 4	A tuberous, perennial, herb, 0.05-0.15 m high. Flowers are yellow, occurring from August to October. Habitat for this species includes laterite or gravel (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.

Species	Conservation status		Description	Potential to occur
	EPBC Act	WC Act		
<i>Daviesia oxylebium</i>	Not listed	Priority 4	A glaucous shrub, 0.5-1 m high. Flowers are yellow and red and pink, occurring from July to August. Habitat for this species includes sandy lateritic soils on undulating plains (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Hydrocotyle lemnoides</i>	Not listed	Priority 4	An aquatic, floating annual, herb. Flowers are purple, occurring from August to October. Habitat for this species includes swamps (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Jacksonia sericea</i>	Not listed	Priority 4	A low spreading shrub, to 0.6 m high. Flowers are orange, usually occurring in December or January to February. Habitat for this species includes calcareous and sandy soils (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Leucopogon lasiophyllus</i>	Not listed	Priority 4	A shrub, 0.3-1 m high. Flowers are white, occurring from August to October. Habitat for this species includes sandy loam over quartzite or sand over pink sandstone on stony soils and hillsides (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Persoonia sulcata</i>	Not listed	Priority 4	An erect, spreading to decumbent shrub, 0.2-1 m high. Flowers are yellow, occurring from September to November. Habitat for this species includes lateritic or granitic soils (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Schoenus natans</i>	Not listed	Priority 4	An aquatic annual, grass-like or herb (sedge), 0.3 m high. Flowers are brown, occurring in October. Habitat for this species includes winter-wet depressions (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.
<i>Stylidium longitubum</i>	Not listed	Priority 4	An erect annual (ephemeral), herb, 0.05-0.12 m high. Flowers are pink, occurring from October to December. Habitat for this species includes sandy clay and clay in seasonal wetlands (Western Australian Herbarium 1998-).	<b>Unlikely</b> – Preferred soil type/habitat does not occur within the survey area.

### ***Threatened and Priority Ecological Communities***

Database searches identified three TECs as having the potential to occur within proximity to the survey area (DotE 2015c):

- Claypans of the Swan Coastal Plain - Critically Endangered
- *Corymbia calophylla* – *Xanthorrhoea preissii* woodlands and shrublands of the Swan Coastal Plain - Endangered
- Shrublands and Woodlands on Muchea Limestone of the Swan Coastal Plain – Endangered.

#### **5.1.2 Field survey results**

##### ***Native flora***

A total of seven native vascular plant taxa from five plant genera and two plant families were recorded from quadrats within the survey area. Native taxa were recorded within the Myrtaceae (five taxa) and Fabaceae (two taxa) families (Appendix 5). The relatively low number of plant genera recorded reflects the highly disturbed nature of the site.

##### ***Threatened and Priority flora***

No Threatened flora species listed under section 178 of the EPBC Act, pursuant to Schedule 1 of the WC Act or listed by Parks and Wildlife (2014c) were recorded within the survey area. Additionally, no Priority flora species as listed by Western Australian Herbarium (1998-) were recorded within the survey area.

##### ***Introduced (exotic) taxa***

A total of eleven introduced (exotic) taxa were recorded within the survey area (Appendix 5). The field survey recorded a population of 26 to 50 plants of *\*Gomphocarpus fruticosus*, which is a Category 3 Declared Plant weed species in Western Australia pursuant to Section 22 of the BAM Act according to the Western Australian Department of Agriculture and Food (DAFWA 2015) (Figure 5).

#### **5.1.3 Vegetation types**

Three vegetation types (VTs) were defined and mapped within the survey area (Figure 6) and are summarised in Table 6. The total area mapped within the survey area was 141.8 ha which includes cleared areas.

The dominant native VT within the survey area was VT 2 (10.7 ha) which can be broadly described as *Eucalyptus rudis* and *Melaleuca raphiophylla* open woodland over exotic herbs and grasses on clay soils.

VT 3 comprised historically cleared areas which are experiencing regeneration of native and exotic taxa. The majority of regeneration is comprised of the exotic *Watsonia* species, however approximately 5% of the area (0.3 ha) was comprised of native species (*Viminaria juncea* and *Hypocalymma angustifolium*). This area in addition to the 7.9 ha of native vegetation in VT 1 (comprised of native tree species) and 10.7 ha of native vegetation in VT 2 result in 18.9 ha of native vegetation contained within the survey area.

Table 6: Vegetation types

Vegetation Type	Description	Area (ha)	Percentage of Survey area
1	Cleared paddocks with scattered <i>Corymbia calophylla</i> , <i>Eucalyptus wandoo</i> and <i>Eucalyptus rudis</i> trees on clay soils.	125.9	88.8
2	<i>Eucalyptus rudis</i> and <i>Melaleuca raphiophylla</i> open woodland over exotic herbs and grasses on clay soils.	10.7	7.5
3	Cleared paddocks with <i>Viminaria juncea</i> , <i>Hypocalymma angustifolium</i> and * <i>Watsonia meriana</i> regrowth on clay soils.	5.2	3.7
<b>Total</b>		<b>141.8</b>	<b>100</b>

#### 5.1.4 Vegetation condition

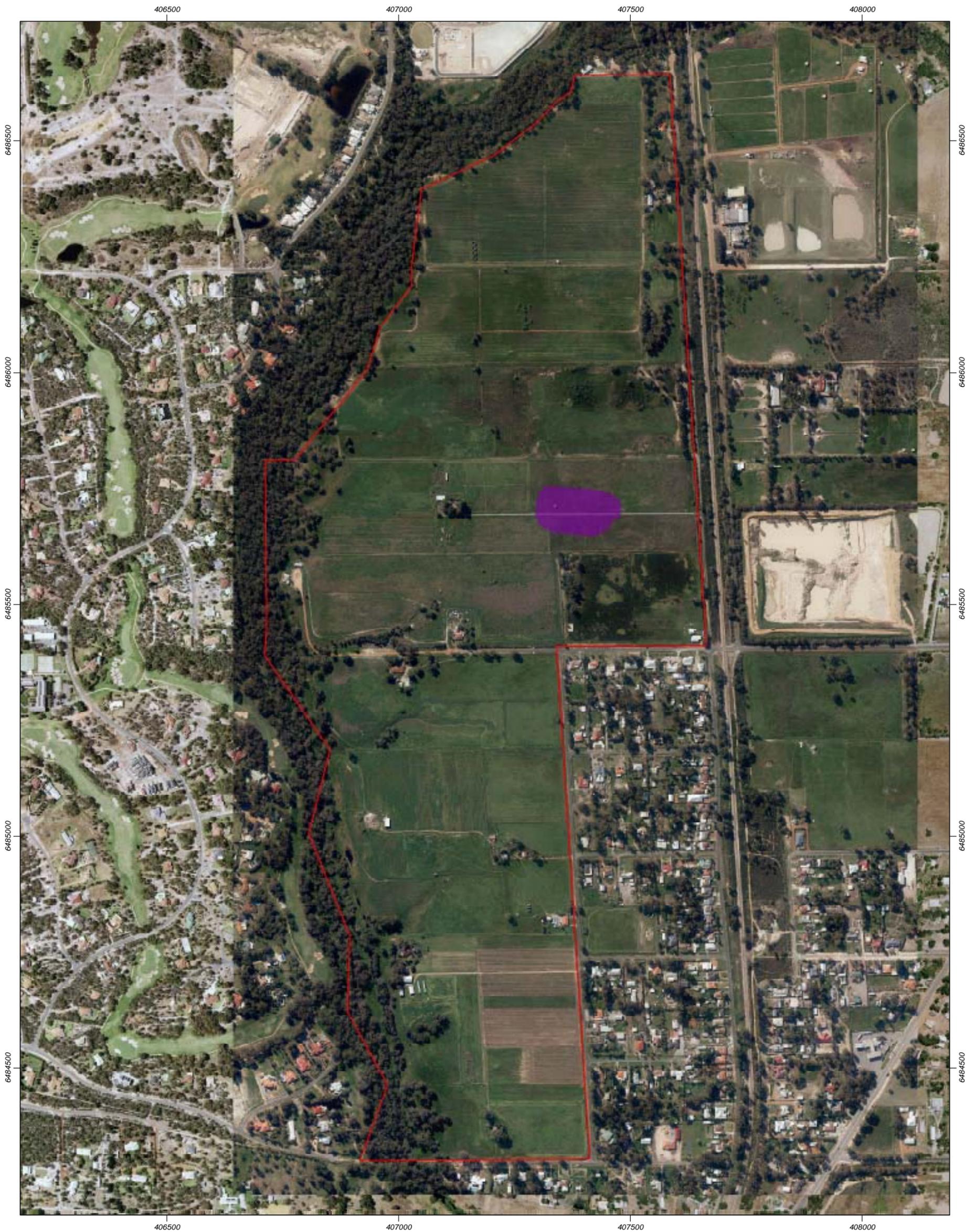
The survey area shows signs of having been degraded for a long period of time. The proximity of public roads, clearing and infestations of weeds has had an impact upon the vegetation condition within the area. As such, vegetation condition within the survey was observed to be in Good to Completely Degraded condition (Keighery 1994; Figure 7; Table 7).

Table 7: Vegetation condition scale (Keighery 1994)

Condition rating	Description	Area (ha)	Percentage of Survey area
Good (4)	Vegetation structure significantly altered by 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, grazing.	10.7	7.5
Completely Degraded (6)	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.	131.1	92.5
<b>Total</b>		<b>141.8</b>	<b>100.00</b>

#### 5.1.5 Threatened and Priority Ecological Communities

No TECs or PECs identified in the desktop survey are considered to occur within the survey area due to low native flora species diversity, high weed density and the overall disturbed nature of the area (Parks and Wildlife 2015a).



**Figure 5: Declared weeds**

Scale 1:8,000 at A3



Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas

Date: 12/04/2016  
 Author: JCrute

Source: Aerial image: Landgate, flown 09/2014;  
 Survey area: Client 03/2016; Mainroads 2013.

**Legend**

- Survey area (141.8 ha)
- \**Gomphocarpus fruticosus* – Category 3 Declared Plant species (s22 BAM Act)



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**Figure 6: Vegetation types**

Scale 1:8,000 at A3



Coordinate System: GDA 1994 MGA Zone 50

Note that positional errors may occur in some areas

Date: 12/04/2016

Author: JCrute

Source: Aerial image: Landgate, flown 09/2014;  
Survey area: Client 03/2016; Mainroads 2013.

Path: Q:\Consult\2015\SPG\SPG15286\ArcMap\_documents\R003\SPG15286\_01\_R003\_RevA\_F006\_A3.mxd

**Legend**

Survey area (141.8 ha)

**Vegetation type**

VT1: Cleared paddocks with scattered *Corymbia calophylla*, *Eucalyptus wandoo* and *Eucalyptus rudis* trees (125.9 ha)

VT2: *Eucalyptus rudis* and *Melaleuca raphiophylla* woodland over predominantly exotic herbs and grasses (10.7 ha)

VT3: Cleared paddocks with *Viminaria juncea*, *Hypocalymma angustifolium*, \**Watsonia meriana* var. *bulbillifera* (5.2 ha)

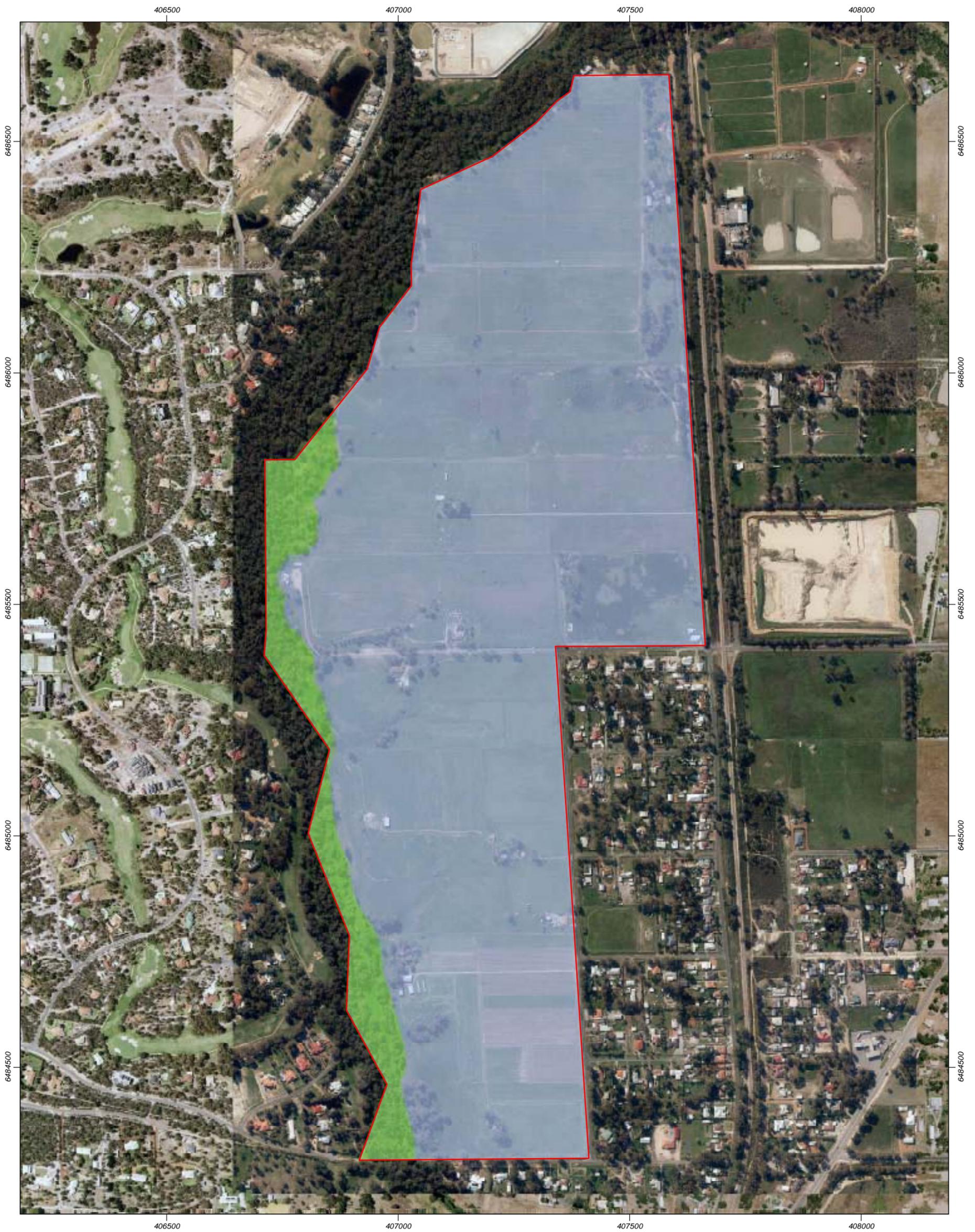
**Scattered trees within VT1**

Native trees (7.9 ha)

Non-native trees (1.5 ha)



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**Figure 7: Vegetation condition**

Scale 1:8,000 at A3

Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas  
 Date: 12/04/2016  
 Author: JCrute

**Legend**

Survey area (141.8 ha)

**Vegetation condition**

Good (10.7 ha)

Completely Degraded (131.1 ha)



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## 5.2 Fauna

### 5.2.1 Desktop assessment results

The desktop study identified 181 vertebrate fauna species as potentially occurring in the survey area; three fish, 11 frogs, 30 reptiles, 118 birds, 11 native and eight introduced mammals (Appendix 4).

Many fauna species listed in the databases were later identified as being highly unlikely to occur within the survey area, such as locally extinct species and migratory shorebirds (Appendix 7). The desktop assessment results also included many species that may occur occasionally in the survey area such as birds that rarely fly overhead.

### 5.2.2 Field assessment results

A total of 42 vertebrate species was recorded during the field survey (Appendix 6). These were predominantly (29) species of locally abundant birds that persist in highly disturbed semi-rural settings. Generally the lack of low strata vegetation within the survey area limits the reptile species assemblage expected to occur. Although several reptiles known to persist in highly degraded environments were recorded such as the Snake-eyed Skink (*Cryptoblepharus buchanani*) and Bobtail (*Tiliqua rugosa*). Other common local species associated with wetland habitat were recorded within Ellen Brook such as the Swamp Skink (*Acritoscincus trilineatus*) and Tiger Snake (*Notechis scutatus*). Where the survey area displays sandy soils with veldt grass (*Ehrharta calycina*) along edge of alluvial plain some burrowing skinks species such as *Lerista elegans* and *Hemiergis quadrilineata* may be present however these are not species of conservation significance.

The survey area is highly degraded and largely cleared, therefore is not expected to support conservation significant fauna. The overall fauna assemblage within the survey area is deficient, and reflects the impact of historical habitat loss and introduced species in the Upper Swan area and wider Swan Coastal subregion. Key features of the fauna assemblage expected in the survey area are presented in Table 8.

Table 8: Key features of fauna assemblage expected within the survey area

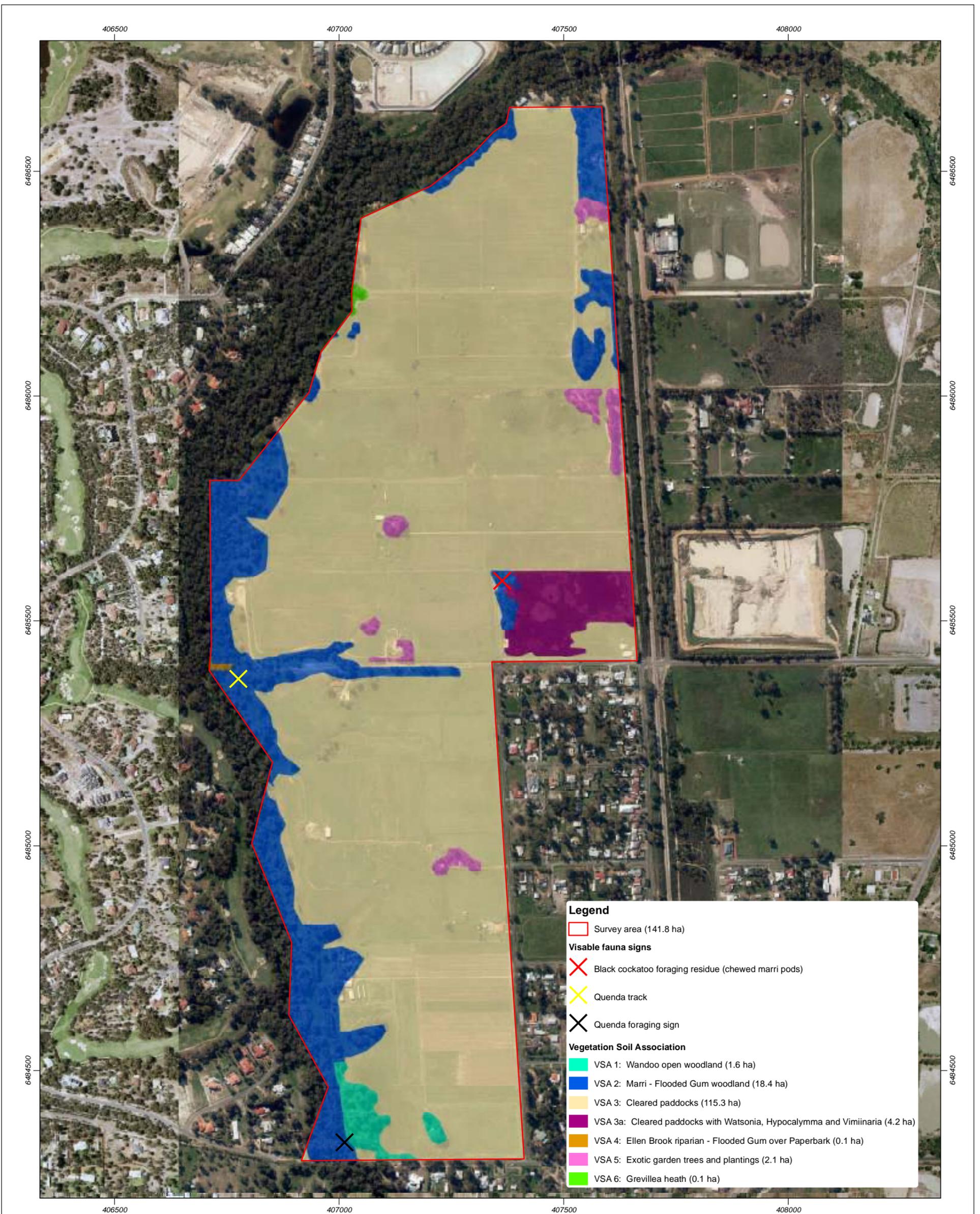
Habitat feature	Description
Uniqueness	The assemblage is likely to be typical of local remnant woodland in the eastern portion of the Swan Coastal Plain.
Completeness	The assemblage of species from the survey area is missing a significant number of native mammal reptile and bird species. Some bird species may make limited use of the survey area because the vast majority is open farmland with low ecological value.
Locality	Many of the species from all fauna classes listed (fish, frogs, reptiles, birds and mammals) are associated with the riparian habitat of Ellenbrook to the immediate west of the survey area and just outside the development area.
Richness	The assemblage is likely to vary annually and seasonally. The degraded condition of much of the survey area means some species may be absent or uncommon visitors. Overall, the survey area has low species richness compared with adjacent areas along Ellen Brook and intact native vegetation to the west and north.

### ***Vegetation Soil Associations***

Six key VSAs were identified across the survey area. They include:

1. *Wandoo open woodland over weeds on grey loam.* There is no native vegetation in the lower strata which is largely cleared farm land with exotic grasses and other pasture and weed species. This VSA is a remnant patch located in the south west corner of the survey area.
2. *Marri and Flooded Gum open woodland with little to no understorey over exotic grasses and other pasture weed.* This VSA includes remnant patches of woodland on sandy alluvial soil on the floodplain slope immediately adjacent to Ellen Brook and alluvial sandy clay soils on the floodplain and also to the eastern boundary of the survey area.
3. *Cleared Paddocks with weeds and exotic pasture species on grey and yellow clayey loam.* This VSA includes a patch of *Viminaria*, *Hypocalymma* and *Watsonia* north of Apple Road in the eastern portion of the survey area.
4. *Ellen Brook riparian woodland of Flooded Gum and Freshwater Paperbarks over assorted weeds such as Kikuyu and Couch Grass.* This VSA include seasonal pools within the creek system and during flooding this may include adjacent low-lying weedy flats alongside the creek. This VSA occurs just beyond the western and northern edges of the survey area.
5. *Exotic garden trees and other plantings.* This VSA includes non-native eucalypts and exotic trees such as Cape Lilac and Japanese Pepper. Small areas of this VSA are located around some farm buildings and fence lines.
6. *Grevillea heath over exotic grasses and other weeds on grey sandy-loam on the slope located above Ellen Brook.* This is a very small area and the vegetation is degraded, but it is likely representative of the understorey that originally occurred on the upper slopes of the alluvial plain.

The location and extent of VSAs are shown in Figure 8 and photographs of each presented in Appendix 8.



**Figure 8: VSAs and fauna results**

Scale 1:8,000 at A3



Coordinate System: GDA 1994 MGA Zone 50

Note that positional errors may occur in some areas

Date: 12/04/2016

Author: JCrute

Source: Concept plan: Client 02/2016.

Path: Q:\Consult\2015\SPG\SPG15286\ArcMap\_documents\R003\SPG15286\_01\_R003\_RevA\_F008\_A3.mxd



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### *Species of conservation significance*

Conservation significant vertebrate fauna expected to occur within the survey area are presented in Appendix 6 and include:

- three Threatened species: one Endangered species, two Vulnerable species (EPBC Act, WC Act)
- six Migratory species (EPBC Act, WC Act)
- four Priority 4 species (WC Act)
- 26 locally significant species<sup>1</sup>.

Conservation significant species listed include many that are expected to occur as vagrants or occasional visitors (e.g. *Apus pacificus*, *Ardea modesta*, *Ardea gazetta*)(Appendix 6), therefore the survey area does not provide significant habitat for these species.

Appendix 6 details species that may utilise the survey area more regularly or species associated with the remnant riparian habitat of Ellen Brook to the immediate west of the survey area. Approximately 115.3 ha (VSA 3) of suitable (cleared) habitat for the Rainbow Bee-eater (Marine Migratory under the EPBC Act and Migratory under the WC Act) occurs within the survey area thus this species is expected to occur. The Rainbow Bee-eater is not considered of conservation significance in the context of the EPBC Act to the as the Development is not related to the marine environment.

Ellen Brook is habitat for the Quenda (Priority 4, WC Act) and birds recognised as declining in the Perth region (locally significant), notably the Splendid Fairy-wren, White-cheeked Honey-eater, Common Bronzewing and Rufous Whistler (recorded) (Appendix 6). Foraging signs and footprints of the Quenda was observed during the survey. Conservation significant vertebrate taxa expected to occur within the Ellen Brook riparian habitat (VSAs 2 and 4: 18.5 ha) include Rakali (*Hydromys chrysogaster*) (Priority 4, WC Act) and the Southern Carpet Python (*Morelia spilota imbricata*) (locally significant); however these species were not observed during the field survey (Appendix 6). Additionally, the Freshwater Mussel, *Westralunio carteri*, an invertebrate species listed as Vulnerable (WC Act), was recorded along Ellen Brook. The Freshwater Mussel was not observed during the survey.

The Ellen Brook riparian corridor forms the most significant habitat suitable for the assemblage of native fauna. The cleared and degraded nature of the vegetation within the survey area maintains little to no understory vegetation limiting suitable habitat for native fauna.

Species that are extinct in the region and that may have been present historically on the basis of broad patterns of distribution, and species highly unlikely to be present based on their biology have not been included but are presented in Appendix 7.

### *Introduced / Feral Species*

The desktop study identified 17 introduced fauna species as potentially occurring in the survey area (Appendix 11). Evidence of the European Red Fox (skeletal remains) and Rabbit (scats) was observed within the survey area. Within the standing pools of Ellen Brook, Mosquito Fish (*Gambusia holbrooki*) were found to be abundant and one Goldfish (*Carassius auratus*) was observed.

<sup>1</sup> Locally significant species are those not listed under Acts or in publications, but considered of at least local significance because of their pattern of distribution (BCE 2016). This level of significance has no legislative or published recognition and is based on interpretation of distribution information, however may have links to preserving biodiversity at the genetic level (EPA 2002). If a population is isolated but a subset of a widespread (common) species, then it may not be recognised as threatened, but may have unique genetic characteristics. Conservation significance is applied to allow for the preservation of genetic richness at a population level, and not just at a species level. Species on the edge of their range, or that are sensitive to impacts such as habitat fragmentation, may also be classed as locally significant, as many colonies of waterbirds. The Western Australian Department of Environmental Protection, now Parks and Wildlife, used this type of interpretation to identify significant bird species in the Perth metropolitan area as part of the Perth Bushplan (DEP 2000).

## ***Black cockatoo habitat assessment***

### **Black cockatoo presence**

No black cockatoos were sighted within the survey area during the assessment on 16 March 2016; however signs of foraging by Forest Red-tailed Black Cockatoos (FRTBC) were evident by relatively recent and old chewed Marri fruit indicating more than one visit (Appendix 10). FRTBC and Carnaby's Black Cockatoos (CBC) are likely to occur within the survey area, however Baudin's Black Cockatoo (BBC) is not expected to occur in the vicinity of the survey area as this species is generally restricted to the Darling Range and/or the very eastern edge of the Swan Coastal Plain.

### **Black Cockatoo foraging habitat**

Each of the VSAs in the survey area was assessed and scored for black cockatoo foraging value based on the abundance of forage species present. The scoring system appears in Appendix 3 while Appendix 12 lists plant species used for foraging black cockatoos.

Black cockatoo foraging habitat value based on the VSAs/vegetation types and the foraging score is mapped in Figure 9. The foraging score indicates the foraging value of the survey area for all three black cockatoo species. The highest quality foraging habitat for black cockatoos was noted within VSA 2 which contained high densities of black cockatoo food species including *Corymbia calophylla* and *Eucalyptus rudis*. The bulk (121.7 ha) of the site is of negligible to low foraging value (score of 1) for FRTBC, CBC and BBC; these are paddocks where all three species will occasionally feed on the seeds of weed species. Approximately 18.9 ha (13.3% of the site) has a foraging value score of 2 or 3 (low to low-moderate foraging value), largely due to the presence of scattered Marri trees (foraging for CBC, FRTBC, BBC) as well as a few Cape Lilac (*Melia azedarach*) in gardens that are important foraging habitat for the FRTBC. The frequency with which black cockatoos visit the site for foraging will depend on the success of flowering and pollination, and consequently seed production and this will vary from year to year.

Foraging habitat for black cockatoos is generally defined as the availability of plant food sources within an area (Finn 2012). Food availability for black cockatoos is a function of the diversity, abundance, distribution, energetic and nutritional qualities, and seasonality (phenology) of the food sources within a particular area. Table 9 summarises the value of each VSA in terms of the quality of foraging habitat provided for black cockatoos.

Table 10 provides a methodology for defining foraging values.

Based on the results of the foraging assessment, the survey area is considered to contain:

- 14.67 ha of Low-moderate quality foraging habitat
- 4.24 ha of low quality foraging habitat
- 121.74 ha of Negligible-low quality foraging habitat
- 1.33 ha of zero quality foraging habitat for FRTBC, CBC and BBC (Figure 9).

Table 9: Vegetation Soil Association and black cockatoo foraging species within the survey area

VSA	Black cockatoo foraging species	Foraging quality	Area (ha)
1	<u>CBC</u> – <i>Eucalyptus wandoo</i> <u>BBC</u> – <i>Eucalyptus wandoo</i>	Low (CBC, BBC)	1.63
2	<u>CBC</u> – <i>Eucalyptus rudis</i> , <i>Corymbia calophylla</i> <u>FRTBC</u> – <i>Corymbia calophylla</i> <u>BBC</u> – <i>Corymbia calophylla</i>	Low-moderate (CBC, FRTBC, BBC)	18.37
3	<u>CBC</u> – <i>Corymbia calophylla</i> , weed species <u>FRTBC</u> – <i>Corymbia calophylla</i> , weed species <u>BBC</u> – <i>Corymbia calophylla</i> , weed species	Negligible-Low (CBC, FRTBC, BBC)	115.27
3a	<u>CBC</u> – weed species <u>FRTBC</u> – weed species <u>BBC</u> – weed species	Negligible-Low (CBC, FRTBC, BBC)	4.22
4	<u>CBC</u> – <i>Eucalyptus rudis</i>	Low-moderate (CBC)	0.08
5	<u>FRTBC</u> – * <i>Melia azedarach</i>	Low (FRTBC)	2.14
6	<u>CBC</u> – <i>Grevillea sp.</i>	Low-moderate (CBC)	0.14

Table 10: Definition of black cockatoo foraging habitat within the survey area

Foraging quality	Justification
Excellent	High density of species suitable for foraging by black cockatoos (i.e. foliage cover of suitable species >60%) and presence of food sources at several strata (i.e. canopy, midstorey and understorey).
Good	High density of species suitable for foraging by black cockatoos (i.e. foliage cover of suitable species >60%) but food sources only present at one or two strata (i.e. canopy and midstorey).
Moderate	Moderate foraging value density of species suitable for foraging by black cockatoos (i.e. foliage cover of suitable species 20-40%) and food sources only present at one or two strata (i.e. canopy and midstorey).
Poor	Low density of species suitable for foraging by black cockatoos (i.e. foliage cover of suitable species 10-20%) and presence of food sources at only one stratum (i.e. canopy).
Very poor	Very low density of species suitable for foraging by black cockatoos (i.e. foliage cover of suitable species <10%) and presence of food sources at only one stratum (i.e. canopy).
Nil	Cleared areas - no suitable vegetation present.

### Significant tree assessment

'Breeding habitat' for black cockatoos is defined in DSEWPac (2012) as trees of species known to support breeding (Table 2) within the range of the species which either have a suitable nest hollow or are of a suitable DBH to develop a nest hollow (> 300 mm for salmon gum and wandoo, and >500 mm for other species). These trees are known as significant trees.

Trees of suitable DBH may also be large enough to provide roosting habitat (i.e. trees which provide a roost or rest area for the birds). Significant trees which contain hollows that have an entrance diameter of more than 100 mm are suitable for use by black cockatoos (Whitford and Williams 2002). In general, hollows of sufficient size to support black cockatoos do not form until trees are at least 230 years old, and the majority of nests are found in 300-500 year old trees (Johnstone 2006). Artificial hollows (nesting boxes) specifically designed for use by threatened black cockatoos may also be suitable in some circumstances (DSEWPac 2012).

The site is located outside of the breeding range for BBC (Parks and Wildlife 2013); therefore the significant tree assessment applies only to FRTBC and CBC.

A total of 101 potentially significant trees (with DBH >500 mm or >300 mm in the case of *E. wandoo*) were recorded in the survey area (Figure 9, Appendix 13) including:

- 61 Flooded Gum (*E. rudis*)
- 20 Marri (*C. Calophylla*)
- 17 Wandoo (*E. wandoo*)
- 2 non-native eucalypts (*Eucalyptus* sp.).

Nine of these trees contained a hollow of sufficient size (>100 mm diameter) to be utilised by black cockatoos for breeding purposes, however four hollows were at a suitable angle for breeding/roosting. Appendix 10 provides an example of a Flooded Gum tree with a visible hollow that scored 3 in terms of containing a potentially suitable hollow. Breeding tree suitability depends on hollow characteristics and the quality and quantity of nearby foraging habitat available seasonally during breeding.

Table 11 provides a summary of the potentially significant tree recordings and relates each tree species to how it is utilised by black cockatoos. Table 12 provides a summary of each tree category assigned to potentially significant trees recorded during the survey.

Table 11: Summary of potentially significant trees recorded within the survey area

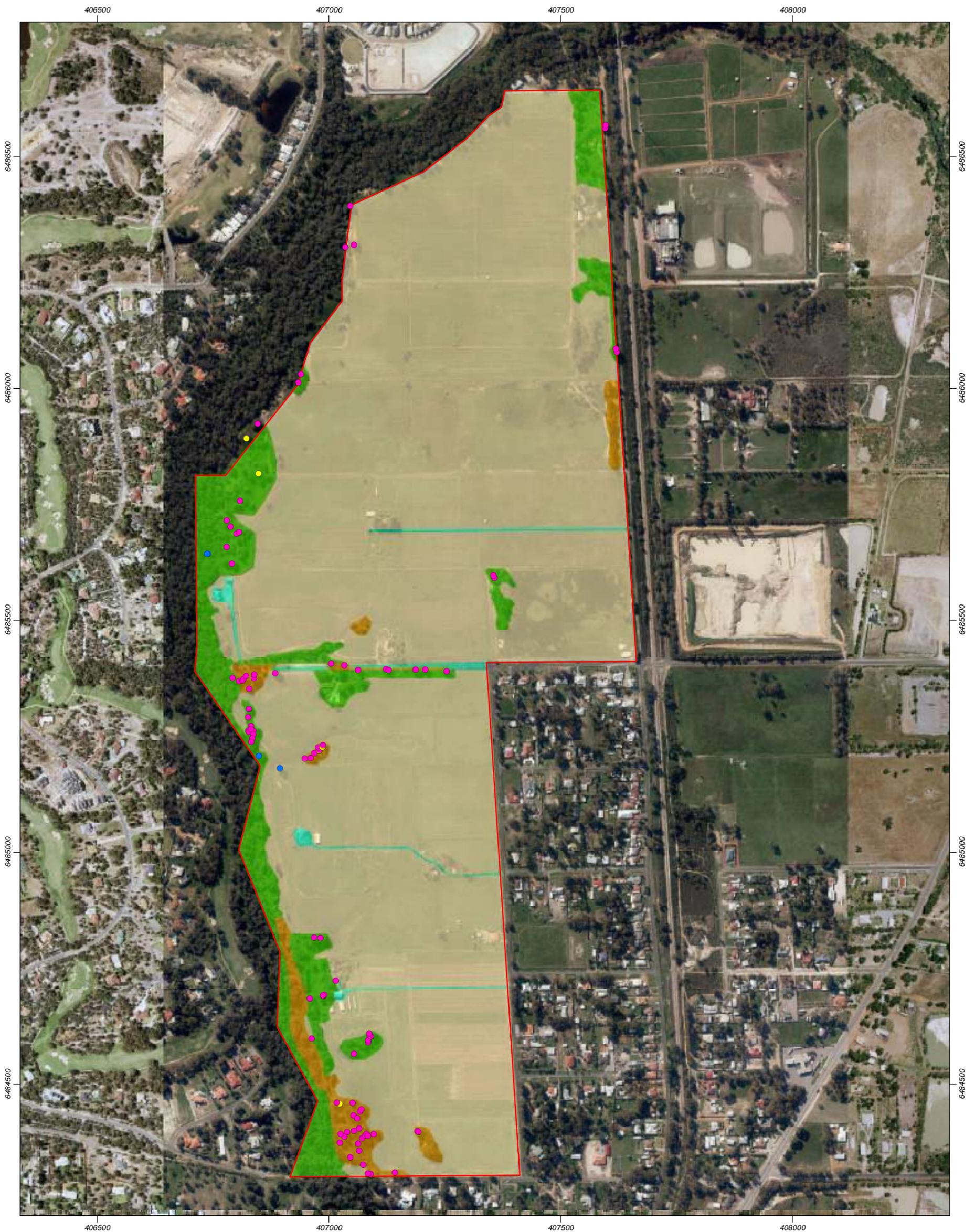
Species	Number recorded	Usage by black cockatoos		
		CBC	FRTBC	BBC
<i>Corymbia calophylla</i>	20	Roosting and breeding	Roosting and breeding	Breeding
<i>Eucalyptus wandoo</i>	18	Roosting and breeding	Breeding	Breeding
<i>Eucalyptus rudis</i>	61	Roosting and breeding	Nil	Nil
* <i>Eucalyptus</i> sp.	2	Potential roosting	Nil	Nil

Table 12: Tree categories assigned to potentially significant trees recorded within the survey area

Tree species	Number of trees	DBH (mm)	Tree category
<i>Eucalyptus rudis</i>	4	>500	3. Potential nest hollows of suitable size and inclination visible
<i>Eucalyptus rudis</i>	5	>500	4. Potential but marginally suitable (non-preferred) hollows visible
<i>Eucalyptus rudis</i>	52	>500	5. Trees with no hollows visible
<i>Corymbia calophylla</i>	20	>500	5. Trees with no hollows visible
<i>Eucalyptus wandoo</i>	18	>300	5. Trees with no hollows visible
* <i>Eucalyptus</i> sp.	2	>500	5. Trees with no hollows visible

**Black cockatoo roosting habitat**

Black cockatoos tend to have traditional roosting sites, often large trees close to water, and these have been documented in the Great Cocky Count (Finn et al. 2014). There are no known roost trees within the survey area, with the nearest known roosting site in The Vines approximately 1.3 km to the west as shown in Figure 10.



**Figure 9: Black cockatoo habitat**

Scale 1:8,000 at A3



Coordinate System: GDA 1994 MGA Zone 50

Note that positional errors may occur in some areas

Date: 12/04/2016

Author: JCrute

Source: Concept plan: Client 02/2016.

Path: Q:\Consult\2015\SPG\SPG15286\ArcMap\_documents\R003\SPG15286\_01\_R003\_RevA\_F009\_A3.mxd

**Legend**

Survey area (141.8 ha)

**Potential breeding trees (101 total): tree rating**

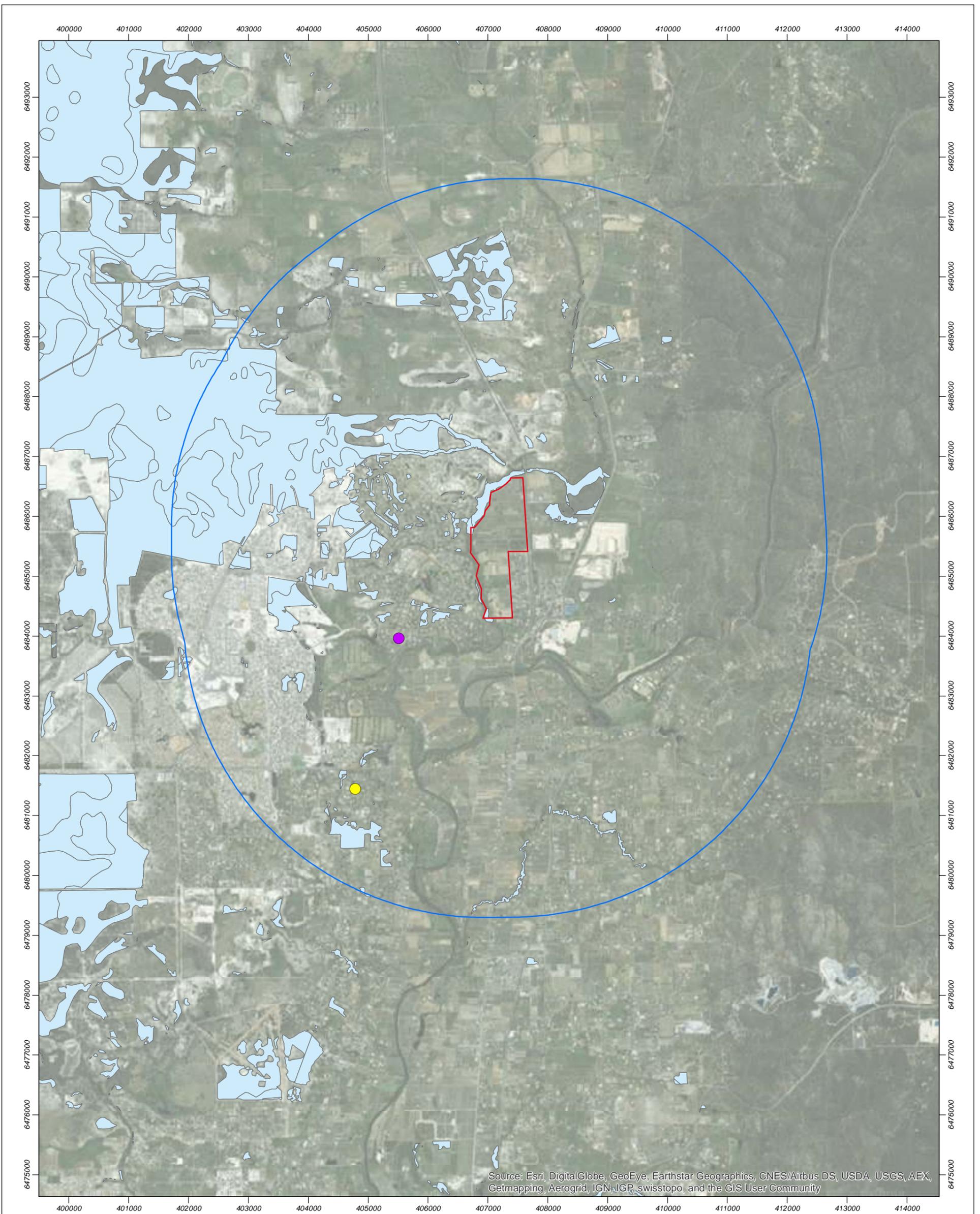
- 3 Tree with suitable hollow, but without chew marks around the entrance
- 4 Tree with hollow of suitable size, however not at the preferred angle
- 5 Tree that meets DBH criterion but lacks large hollows or broken branches

**Black cockatoo habitat value**

- 0: Zero foraging value (1.2 ha)
- 1: Negligible-low (121.7 ha)
- 2: Low foraging value (4.2 ha)
- 3: Low-moderate foraging value (14.7 ha)



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**Figure 10: Local black cockatoo potential foraging habitat and roosts**

Scale 1:60,000 at A3



Coordinate System: GDA 1994 MGA Zone 50

Note that positional errors may occur in some areas

Date: 12/04/2016

Author: JCrute

Source: Subject site: Client 02/2016

Path: Q:\Consult\2015\SPG\SPG15286\ArcMap\_documents\R003\SPG15286\_01\_R003\_RevA\_F010\_A3.mxd

**Legend**

- Survey area (141.8 ha)
- 5 km wide buffer
- Potential foraging habitat for black cockatoos
- 2011-14 roost site category**
- Confirmed roost
- Unconfirmed roost



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## 6. Discussion

### 6.1 Terrestrial flora and vegetation

A flora and vegetation assessment was conducted within the survey area in March 2016. The survey recorded approximately 18.9 ha of native vegetation, which comprised of two native VTs and scattered native vegetation within cleared paddocks (Figure 7). Transitions between VTs were generally well defined due to changes in land use and presence of cleared areas/roads. Approximately 89% of the survey area was mapped as Cleared paddocks with scattered *Corymbia calophylla*, *Eucalyptus wandoo* and *Eucalyptus rudis* trees on clay soils. Vegetation condition within the survey area was observed to range from Good to Completely Degraded condition (Keighery 1994).

A total of seven native vascular plant taxa from five plant genera and two plant families, as well as eleven exotic taxa were recorded. A population of 26 to 50 plants of \**Gomphocarpus fruticosus*, a Category 3 Declared Plant species pursuant to Section 22 of the BAM Act, was recorded within the survey area (DAFWA 2015). Under the BAM Act, land managers are required to manage populations of declared pests as outlined under the relevant category. The relatively low number of native plant species recorded reflects the disturbed nature of the survey area. No conservation significant flora species were recorded, and the survey results demonstrate that it is highly unlikely that any conservation significant flora species are present within the survey area.

### 6.2 Fauna

A fauna assessment was conducted within the survey area in March 2016. Approximately 181 native vertebrate fauna species have the potential to occur based on the habitat types present within the survey area and the desktop survey results. Forty-two vertebrate species were observed within the survey area, majority of which were locally abundant birds that persist in highly disturbed semi-rural settings. Ellen Brook on the western border of the survey area provides habitat for amphibians and fish as well as conservation significant Freshwater Mussel (Vulnerable, WC Act).

One Vulnerable (EPBC Act, WC Act) fauna (FRTBC) and one Priority 4 (WC Act) fauna (Quenda) were recorded within the survey area based on evidence of foraging observed during the field survey.

Approximately 14.7 ha of 'Low-moderate' foraging habitat for CBC, FRTBC and BBC, and 101 potentially significant trees for CBC, BBC and FRBC were recorded within the survey area (Appendix 13). Nine of these trees were observed to have hollows large enough to be utilised for breeding purposes; however, four of the trees had hollows located at an appropriate angle for this purpose. Approximately 115.3 ha of suitable (cleared) habitat for the Rainbow Bee-eater (Migratory, EPBC Act/WC Act) also occurs within the survey area thus this species is expected to occur.

Ellen Brook to the west of the survey area is habitat for the Freshwater Mussel (Vulnerable, WC Act) and Quenda (Priority 4, WC Act), as well as birds recognised as declining in the Perth region (locally significant), notably the Splendid Fairy-wren, White-cheeked Honey-eater, Common Bronzewing and Rufous Whistler (recorded). Conservation significant taxa expected to occur within the Ellen Brook riparian habitat (VSAs 2 and 4: 18.5 ha) include Rakali (*Hydromys chrysogaster*) (Priority 4, WC Act) and the Southern Carpet Python (*Morelia spilota imbricata*) (locally significant); however these species were not observed during the field survey. The proposed development does not intersect Ellen Brook, therefore is expected to have minimal, if any, impact on species utilising this habitat.

In summary, a large number of conservation significant species may be present in the Upper Swan region, but for the majority of these there is little if any suitable habitat other than Ellen Brook to the west of the survey area. Within the survey area, potentially suitable habitat (VSA 3: 115.3 ha) for Rainbow Bee-eater is located within cleared paddocks, whilst the remnant patches of woodland, particularly the eucalypt woodland (VSAs 1, 2, 4: 20.1 ha) may provide foraging habitat for FRTBC, CBC and BBC and was observed to provide habitat for the Splendid Fairy-wren and Rufous Whistler. Overall, the survey area is highly degraded and largely cleared, therefore is not expected to support conservation significant fauna. The fauna assemblage is relatively deficient when considering vegetation communities in good condition within a similar eastern Perth Swan Coastal setting, with many species likely to be visitors to the survey area rather than residents.

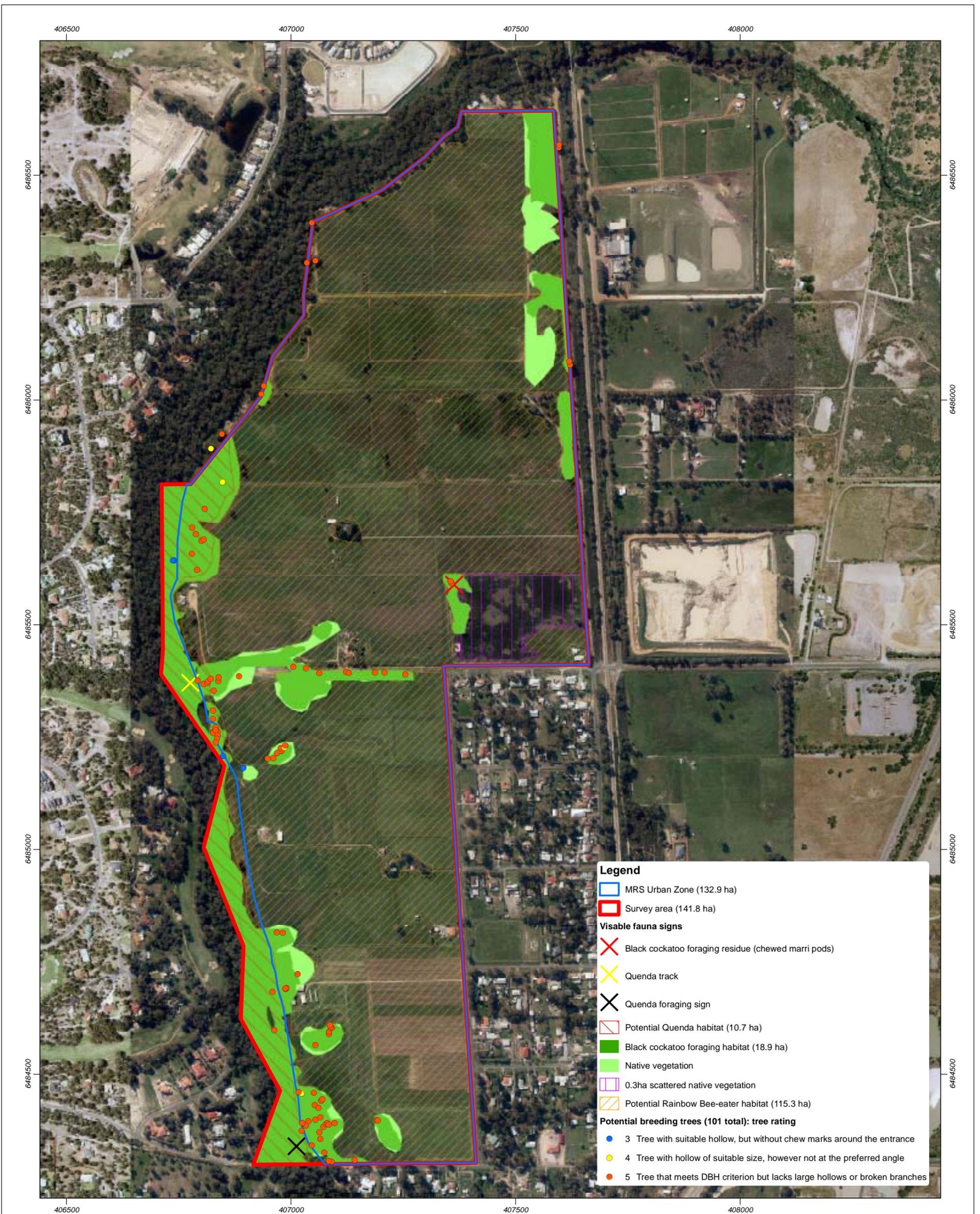
## 7. Conclusion

The purpose of this report is to identify the environmental values that may be potentially affected through the development of the Upper Swan Urban Precinct. The survey area comprises the MRS urban zoning (132.9 ha) and Rural zoning (8.9 ha). The survey area contains the following environmental values in the context of State and Federal legislation (Figure 11):

- 18.9 ha native vegetation
- 10.7 ha Quenda (Priority 4, WC Act) and Rakali (Priority 4, WC Act) habitat
- 115.3 ha of Rainbow Bee-eater (Migratory, EPBC Act/WC Act) habitat
- 14.7 ha of low-moderate quality and 4.2 ha low quality black cockatoo foraging habitat
- 101 potentially significant trees for black cockatoos.

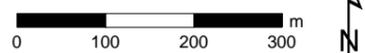
Strategen recommends the findings of this report are to be used to inform Local Structure Planning and subdivision approvals.

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**Figure 11: Potential fauna habitat**

Scale 1:8,000 at A3



Coordinate System: GDA 1994 MGA Zone 50

Note that positional errors may occur in some areas

Date: 30/05/2016

Author: JCrute

Source: Concept plan: Client 02/2016.

Path: Q:\Consult\2015\SPG\SPG15286\ArcMap\_documents\R003\SPG15286\_01\_R003\_RevA\_F011.mxd



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**Appendix 1**  
**Conservation significant flora and**  
**ecological community definitions**



### ***Conservation Codes for Western Australia (Western Australian Herbarium 1998-)***

Under the *Wildlife Conservation Act* (1950), the Minister for the Environment may declare species of flora to be protected if they are considered to be in danger of extinction, rare or otherwise in need of special protection. Schedules 1 and 2 deal with those that are threatened and those that are presumed extinct, respectively.

#### **T: Threatened Flora (Declared Rare Flora – Extant)**

Species which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such (Schedule 1 under the *Wildlife Conservation Act 1950*).

Threatened Flora (Schedule 1) are further ranked by the Department according to their level of threat using IUCN Red List Criteria:

- CR: Critically Endangered – considered to be facing an extremely high risk of extinction in the wild
- EN: Endangered – considered to be facing a very high risk of extinction in the wild
- VU: Vulnerable – considered to be facing a high risk of extinction in the wild
- X: Presumed Extinct Flora (Declared Rare Flora – Extinct).

Species that have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such (Schedule 2 under the *Wildlife Conservation Act 1950*).

#### ***Priority Flora***

Species that have not yet been adequately surveyed to be listed under Schedule 1 or 2 are added to the Priority Flora List under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna. 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 list for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Conservation Dependent species are placed in Priority 5.

#### **Priority One: Poorly-known Species**

Species that are known from one or a few collections or sight records (generally less than 5), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

#### **Priority Two: Poorly-known Species**

Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

**Priority Three: Poorly-known Species**

Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.

**Priority Four: Rare, Near Threatened and other species in need of monitoring**

1. Rare: Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
2. Near Threatened: Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
3. Species that have been removed from the list of threatened species during the past 5 years for reasons other than taxonomy.

**Priority 5: Conservation Dependent Species**

Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within 5 years.

## ***Definition of Threatened Ecological Communities (DEC 2010)***

### **Presumed Totally Destroyed (PD)**

An ecological community will be listed as presumed totally destroyed if there are no recent records of the community being extant and either of the following applies:

- records within the last 50 years have not been confirmed despite thorough searches of known or likely habitats or
- all occurrences recorded within the last 50 years have since been destroyed.

### **Critically Endangered (CR)**

An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future. This will be determined on the basis of the best available information, by it meeting any one or more of the following criteria:

1. The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 90% and either or both of the following apply:
  - (a) geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is imminent (within approximately 10 years)
  - (b) modification throughout its range is continuing such that in the immediate future (within approximately 10 years) the community is unlikely to be capable of being substantially rehabilitated.
2. Current distribution is limited, and one or more of the following apply:
  - (a) geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the immediate future (within approximately 10 years)
  - (b) there are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes
  - (c) there may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes.
3. The ecological community exists only as highly modified occurrences that may be capable of being rehabilitated if such work begins in the immediate future (within approximately 10 years).

### **Endangered (EN)**

An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria:

1. The geographic range, and/or total area occupied, and/or number of discrete occurrences have been reduced by at least 70% since European settlement and either or both of the following apply:
  - (a) the estimated geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is likely in the short term future (within approximately 20 years)
  - (b) modification throughout its range is continuing such that in the short term future (within approximately 20 years) the community is unlikely to be capable of being substantially restored or rehabilitated.

2. Current distribution is limited, and one or more of the following apply"
  - (a) geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the short term future (within approximately 20 years)
  - (b) there are few occurrences, each of which is small and/or isolated and all or most occurrences are very vulnerable to known threatening processes
  - (c) there may be many occurrences but total area is small and all or most occurrences are small and/or isolated and very vulnerable to known threatening processes.
3. The ecological community exists only as very modified occurrences that may be capable of being substantially restored or rehabilitated if such work begins in the short-term future (within approximately 20 years).

#### **Vulnerable (VU)**

An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium to long-term future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria:

1. The ecological community exists largely as modified occurrences that are likely to be capable of being substantially restored or rehabilitated.
2. The ecological community may already be modified and would be vulnerable to threatening processes, is restricted in area and/or range and/or is only found at a few locations.
3. The ecological community may be still widespread but is believed likely to move into a category of higher threat in the medium to long term future because of existing or impending threatening processes.

### ***Definition of Priority Ecological Communities (DEC 2010)***

#### **Priority One: Poorly-known ecological communities**

Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

#### **Priority Two: Poorly-known ecological communities**

Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

#### **Priority Three: Poorly known ecological communities**

- communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation
- communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat
- communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.

Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.

#### **Priority Four**

Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring. These include:

1. Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.
2. Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
3. Ecological communities that have been removed from the list of threatened communities during the past five years.

#### **Priority Five: Conservation Dependent ecological communities**

Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.



**Appendix 2**  
**Photographic record of the survey area**  
**and vegetation types**





Plate 1: Cleared paddocks with scattered *Corymbia calophylla*, *Eucalyptus wandoo* and *Eucalyptus rudis* trees on clay soils.



Plate 2: *Eucalyptus rudis* and *Melaleuca raphiophylla* open woodland over exotic herbs and grasses on clay soils.



Plate 3: Cleared paddocks with *Viminaria juncea*, *Hypocalymma angustifolium* and \**Watsonia meriana* regrowth on clay soils.



Plate 4: Cleared paddocks with patches of remnant *Eucalyptus wandoo*, *Corymbia calophylla* and *Eucalyptus rudis*.

**Appendix 3**  
**Scoring system for the assessment of**  
**black cockatoo foraging values**



Site score	Description of vegetation		
	<b>Carnaby's Black cockatoo</b>	<b>Baudin's Black cockatoo</b>	<b>Forest Red-tailed Black cockatoo</b>
0	No foraging value. No Proteaceae, eucalypts or other potential sources of food. Examples would be salt lakes and bare ground.	No foraging value. No eucalypts or other potential sources of food.	No foraging value. No eucalypts (i.e. Marri, Jarrah, Wandoo, Blackbutt or Karri) or other potential sources of food.
1	Negligible to low foraging value. Scattered specimens of known food plants but projected foliage cover of these <2%. Could include urban areas with scattered foraging trees. Blue Gum plantations are considered to have a score of 1 as foraging by Black cockatoos has been reported but appears to be unusual.	Negligible to low foraging value. Scattered specimens of known food plants (e.g. Marri and Jarrah) but projected foliage cover of these <1%. Could include urban areas with scattered foraging trees.	Negligible to low foraging value. Scattered specimens of known food plants but projected foliage cover of these <1%. Could include urban areas with scattered foraging trees.
2	Low foraging value. Examples: Shrubland in which species of foraging value, such as shrubby banksias, with <10% projected foliage cover. Open eucalypt woodland/mallee of small-fruited species. Paddocks with melons or other weeds (a short-term, seasonal food source).	Low foraging value. Example: Woodland or forest with scattered specimens of known food plants (e.g. Marri and Jarrah) but projected foliage cover of these 1-<5%. Could include urban areas with scattered foraging trees.	Low foraging value. Examples: Open eucalypt woodland (i.e. Marri, Jarrah, Wandoo, Blackbutt or Karri). Projected foliage cover of these 1-<5% Urban areas with scattered food plants such as Cape Lilac, <i>Eucalyptus caesia</i> and <i>Eucalyptus erythrocorys</i> .
3	Low to Moderate foraging value. Examples: Shrubland in which species of foraging value, such as shrubby banksias, with 10-20% projected foliage cover. Woodland with tree banksias 2-10% projected foliage cover. Eucalypt woodland/mallee of small-fruited species; Marri, if present, <10% project foliage cover.	Low to Moderate foraging value. Examples: Eucalypt woodland with known food plants (and in particular Marri) with a projected foliage cover of 5-<10%. Parkland-cleared eucalypt woodland with projected foliage cover of known food plants of 10-<20% can be considered low-to-moderate because of poor long-term viability without management.	Low to Moderate foraging value. Examples: Eucalypt woodland (i.e. Marri, Jarrah, Wandoo, and Blackbutt), if present, <10% project foliage cover.
4	Moderate foraging value. Examples: Woodland with tree banksias 20-40% projected foliage cover. Eucalypt woodland/forest with Marri 20-40% projected foliage cover.	Moderate foraging value. Examples: Eucalypt woodland with known food plants (and in particular Marri) with a projected foliage cover of 10-<20%. Parkland-cleared eucalypt woodland with projected foliage cover of known food plants of 20-<40% can be considered moderate because of poor long-term viability without management. Areas of orchards and especially those with apples can be considered of moderate value. .	Moderate foraging value. Examples: Eucalypt woodland/forest (i.e. Marri, Jarrah, Wandoo, and Blackbutt) with 20-40% projected foliage cover.

Site score	Description of vegetation		
	<b>Carnaby's Black cockatoo</b>	<b>Baudin's Black cockatoo</b>	<b>Forest Red-tailed Black cockatoo</b>
5	<p>Moderate to High foraging value. Examples: Banksia woodlands with tree banksias &gt;40%. Vegetation condition moderate due to weed invasion and some tree deaths.</p>	<p>Moderate to High foraging value. Examples: Eucalypt woodland with known food plants (and in particular Marri) with a projected foliage cover of 20-&lt;40%. Parkland-cleared eucalypt woodland with projected foliage cover of known food plants of &gt;40% can be considered moderate because of poor long-term viability without management.</p>	<p>Moderate to High foraging value. Examples: Eucalypt woodland/forest (i.e. Marri, Jarrah, Wandoo, and Blackbutt) with &gt;40% projected foliage cover. Vegetation condition moderate due to weed invasion and some tree deaths.</p>
6	<p>High foraging value. Example: Banksia woodlands of key species (e.g. <i>B. attenuata</i>, <i>B. menziesii</i>) with projected foliage cover &gt;60%. Vegetation condition good with low weed invasion and low tree death to indicate it is robust and unlikely to decline in the medium term.</p>	<p>High foraging value. Example: Eucalypt woodland/forest with a high proportion of Marri (&gt;40% projected foliage cover). Vegetation condition good with low weed invasion and low tree death to indicate it is robust and unlikely to decline in the medium term.</p>	<p>High foraging value. Example: Eucalypt woodland/forest (i.e. Marri, Jarrah, Wandoo, and Blackbutt) with &gt;60% projected foliage cover. Vegetation condition good with low weed invasion and low tree death to indicate it is robust and unlikely to decline in the medium term.</p>

**Appendix 4**  
**Desktop assessment results (Parks and**  
**Wildlife 2007-, DotE 2015c)**



# NatureMap Species Report

Created By Guest user on 30/03/2016

**Kingdom** Animalia  
**Current Names Only** Yes  
**Core Datasets Only** Yes  
**Method** 'By Circle'  
**Centre** 116° 01' 11" E, 31° 46' 04" S  
**Buffer** 3km  
**Group By** Family

Family	Species	Records
Acanthizidae	12	3305
Acariformes	2	3
Accipitridae	17	563
Actinopodidae	3	90
Aegothelidae	1	20
Aeolothripidae	1	1
Aeshnidae	3	44
Agamidae	7	116
Agriolimacidae	1	1
Amphibolidae	1	1
Amphisopodidae	2	19
Anatidae	18	2395
Anhingidae	3	266
Anobiidae	8	14
Anthicidae	1	7
Anystidae	2	2
Aphelinidae	1	1
Apidae	6	15
Apioceridae	1	1
Aploactinidae	1	1
Apodidae	1	4
Apogonidae	2	2
Araneidae	23	145
Arctiidae	4	5
Ardeidae	17	702
Arrenuridae	2	7
Artamidae	4	117
Asilidae	3	4
Atherinidae	4	9
Atopomelidae	1	4
Austrocorduliidae	1	2
Baetidae	1	1
Barychelidae	5	43
Bittacidae	1	1
Blattidae	1	1
Boidae	3	24
Bolboceratidae	3	3
Bostrichidae	3	3
Bothriuridae	3	15
Bovidae	2	2
Brachodidae	1	2
Braconidae	1	1
Brentidae	1	1
Bulimulidae	3	5
Buprestidae	44	87
Burhinidae	1	1
Burramyidae	1	22
Buthidae	3	5
Cacatuidae	2	1100
Callionymidae	1	1
Calliostomatidae	1	1
Campephagidae	4	851
Canidae	2	7
Canthocamptidae	1	1
Carabidae	19	39
Carangidae	1	1
Carcharhinidae	1	1
Castniidae	5	72
Casuariidae	1	9
Centropagidae	4	25
Cerambycidae	13	33
Ceratopogonidae	1	5
Chaetodontidae	1	1
Chaoboridae	1	10
Charadriidae	5	138
Charopidae	1	1
Cheilodactyliidae	2	2
Cheluidae	2	172
Chiltoniidae	1	9
Chironomidae	16	72
Chrysomelidae	45	109
Chrysopidae	2	2
Chydoridae	6	18
Cicadellidae	5	7
Cicadidae	6	83

Cleridae	9	22
Climacteridae	1	17
Clupeidae	1	2
Coccidae	1	1
Coccinellidae	7	12
Coenagrionidae	4	14
Colletidae	21	109
Columbidae	12	1888
Corduliidae	3	25
Corinnidae	2	28
Corixidae	6	11
Corophiidae	2	2
Corvidae	4	1760
Cossidae	1	2
Crabronidae	1	1
Cractidae	7	2635
Crambidae	2	2
Cuculiidae	5	227
Culicidae	9	35
Curculionidae	23	79
Cyclopidae	11	43
Cypridae	12	77
Cypridopsidae	1	1
Cyprinidae	2	4
Cyzicidae	1	2
Daphniidae	5	23
Dasyatidae	1	1
Dasyuridae	9	81
Dermestidae	3	3
Desidae	3	9
Diaspididae	1	1
Dicaeidae	1	136
Dicruridae	8	2020
Diplodactylidae	17	96
Dipluridae	1	6
Diptera	1	1
Dolichopodidae	3	7
Drepanidae	2	3
Dytiscidae	36	96
Ecnomidae	3	7
Elapidae	18	556
Elateridae	1	1
Empididae	1	1
Encyrtidae	1	2
Engraulidae	1	1
Equidae	1	1
Estrilidae	2	33
Eulophidae	1	1
Eunicidae	1	1
Eylidae	1	4
Falconidae	11	326
Felidae	1	6
Filistatidae	1	1
Fissurellidae	1	1
Formicidae	106	354
Fringillidae	3	9
Galaxiidae	3	13
Galeommatidae	1	1
Gasteruptiidae	2	2
Gastropoda	1	1
Gekkonidae	4	64
Gelechiidae	1	2
Geometridae	11	15
Geotriidae	1	2
Gerreidae	1	1
Girellidae	1	1
Gnaphosidae	3	13
Gobiidae	6	17
Gomphidae	2	22
Gonorynchidae	1	1
Gripopterygidae	2	3
Halcyonidae	5	920
Halicidae	8	64
Haliotidae	4	4
Halipidae	2	4
Helicidae	1	1
Henicopidae	1	1
Hersiliidae	2	5
Hesperidae	5	13
Heteroceridae	1	2
Heteromyzidae	2	3
Hirudinea	1	1
Hirundinidae	7	536
Histeridae	3	4
Hydrobiidae	3	7
Hydrochidae	1	3
Hydrophilidae	11	31
Hydropsychidae	2	4
Hydroptilidae	7	15
Hylidae	2	163
Hyriidae	1	2
Idiopidae	5	10
Iulomorphidae	1	13
Ixodidae	4	18
Julidae	2	7
Kalotermitidae	1	2
Labridae	2	2
Lamponidae	11	37
Laridae	8	151
Latidae	1	1
Lepidoptera	1	8
Leporidae	1	5
Leptoceridae	5	21
Lestidae	5	30
Leucospidae	1	1

Libellulidae	7	107
Limacidae	2	2
Limnadiidae	1	8
Limnesiidae	1	9
Limnichidae	1	1
Limnocharidae	1	2
Limnocytheridae	4	8
Limnodynastidae	8	750
Limoniidae	1	1
Linyphiidae	3	4
Littorinidae	1	2
Lucanidae	1	13
Lycaenidae	5	9
Lycosidae	17	167
Lyncaeiidae	1	10
Macropodidae	10	99
Macrotrichidae	3	5
Maluridae	9	832
Mantispidae	3	6
Megachilidae	20	112
Megapodagrionidae	2	18
Meliphagidae	26	4921
Meropeidae	1	1
Meropidae	1	327
Microcanthidae	3	4
Micronectidae	1	6
Micropholcommatidae	2	18
Milacidae	1	1
Mimetidae	3	5
Mitridae	1	1
Miturgidae	2	26
Moinidae	2	3
Molossidae	2	5
Monacanthidae	6	7
Monocentridae	1	1
Motacillidae	2	8
Mugilidae	2	2
Muricidae	1	2
Muridae	8	129
Myobatrachidae	8	672
Myrmecobiidae	1	1
Myrmeleontidae	3	15
Nacellidae	1	1
Nannopercidae	1	1
Nemesiidae	2	62
Nemopteridae	1	1
Neopilionidae	1	12
Neosittidae	3	72
Neotrichidae	1	1
Nephilidae	1	8
Nepidae	2	3
Nereididae	2	3
Nicodamidae	2	16
Nitidulidae	1	2
Noctuidae	7	18
Nolidae	1	1
Notodontidae	2	2
Notodromadidae	1	5
Notonectidae	7	23
Numididae	1	1
Nymphalidae	4	29
Ochteridae	1	1
Oecobiidae	1	7
Oecophoridae	1	1
Oedemeridae	1	3
Oligochaeta	1	2
Olpidae	1	1
Oonopidae	1	1
Orbiniidae	1	1
Oryidae	1	1
Ostraciidae	1	1
Oxyopidae	2	3
Pachycephalidae	8	1376
Palaemonidae	1	1
Paradoxosomatidae	3	51
Pararchaeidae	3	4
Parastacidae	5	24
Pardalotidae	9	1317
Passeridae	1	1
Patellidae	1	1
Pelecyanidae	1	109
Pentatomidae	2	2
Peramelidae	6	939
Percichthyidae	2	6
Peripatopsidae	1	4
Petaluridae	1	5
Petroicidae	8	124
Phalacridae	1	2
Phalacrocoracidae	6	631
Phalangeridae	2	28
Phasianidae	1	2
Philotarsidae	1	1
Pholcidae	5	28
Physidae	1	6
Pionidae	3	64
Planorbidae	2	12
Platycephalidae	2	3
Platystomatidae	1	2
Plesiopidae	1	1
Plotosidae	1	1
Podargidae	2	30
Podicipedidae	5	340
Poeciliidae	2	4
Pomatomidae	1	1
Pomatostomidae	1	1

Potoroidae	1	66
Procellariidae	3	6
Prodidomidae	3	14
Pseudocheiridae	1	1
Pseudocheylidae	1	1
Pseudococcidae	3	3
Psittacidae	41	7038
Pteromalidae	2	4
Ptiliidae	1	4
Ptilodactylidae	1	1
Pygopodidae	9	283
Pyralidae	2	2
Pyrgotidae	1	1
Rallidae	14	901
Recurvirostridae	3	93
Reduviidae	1	1
Rhinotermitidae	4	17
Rhyparochromidae	2	4
Rostratulidae	1	1
Salticidae	10	23
Scarabaeidae	41	134
Scelionidae	1	1
Scincidae	34	961
Sciomyzidae	1	3
Scirtidae	1	13
Scolopacidae	4	27
Scolopendridae	8	80
Scutigeridae	1	2
Scytodidae	1	1
Selenopidae	1	7
Serranidae	1	1
Sididae	2	10
Sparassidae	10	69
Sparidae	1	1
Sphyraenidae	1	1
Squillidae	1	1
Staphylinidae	11	21
Stiphidiidae	2	5
Stratiomyidae	1	4
Strigidae	4	117
Sturnidae	2	2
Succineidae	2	4
Sylviidae	7	234
Syngnathidae	2	2
Synthemistidae	4	11
Syrphidae	2	5
Tabanidae	3	4
Tachyglossidae	1	11
Tarsipedidae	1	28
Telephlebiidae	1	5
Tenebrionidae	32	85
Tephritidae	1	1
Terapontidae	2	4
Teredinidae	2	2
Termitidae	15	42
Tetragrathidae	4	24
Tetraodontidae	1	1
Tetrarogidae	1	1
Tettigoniidae	6	19
Thelohaniidae	1	1
Therevidae	1	2
Theridiidae	9	59
Thiaridae	1	3
Thomisidae	1	1
Threskiornithidae	4	761
Thripidae	2	3
Thylacomyidae	1	2
Tortricidae	1	1
Trapezidae	1	1
Triaenonychidae	1	18
Triakidae	1	1
Trochanteriidae	2	2
Trochidae	1	1
Trogidae	2	2
Turbellaria	1	7
Turbinidae	3	3
Turnicidae	2	2
Typhlopidae	1	2
Tytonidae	5	8
Urodacidae	4	236
Valloniidae	1	1
Varanidae	4	34
Vespertilionidae	6	23
Vespidae	1	1
Withiidae	1	2
Zodariidae	9	28
Zosteropidae	3	1127
Zygaenidae	1	1
<b>TOTAL</b>	<b>1641</b>	<b>50352</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Acanthizidae</b>				
1.	<i>Acanthiza (Acanthiza) apicalis subsp. apicalis</i>			
2.	<i>Acanthiza (Geobasileus) chrysorrhoa</i>			
3.	<i>Acanthiza (Geobasileus) inornata</i>			
4.	24260 <i>Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)</i>			
5.	24261 <i>Acanthiza chrysorrhoa (Yellow-rumped Thornbill)</i>			
6.	24262 <i>Acanthiza inornata (Western Thornbill)</i>			
7.	24265 <i>Acanthiza uropygialis (Chestnut-rumped Thornbill)</i>			
8.	25530 <i>Gerygone fusca (Western Gerygone)</i>			
9.	24271 <i>Gerygone fusca subsp. fusca (Western Gerygone)</i>			
10.	25534 <i>Sericornis frontalis (White-browed Scrubwren)</i>			
11.	30948 <i>Smicronis brevirostris (Weebill)</i>			
12.	<i>Smicronis brevirostris subsp. occidentalis</i>			
<b>Acariformes</b>				
13.	<i>Acarina sp.</i>			
14.	<i>Oribatida sp.</i>			
<b>Accipitridae</b>				
15.	25535 <i>Accipiter cirrocephalus (Collared Sparrowhawk)</i>			
16.	24281 <i>Accipiter cirrocephalus subsp. cirrocephalus (Collared Sparrowhawk)</i>			
17.	25536 <i>Accipiter fasciatus (Brown Goshawk)</i>			
18.	24283 <i>Accipiter fasciatus subsp. didimus (Brown Goshawk)</i>			
19.	24282 <i>Accipiter fasciatus subsp. fasciatus (Brown Goshawk)</i>			
20.	24285 <i>Aquila audax (Wedge-tailed Eagle)</i>			
21.	25538 <i>Aquila morphnoides (Little Eagle)</i>			
22.	24288 <i>Circus approximans (Swamp Harrier)</i>			
23.	24289 <i>Circus assimilis (Spotted Harrier)</i>			
24.	<i>Elanus axillaris</i>			
25.	24290 <i>Elanus caeruleus subsp. axillaris (Australian Black-shouldered Kite)</i>			
26.	24293 <i>Haliaeetus leucogaster (White-bellied Sea-Eagle)</i>		IA	
27.	24295 <i>Haliastur sphenurus (Whistling Kite)</i>			
28.	<i>Lophoictinia isura</i>			
29.	25542 <i>Milvus migrans (Black Kite)</i>			
30.	<i>Pandion cristatus</i>			
31.	25543 <i>Pandion haliaetus (Osprey)</i>			
<b>Actinopodidae</b>				
32.	<i>Missulena granulosa</i>			
33.	<i>Missulena hoggi</i>			
34.	<i>Missulena occatoria</i>			
<b>Aegothelidae</b>				
35.	24301 <i>Aegotheles cristatus subsp. cristatus (Australian Owlet-nightjar)</i>			
<b>Aeolothripidae</b>				
36.	<i>Desmothrips mendozai</i>			
<b>Aeshnidae</b>				
37.	<i>Adversaeschna brevistyla</i>			
38.	<i>Anax papuensis</i>			
39.	<i>Hemianax papuensis</i>			
<b>Agamidae</b>				
40.	30899 <i>Ctenophorus adelaidensis (Southern Heath Dragon, Western Heath Dragon)</i>			
41.	25458 <i>Ctenophorus caudicinctus (Ring-tailed Dragon)</i>			
42.	24883 <i>Ctenophorus ornatus (Ornate Crevice-Dragon)</i>			
43.	24899 <i>Diporiphora valens (Southern Pilbara Tree Dragon)</i>			
44.	25510 <i>Pogona minor (Dwarf Bearded Dragon)</i>			
45.	24907 <i>Pogona minor subsp. minor (Dwarf Bearded Dragon)</i>			
46.	<i>Pogona sp.</i>			
<b>Agriolimacidae</b>				
47.	<i>Deroceras sp.</i>			
<b>Amphibolidae</b>				
48.	<i>Salinator fragilis</i>			
<b>Amphisopodidae</b>				
49.	<i>Paramphisopus palustris</i>			
50.	<i>Paramphisopus sp.</i>			
<b>Anatidae</b>				

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
51.	24310 <i>Anas castanea</i> (Chestnut Teal)			
52.	24312 <i>Anas gracilis</i> (Grey Teal)			
53.	24313 <i>Anas platyrhynchos</i> (Mallard)			
54.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
55.	<i>Anas</i> sp.			
56.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
57.	<i>Anser anser</i>			
58.	<i>Anser</i> sp.			
59.	24318 <i>Aythya australis</i> (Hardhead)			
60.	24319 <i>Biziura lobata</i> (Musk Duck)			
61.	<i>Cairina moschata</i>			
62.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
63.	24322 <i>Cygnus atratus</i> (Black Swan)			
64.	24325 <i>Dendrocygna eytoni</i> (Plumed Whistling Duck)			
65.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
66.	24328 <i>Oxyura australis</i> (Blue-billed Duck)		P4	
67.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
68.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
<b>Anhingiidae</b>				
69.	25553 <i>Anhinga melanogaster</i> (Darter)			
70.	24332 <i>Anhinga melanogaster</i> subsp. <i>novaehollandiae</i> (Darter)			
71.	<i>Anhinga novaehollandiae</i>			
<b>Anobiidae</b>				
72.	<i>Diplocotes carinaticeps</i>			Y
73.	<i>Diplocotes longicornis</i>			Y
74.	<i>Dryophilodes latipennis</i>			
75.	<i>Ectrephes formicarum</i>			Y
76.	<i>Enasiba tristis</i>			
77.	<i>Lasioderma serricorne</i>			
78.	<i>Mezium americanum</i>			
79.	<i>Ptinus gloriosus</i>			Y
<b>Anthicidae</b>				
80.	<i>Mecynotarsus hortensis</i>			Y
<b>Anystidae</b>				
81.	<i>Erythracarus decoris</i>			
82.	<i>Pedidromus velox</i>			Y
<b>Aphelinidae</b>				
83.	<i>Coccophagus</i> sp.			Y
<b>Apidae</b>				
84.	<i>Amegilla</i> ( <i>Notomegilla</i> ) <i>chlorocyanea</i>			
85.	<i>Amegilla</i> ( <i>asaropoda</i> )			
86.	<i>Apis</i> ( <i>Apis</i> ) <i>mellifera</i>			
87.	<i>Exoneura</i> ( <i>Exoneura</i> ) <i>bicolor</i>			
88.	<i>Exoneura</i> ( <i>Exoneura</i> ) <i>pictifrons</i>			
89.	<i>Thyreus</i> sp.			
<b>Apioceridae</b>				
90.	<i>Apiocera pulchra</i>			Y
<b>Aploactinidae</b>				
91.	<i>Aploactisoma milesii</i>			
<b>Apodidae</b>				
92.	25554 <i>Apus pacificus</i> (Fork-tailed Swift)		IA	
<b>Apogonidae</b>				
93.	<i>Ostorhinchus rueppellii</i>			
94.	<i>Vincentia punctata</i>			
<b>Araneidae</b>				
95.	<i>Acroaspis olorina</i>			Y
96.	<i>Araneus cyphoxis</i>			
97.	<i>Araneus eburniventris</i>			
98.	<i>Araneus eburnus</i>			
99.	<i>Araneus ginninderranus</i>			
100.	<i>Araneus senicaudatus</i>			
101.	<i>Argiope protensa</i>			
102.	<i>Argiope trifasciata</i>			
103.	<i>Arkys walckenaeri</i>			
104.	<i>Austracantha minax</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
105.	<i>Backobourkia brounii</i>			
106.	<i>Backobourkia heroine</i>			
107.	<i>Celaenia excavata</i>			
108.	<i>Cyclosa trilobata</i>			
109.	<i>Cyrtophora parnasia</i>			
110.	<i>Eriophora biapicata</i>			
111.	<i>Eriophora pustulosa</i>			
112.	<i>Eriophora sp.</i>			
113.	<i>Gasteracantha sp.</i>			
114.	<i>Gea theridioides</i>			
115.	<i>Heurodes turritus</i>			
116.	<i>Novakiella trituberculosa</i>			
117.	<i>Paraplectanoides crassipes</i>			
<b>Arctiidae</b>				
118.	<i>Spilosoma canescens</i>			
119.	<i>Spilosoma glatignyi</i>			
120.	<i>Stenarcha stenopa</i>			
121.	<i>Thalarcha rhapsophora</i>			Y
<b>Ardeidae</b>				
122.	<i>Ardea (Ardea) pacifica</i>			
123.	25558 <i>Ardea ibis (Cattle Egret)</i>		IA	
124.	24338 <i>Ardea ibis subsp. coromanda (Cattle Egret)</i>		IA	
125.	41324 <i>Ardea modesta (Eastern Great Egret)</i>		IA	
126.	24340 <i>Ardea novaehollandiae (White-faced Heron)</i>			
127.	24341 <i>Ardea pacifica (White-necked Heron)</i>			
128.	25560 <i>Ardea sacra (Eastern Reef Egret, Eastern Reef Heron)</i>		IA	
129.	24345 <i>Botaurus poiciloptilus (Australasian Bittern)</i>		T	
130.	<i>Egretta garzetta</i>			
131.	<i>Egretta novaehollandiae</i>			
132.	<i>Ixobrychus dubius</i>			
133.	24347 <i>Ixobrychus flavicollis subsp. australis (Australian Black Bittern)</i>		P1	
134.	25563 <i>Ixobrychus minutus (Little Bittern)</i>		P4	
135.	24348 <i>Ixobrychus minutus subsp. dubius (Australian Little Bittern)</i>		P4	
136.	25564 <i>Nycticorax caledonicus (Rufous Night Heron)</i>			
137.	<i>Nycticorax caledonicus subsp. australasiae</i>			
138.	24350 <i>Nycticorax caledonicus subsp. hillii (Rufous Night Heron)</i>			
<b>Arrenuridae</b>				
139.	<i>Arrenurus novaehollandiae</i>			Y
140.	<i>Arrenurus sp.</i>			
<b>Artamidae</b>				
141.	<i>Artamus (Angroyan) cinereus subsp. cinereus</i>			
142.	25566 <i>Artamus cinereus (Black-faced Woodswallow)</i>			
143.	24353 <i>Artamus cyanopterus (Dusky Woodswallow)</i>			
144.	24356 <i>Artamus personatus (Masked Woodswallow)</i>			
<b>Asilidae</b>				
145.	<i>Bathypogon sp.</i>			
146.	<i>Codula occidentalis</i>			Y
147.	<i>Neosclerogon sp.</i>			Y
<b>Atherinidae</b>				
148.	<i>Atherinosoma microstoma</i>			
149.	<i>Atherinosoma sp.</i>			
150.	<i>Atherinosoma wallacei</i>			
151.	<i>Leptatherina wallacei</i>			
<b>Atopmelidae</b>				
152.	<i>Dasyurochirus tapoatafa</i>			Y
<b>Austrocorduliidae</b>				
153.	<i>Hesperocordulia berthoudi</i>			
<b>Baetidae</b>				
154.	<i>Baetidae sp.</i>			
<b>Barychelidae</b>				
155.	<i>Idiommata blackwalli</i>			
156.	<i>Synothele durokoppin</i>			
157.	<i>Synothele michaelsoni</i>			
158.	<i>Synothele mullaloo</i>			
159.	<i>Synothele taurus</i>			

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<b>Bittacidae</b>				
160.	<i>Harpobittacus phaeoscius</i>			
<b>Blattidae</b>				
161.	<i>Platzosteria</i> sp.			
<b>Boidae</b>				
162.	25448 <i>Antaresia stimsoni</i> (Stimson's Python)			
163.	25241 <i>Antaresia stimsoni</i> subsp. <i>stimsoni</i> (Stimson's Python)			
164.	25240 <i>Morelia spilota</i> subsp. <i>imbricata</i> (Carpet Python)		S	
<b>Bolboceratidae</b>				
165.	<i>Blackbolbus frontalis</i>			
166.	<i>Blackbolbus taurus</i>			
167.	<i>Bolborhachium relictum</i>			
<b>Bostrichidae</b>				
168.	<i>Bostrychopsis jesuita</i>			
169.	<i>Xylodeleis obsipa</i>			
170.	<i>Xylopsocus gibbicollis</i>			
<b>Bothriuridae</b>				
171.	<i>Cercophonius granulatus</i>			
172.	<i>Cercophonius squama</i>			
173.	<i>Cercophonius sulcatus</i>			
<b>Bovidae</b>				
174.	24251 <i>Bos taurus</i> (European Cattle)	Y		
175.	34016 <i>Ovis aries</i> (Sheep)			
<b>Brachodidae</b>				
176.	<i>Miscera centropis</i>			
<b>Braconidae</b>				
177.	<i>Phanerotoma</i> sp.			
<b>Brentidae</b>				
178.	<i>Apion fuscocuturale</i>			Y
<b>Bulimulidae</b>				
179.	<i>Bothriembryon</i> (Bothriembryon) <i>balteolus</i>			
180.	<i>Bothriembryon</i> (Bothriembryon) <i>bullae</i>			
181.	<i>Bothriembryon</i> (Bothriembryon) <i>indutus</i>			
<b>Buprestidae</b>				
182.	<i>Castiarina amabilis</i>			
183.	<i>Castiarina anchoralis</i>			
184.	<i>Castiarina aureola</i>			
185.	<i>Castiarina crenata</i>			
186.	<i>Castiarina crocicolor</i>			
187.	<i>Castiarina decemguttata</i>			
188.	<i>Castiarina decemmaculata</i>			
189.	<i>Castiarina flaviceps</i>			
190.	<i>Castiarina pallidiventris</i>			
191.	<i>Castiarina parallela</i>			
192.	<i>Castiarina placida</i>			
193.	<i>Castiarina rufipennis</i>			
194.	<i>Castiarina sanguinolenta</i>			
195.	<i>Castiarina simulata</i>			
196.	<i>Castiarina</i> sp.			
197.	<i>Castiarina versicolor</i>			
198.	<i>Diadoxus erythrus</i>			
199.	<i>Diphucrania duodecimmaculata</i>			
200.	<i>Diphucrania notulata</i>			
201.	<i>Diphucrania parva</i>			
202.	<i>Diphucrania stigmata</i>			
203.	<i>Diphucrania tyrrhena</i>			
204.	<i>Diphucrania viridiceps</i>			
205.	<i>Ethonion breve</i>			
206.	<i>Ethonion roei</i>			
207.	<i>Ethonion</i> sp.			
208.	<i>Euryspilus viridis</i>			
209.	<i>Meliboeithon confusum</i>			Y
210.	<i>Melobasis cuprifera</i>			
211.	<i>Melobasis gloriosa</i>			

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212.	<i>Melobasis lathamii</i>			
213.	<i>Melobasis occidentalis</i>			
214.	<i>Melobasis propinqua</i> subsp. <i>propinqua</i>			
215.	<i>Melobasis sexplagiata</i>			
216.	<i>Melobasis uniformis</i>			
217.	<i>Neospades chrysopygia</i>			
218.	<i>Stigmodera gratiosa</i>			
219.	<i>Stigmodera sanguinosa</i>			
220.	<i>Synechocera</i> sp.			
221.	<i>Temognatha bruckii</i>			
222.	<i>Temognatha chalcodera</i>			
223.	<i>Temognatha secularis</i>			
224.	<i>Temognatha westwoodii</i>			
225.	<i>Xyrosclis crocata</i>			
<b>Burhinidae</b>				
226.	24359 <i>Burhinus grallarius</i> ( <i>Bush Stone-curler</i> )			
<b>Burramyidae</b>				
227.	24086 <i>Cercartetus concinnus</i> ( <i>Western Pygmy-possum, Mundarda</i> )			
<b>Buthidae</b>				
228.	<i>Isometroides vescus</i>			
229.	<i>Lychas marmoreus</i>			
230.	<i>Urodacus hartmeyerii</i>			
<b>Cacatuidae</b>				
231.	<i>Eolophus roseicapillus</i>			
232.	<i>Lophochroa leadbeateri</i>			
<b>Callionymidae</b>				
233.	<i>Dactylopus dactylopus</i>			
<b>Calliostomatidae</b>				
234.	<i>Astele (Astele) armillatum</i>			
<b>Campephagidae</b>				
235.	24361 <i>Coracina maxima</i> ( <i>Ground Cuckoo-shrike</i> )			
236.	25568 <i>Coracina novaehollandiae</i> ( <i>Black-faced Cuckoo-shrike</i> )			
237.	24363 <i>Coracina novaehollandiae</i> subsp. <i>subpallida</i> ( <i>Black-faced Cuckoo-shrike</i> )			
238.	24367 <i>Lalage tricolor</i> ( <i>White-winged Triller</i> )			
<b>Canidae</b>				
239.	30883 <i>Canis lupus</i> subsp. <i>familiaris</i> ( <i>Dog</i> )	Y		
240.	24040 <i>Vulpes vulpes</i> ( <i>Red Fox</i> )	Y		
<b>Canthocamptidae</b>				
241.	<i>Attheyella (Chappuisiella) hirsutus</i>			Y
<b>Carabidae</b>				
242.	<i>Carabidae</i> sp.			
243.	<i>Catadromus</i> sp.			
244.	<i>Chlaenius (Pelasmomimus) greyanus</i>			
245.	<i>Clivina</i> sp.			
246.	<i>Euthenarus comes</i>			
247.	<i>Gnathoxys granularis</i>			
248.	<i>Gnathoxys insignitus</i>			
249.	<i>Gnathoxys</i> sp.			
250.	<i>Homethes sericeus</i>			
251.	<i>Hypharpax</i> sp.			
252.	<i>Lecanomerus verticalis</i>			
253.	<i>Neocarenum cylindripenne</i>			Y
254.	<i>Notiobia (Anisotarsus) dampierii</i>			
255.	<i>Notiobia (Anisotarsus) inaequalipennis</i>			
256.	<i>Scaraphites silenus</i>			
257.	<i>Scaraphites</i> sp.			
258.	<i>Sphallomorpha dubia</i>			Y
259.	<i>Sphallomorpha fallax</i>			Y
260.	<i>Sphallomorpha hydroporoides</i>			
<b>Carangidae</b>				
261.	<i>Pseudocarax georgianus</i>			
<b>Carcharhinidae</b>				
262.	<i>Carcharhinus leucas</i>			

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<b>Castniidae</b>				
263.	<i>Synemon directa</i>			
264.	33992 <i>Synemon gratiosa</i> (Graceful Sunmoth)		P4	
265.	<i>Synemon nupta</i>			
266.	<i>Synemon sophia</i>			
267.	<i>Synemon</i> sp.			
<b>Casuariidae</b>				
268.	24470 <i>Dromaius novaehollandiae</i> (Emu)			
<b>Centropagidae</b>				
269.	<i>Boeckella robusta</i>			
270.	<i>Calamoecia attenuata</i>			
271.	<i>Calamoecia tasmanica subattenuata</i>			
272.	<i>Hemiboeckella andersonae</i>			Y
<b>Cerambycidae</b>				
273.	<i>Ancita marginicollis</i>			
274.	<i>Ancita</i> sp.			
275.	<i>Aphneope sericata</i>			Y
276.	<i>Bardistus cibarius</i>			
277.	<i>Bethelium ruida</i>			
278.	<i>Phoracantha acanthocerus</i>			
279.	<i>Phoracantha impavida</i>			
280.	<i>Phoracantha recurva</i>			
281.	<i>Phoracantha semipunctatus</i>			
282.	<i>Pseudocephalus mira</i>			
283.	<i>Rhytiphora (platymopsis)</i>			
284.	<i>Stenoderus</i> sp.			
285.	<i>Trichomesia newmani</i>			Y
<b>Ceratopogonidae</b>				
286.	<i>Ceratopogonidae</i> sp.			
<b>Chaetodontidae</b>				
287.	<i>Chaetodon assarius</i>			
<b>Chaoboridae</b>				
288.	<i>Promochlonyx australiensis</i>			
<b>Charadriidae</b>				
289.	24373 <i>Charadrius melanops</i> (Black-fronted Dotterel)			
290.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
291.	<i>Eiseyornis melanops</i>			
292.	24379 <i>Erythronyx cinctus</i> (Red-kneed Dotterel)			
293.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
<b>Charopidae</b>				
294.	<i>Annoselix dolosa</i>			
<b>Cheilodactylidae</b>				
295.	<i>Cheilodactylus nigripes</i>			
296.	<i>Cheilodactylus spectabilis</i>			
<b>Cheluidae</b>				
297.	43380 <i>Chelodina colliei</i> (Oblong Turtle)			
298.	25345 <i>Pseudemadura umbrina</i> (Western Swamp Turtle, tortoise)		T	
<b>Chiltoniidae</b>				
299.	<i>Austrochiltonia subtenuis</i>			
<b>Chironomidae</b>				
300.	<i>Ablabesmyia notabilis</i>			
301.	<i>Chironomus</i> aff. <i>alternans</i> (V24) (CB)			
302.	<i>Chironomus tepperi</i>			
303.	<i>Cladopelma curtivalva</i>			
304.	<i>Corynoneura australiensis</i>			Y
305.	<i>Corynoneura scutellata</i>			
306.	<i>Dicrotendipes conjunctus</i>			
307.	<i>Limnophyes</i> sp.			
308.	<i>Orthocladiinae</i> sp.			
309.	<i>Paralimnophyes pullulus</i> (V42)			
310.	<i>Paramerina levidensis</i>			
311.	<i>Paratanytarsus parthenogeneticus</i>			Y
312.	<i>Procladius villosimanus</i>			
313.	<i>Tanypodinae</i> sp.			

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314.	<i>Tanytarsus fuscithorax/semibarbitarsus</i>			
315.	<i>Tanytarsus sp.</i>			
<b>Chrysomelidae</b>				
316.	<i>Agetinus nitidivirgatus</i>			Y
317.	<i>Ametalla spinolae</i>			
318.	<i>Ametalla stenodera</i>			
319.	<i>Aporocera (Aporocera) obtusa</i>			Y
320.	<i>Aporocera (Aporocera) variipennis</i>			Y
321.	<i>Arsipoda holomelaena</i>			
322.	<i>Arsipoda nitida</i>			
323.	<i>Aulacophora olivieri</i>			Y
324.	<i>Bruchidius modicus</i>			
325.	<i>Cadmus (Lachnabothra) breweri</i>			
326.	<i>Calomela satelles</i>			
327.	<i>Chalcolampra aenea</i>			
328.	<i>Chrysomelidae sp.</i>			
329.	<i>Cryptocephalus sp.</i>			
330.	<i>Diaphanops sp.</i>			
331.	<i>Diaphanops westermanni</i>			
332.	<i>Ditropidella jacobyi</i>			Y
333.	<i>Ditropidus concolor</i>			
334.	<i>Ditropidus distinguendus</i>			Y
335.	<i>Ditropidus fugitivus</i>			
336.	<i>Ditropidus laevicollis</i>			Y
337.	<i>Ditropidus pictus</i>			Y
338.	<i>Ditropidus pulchellus</i>			Y
339.	<i>Eboo pusilla</i>			
340.	<i>Eboo tantilla</i>			Y
341.	<i>Edusella aureoviridis</i>			
342.	<i>Edusella sericea</i>			Y
343.	<i>Ethomela sp.</i>			
344.	<i>Geloptera nodosa</i>			
345.	<i>Geloptera sp.</i>			
346.	<i>Monolepta hypomela</i>			
347.	<i>Paropsis geographica</i>			Y
348.	<i>Paropsis sp.</i>			
349.	<i>Paropsisterna beata</i>			Y
350.	<i>Paropsisterna elliptica</i>			
351.	<i>Paropsisterna rufipes</i>			
352.	<i>Paropsisterna semifumata</i>			
353.	<i>Paropsisterna sp.</i>			
354.	<i>Peltoschema nigroconsersa</i>			
355.	<i>Peltoschema oceanica</i>			Y
356.	<i>Peltoschema sp.</i>			
357.	<i>Peltoschema suturalis</i>			Y
358.	<i>Prasonotus submetallicus</i>			Y
359.	<i>Trachymela granaria</i>			
360.	<i>Trachymela semiglobosa</i>			Y
<b>Chrysopidae</b>				
361.	<i>Mallada signatus</i>			
362.	<i>Mallada tripunctatus</i>			
<b>Chydoridae</b>				
363.	<i>Alona sp.</i>			
364.	<i>Chydoridae sp.</i>			
365.	<i>Chydorus sp.</i>			
366.	<i>Dunhevedia aff crassa</i>			
367.	<i>Echinisca sp.</i>			
368.	<i>Graptoleberis sp.</i>			Y
<b>Cicadellidae</b>				
369.	<i>Macropsis norrisi</i>			Y
370.	<i>Pogonoscopus myrmex</i>			
371.	<i>Putoniessa sordida</i>			Y
372.	<i>Putoniessa sp.</i>			
373.	<i>Stenocotis depressa</i>			
<b>Cicadidae</b>				
374.	<i>Arenopsaltria fullo</i>			
375.	<i>Kobonga umbrimargo</i>			
376.	<i>Noongara issoides</i>			

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377.	<i>Physeema convergens</i>			Y
378.	<i>Physeema labyrinthica</i>			
379.	<i>Urabunana sp.</i>			
<b>Cleridae</b>				
380.	<i>Blackburniella intricata</i>			
381.	<i>Eleale aulicodes</i>			
382.	<i>Eleale reichei</i>			
383.	<i>Eleale simplex</i>			
384.	<i>Lemidia obliquefasciata</i>			
385.	<i>Odontophlogistus unguatus</i>			
386.	<i>Phlogistus agraphus</i>			
387.	<i>Phlogistus sp.</i>			
388.	<i>Tarsostenus univittatus</i>			
<b>Climacteridae</b>				
389.	24396 <i>Climacteris rufa (Rufous Treecreeper)</i>			
<b>Clupeidae</b>				
390.	<i>Nematalosa viaminghi</i>			
<b>Coccidae</b>				
391.	<i>Symonicoccus chorizandrae</i>			Y
<b>Coccinellidae</b>				
392.	<i>Bucolellus ornatus</i>			
393.	<i>Harmonia conformis</i>			
394.	<i>Menochilus sexmaculatus</i>			
395.	<i>Orcus australasiae</i>			
396.	<i>Pharellus popei</i>			
397.	<i>Rhyzobius nitidus</i>			Y
398.	<i>Rhyzobius sp.</i>			
<b>Coenagrionidae</b>				
399.	<i>Austroagrion cyane</i>			
400.	<i>Ischnura aurora</i>			
401.	<i>Ischnura aurora subsp. aurora</i>			
402.	<i>Xanthagrion erythroneurum</i>			
<b>Colletidae</b>				
403.	<i>Euryglossa rubricata</i>			
404.	<i>Euryglossina (Turnerella) argocephala</i>			
405.	<i>Euryglossina (Turnerella) melanocephala</i>			
406.	<i>Hylaeus (Euprosopellus) chrysaepis</i>			
407.	<i>Hylaeus (Euprosopis) elegans</i>			
408.	<i>Hylaeus (Euprosopis) violaceus</i>			
409.	<i>Hylaeus (Euprosopoides) ruficeps subsp. kalamundae</i>			
410.	<i>Hylaeus (Prosopistemon) quadratus</i>			
411.	<i>Hylaeus (euprosopoides)</i>			
412.	33977 <i>Hylaeus globuliferus (bee)</i>		P3	
413.	<i>Hyleoides zonalis</i>			
414.	<i>Leioproctus (Cerato-colletes) antennatus</i>			Y
415.	<i>Leioproctus (Leioproctus) apicalis</i>			Y
416.	<i>Leioproctus (Leioproctus) clarki</i>			
417.	<i>Leioproctus (Leioproctus) incomptus</i>			
418.	<i>Leioproctus (Leioproctus) plumosus</i>			
419.	<i>Leioproctus (leioproctus)</i>			
420.	33982 <i>Leioproctus contrarius (bee)</i>		P3	
421.	33983 <i>Leioproctus douglasiellus (bee)</i>		T	
422.	<i>Paracolletes sp.</i>			
423.	<i>Trichocolletes sp.</i>			
<b>Columbidae</b>				
424.	<i>Columba (Columba) livia</i>			Y
425.	24399 <i>Columba livia (Domestic Pigeon)</i>	Y		
426.	24401 <i>Geopelia cuneata (Diamond Dove)</i>			
427.	24407 <i>Ocyphaps lophotes (Crested Pigeon)</i>			
428.	<i>Phaps (Phaps) chalcoptera</i>			
429.	24409 <i>Phaps chalcoptera (Common Bronzewing)</i>			
430.	25587 <i>Phaps elegans (Brush Bronzewing)</i>			
431.	<i>Streptopelia (Spilopelia) chinensis</i>			
432.	<i>Streptopelia (Spilopelia) senegalensis</i>			
433.	25589 <i>Streptopelia chinensis (Spotted Turtle-Dove)</i>	Y		

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434.	30951 <i>Streptopelia chinensis</i> subsp. <i>tigrina</i> (Spotted Turtle-Dove)	Y		
435.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
<b>Corduliidae</b>				
436.	<i>Hemicordulia australiae</i>			
437.	<i>Hemicordulia tau</i>			
438.	<i>Procordulia affinis</i>			
<b>Corinnidae</b>				
439.	<i>Supunna funerea</i>			
440.	<i>Supunna picta</i>			
<b>Corixidae</b>				
441.	<i>Agraptocorixa eurynome</i>			
442.	<i>Agraptocorixa parvipunctata</i>			
443.	<i>Agraptocorixa</i> sp.			
444.	<i>Diaprepocoris personatus</i>			
445.	<i>Micronecta robusta</i>			
446.	<i>Sigara (Tropocorixa) mullaka</i>			
<b>Corophiidae</b>				
447.	<i>Monocorophium acherusicum</i>			Y
448.	<i>Monocorophium insidiosum</i>			Y
<b>Corvidae</b>				
449.	24416 <i>Corvus bennetti</i> (Little Crow)			
450.	25592 <i>Corvus coronoides</i> (Australian Raven)			
451.	24417 <i>Corvus coronoides</i> subsp. <i>perplexus</i> (Australian Raven)			
452.	<i>Corvus</i> sp.			
<b>Cossidae</b>				
453.	<i>Brevicyttara cyclospila</i>			Y
<b>Crabronidae</b>				
454.	<i>Pison tibiale</i>			Y
<b>Cracticidae</b>				
455.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
456.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
457.	24422 <i>Cracticus tibicen</i> subsp. <i>dorsalis</i> (White-backed Magpie)			
458.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
459.	<i>Cracticus torquatus</i> subsp. <i>leucopterus</i>			
460.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
461.	24426 <i>Strepera versicolor</i> subsp. <i>plumbea</i> (Grey Currawong)			
<b>Crambidae</b>				
462.	<i>Hednota longipalpella</i>			
463.	<i>Hednota pedionoma</i>			
<b>Cuculidae</b>				
464.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
465.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
466.	24431 <i>Chrysococcyx basalis</i> (Horsfield's Bronze Cuckoo)			
467.	25601 <i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)			
468.	24432 <i>Chrysococcyx lucidus</i> subsp. <i>plagosus</i> (Shining Bronze Cuckoo)			
<b>Culicidae</b>				
469.	<i>Aedes alboannulatus</i>			
470.	<i>Anopheles (Cellia)</i> sp.			
471.	<i>Anopheles annulipes</i> s.l.			
472.	<i>Culex (Culex) annulirostris</i>			
473.	<i>Culex (Culex) australicus</i>			
474.	<i>Culex globocoxitus</i>			
475.	<i>Culex</i> sp.			
476.	<i>Culex stricklandi</i>			Y
477.	<i>Ochlerotatus ratcliffei</i>			Y
<b>Curculionidae</b>				
478.	<i>Acantholophus amycteroides</i>			
479.	<i>Acantholophus hypoleucus</i>			
480.	<i>Acantholophus lateralis</i>			
481.	<i>Aedriodes nodipennis</i>			
482.	<i>Aonychus hopei</i>			
483.	<i>Asceparnus subfasciatus</i>			
484.	<i>Catasarcus asphaltinus</i>			
485.	<i>Catasarcus bilineatus</i>			

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486.	<i>Catasarcus cygnensis</i>			
487.	<i>Catasarcus hopei</i>			
488.	<i>Catasarcus nephelodes</i>			
489.	<i>Curculionidae</i> sp.			
490.	<i>Emplesis sordida</i>			Y
491.	<i>Listroderes delaiguei</i>			
492.	<i>Listroderes</i> sp.			
493.	<i>Molochthus</i> sp.			
494.	<i>Pelrorhynchus crassus</i>			
495.	<i>Phlyctinus callosus</i>			
496.	<i>Polyphrades laticollis</i>			
497.	<i>Rhamphus</i> sp.			Y
498.	<i>Sphenophorus brunnipennis</i>			
499.	<i>Tranes</i> sp.			
500.	<i>Tranes vigorsii</i>			
<b>Cyclopidae</b>				
501.	<i>Australocyclops australis</i>			
502.	<i>Eucyclops edytae</i>			
503.	<i>Mesocyclops brooksi</i>			
504.	<i>Mesocyclops</i> sp.			
505.	<i>Metacyclops</i> sp. EB1			Y
506.	<i>Microcyclops</i> sp. EB1			Y
507.	<i>Microcyclops</i> sp. EB2			Y
508.	<i>Mixocyclops mortoni</i>			
509.	<i>Mixocyclops</i> sp. LG1			Y
510.	<i>Paracyclops chiltoni</i>			
511.	<i>Paracyclops intermedius</i>			
<b>Cyprididae</b>				
512.	<i>Alboa worooa</i>			
513.	<i>Bennelongia australis</i>			
514.	<i>Bennelongia cygnus</i>			
515.	<i>Cypretta</i> aff. <i>globosa</i>			
516.	<i>Cypretta baylyi</i>			
517.	<i>Cypretta</i> sp.			
518.	<i>Cypretta</i> sp. 272			
519.	<i>Cyprinotus cingalensis</i> (ex <i>edwardi</i> )			
520.	<i>Eucypris virens</i>			
521.	<i>Ilyodromus</i> sp. 255 (south-west, CB)			
522.	<i>Lacrimicypris kumbar</i>			
523.	<i>Strandesia</i> sp. 323 (TWS)			Y
<b>Cypridopsidae</b>				
524.	<i>Sarscypridopsis aculeata</i>			
<b>Cyprinidae</b>				
525.	<i>Carassius auratus</i>			
526.	<i>Cyprinus carpio</i>			
<b>Cyzicidae</b>				
527.	<i>Cyzicus</i> sp.			
<b>Daphniidae</b>				
528.	<i>Ceriodaphnia</i> sp.			
529.	<i>Daphnia carinata</i>			
530.	<i>Scapholeberis kingi</i>			
531.	<i>Scapholeberis</i> sp.			
532.	<i>Simocephalus</i> sp.			
<b>Dasyatidae</b>				
533.	<i>Himantura toshi</i>			
<b>Dasyuridae</b>				
534.	25449 <i>Antechinus flavipes</i> (Yellow-footed Antechinus)			
535.	24088 <i>Antechinus flavipes</i> subsp. <i>leucogaster</i> (Yellow-footed Antechinus, Mardo)			
536.	24092 <i>Dasyurus geoffroi</i> (Chuditch, Western Quoll)		T	
537.	<i>Dasyurus geoffroi</i> subsp. <i>geoffroi</i>			
538.	24098 <i>Phascogale calura</i> (Red-tailed Phascogale, Kenngoor)		T	
539.	25508 <i>Phascogale tapoatafa</i> (Brush-tailed Phascogale)			
540.	24099 <i>Phascogale tapoatafa</i> subsp. <i>tapoatafa</i> (Southern Brush-tailed Phascogale, Wambenger)			T
541.	24109 <i>Sminthopsis dolichura</i> (Little long-tailed Dunnart)			
542.	24116 <i>Sminthopsis macroura</i> (Stripe-faced Dunnart)			

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<b>Dermestidae</b>				
543.	<i>Anthrenocerus australis</i>			
544.	<i>Dermestes (Dermestes) ater</i>			
545.	<i>Dermestes (Dermestinus) maculatus</i>			
<b>Desidae</b>				
546.	<i>Badumna insignis</i>			
547.	<i>Phryganoporus candidus</i>			
548.	<i>Phryganoporus nigrinus</i>			
<b>Diaspididae</b>				
549.	<i>Aspidiotus sp.</i>			Y
<b>Dicaeidae</b>				
550.	25607 <i>Dicaeum hirundinaceum (Mistletoebird)</i>			
<b>Dicruridae</b>				
551.	24443 <i>Grallina cyanoleuca (Magpie-lark)</i>			
552.	25610 <i>Myiagra inquieta (Restless Flycatcher)</i>			
553.	<i>Rhipidura (Rhipidura) albiscapa subsp. preissi</i>			
554.	<i>Rhipidura (Sauloprocta) leucophrys</i>			
555.	25613 <i>Rhipidura fuliginosa (Grey Fantail)</i>			
556.	24452 <i>Rhipidura fuliginosa subsp. preissi (Grey Fantail)</i>			
557.	25614 <i>Rhipidura leucophrys (Willie Wagtail)</i>			
558.	24454 <i>Rhipidura leucophrys subsp. leucophrys (Willie Wagtail)</i>			
<b>Diplodactylidae</b>				
559.	25456 <i>Crenadactylus ocellatus (Clawless Gecko)</i>			
560.	24918 <i>Crenadactylus ocellatus subsp. ocellatus (Clawless Gecko)</i>			
561.	25469 <i>Diplodactylus granariensis</i>			
562.	24929 <i>Diplodactylus granariensis subsp. granariensis</i>			
563.	24939 <i>Diplodactylus polyophthalmus</i>			
564.	24940 <i>Diplodactylus pulcher</i>			
565.	24944 <i>Diplodactylus savagei (Southern Pilbara Beak-faced Gecko)</i>			
566.	<i>Diplodactylus sp.</i>			
567.	<i>Diplodactylus vittatus</i>			
568.	42408 <i>Hesperoedura reticulata</i>			
569.	42414 <i>Lucasium alboguttatum</i>			
570.	30933 <i>Lucasium stenodactylum</i>			
571.	30934 <i>Lucasium wombeyi</i>			
572.	24982 <i>Rhynchoedura ornata (Western Beaked Gecko)</i>			
573.	25518 <i>Strophurus spinigerus</i>			
574.	24943 <i>Strophurus spinigerus subsp. inornatus</i>			
575.	24942 <i>Strophurus spinigerus subsp. spinigerus</i>			
<b>Dipluridae</b>				
576.	<i>Cethegus fugax</i>			
<b>Diptera</b>				
577.	<i>Diptera sp.</i>			
<b>Dolichopodidae</b>				
578.	<i>Medetera nigrohalterata</i>			
579.	<i>Nothorhaphium aemulans</i>			
580.	<i>Sympycnus sp.</i>			
<b>Drepanidae</b>				
581.	<i>Hypsidia microspila</i>			Y
582.	<i>Hypsidia niphosema</i>			Y
<b>Dytiscidae</b>				
583.	<i>Allodessus bistrigatus</i>			
584.	<i>Antiporus sp.</i>			
585.	<i>Bidessini sp.</i>			
586.	<i>Chostonectes sp.</i>			Y
587.	<i>Copelatus sp.</i>			
588.	<i>Cybister sp.</i>			
589.	<i>Eretes australis</i>			
590.	<i>Exocelina ater</i>			
591.	<i>Exocelina ferrugineus</i>			
592.	<i>Hydaticus sp.</i>			Y
593.	<i>Hyderodes crassus</i>			
594.	<i>Hyphydrus elegans</i>			
595.	<i>Hyphydrus sp.</i>			
596.	<i>Laccophilus sp.</i>			

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597.	<i>Lancetes lanceolatus</i>			
598.	<i>Lancetes sp.</i>			
599.	<i>Limbodessus inornatus</i>			
600.	<i>Limbodessus sp.</i>			
601.	<i>Megaporus howitti</i>			
602.	<i>Megaporus solidus</i>			
603.	<i>Megaporus sp.</i>			
604.	<i>Necterosoma regulare</i>			
605.	<i>Onychohydrus atratus</i>			
606.	<i>Onychohydrus scutellaris</i>			
607.	<i>Onychohydrus sp.</i>			
608.	<i>Paroster niger</i>			
609.	<i>Paroster sp.</i>			
610.	<i>Paroster sp. 4 (Ellen Brook)</i>			Y
611.	<i>Platynectes (Platynectes) aenescens</i>			
612.	<i>Platynectes sp.</i>			
613.	<i>Rhantus sp.</i>			
614.	<i>Rhantus suturalis</i>			
615.	<i>Sternopriscus browni</i>			
616.	<i>Sternopriscus marginatus</i>			
617.	<i>Sternopriscus minimus</i>			
618.	<i>Sternopriscus sp.</i>			
<b>Ecnomidae</b>				
619.	<i>Ecnomina sp.</i>			
620.	<i>Ecnomus pansus</i>			
621.	<i>Ecnomus turgidus</i>			
<b>Elapidae</b>				
622.	42380 <i>Brachyuropis fasciolatus subsp. fasciolatus (Narrow-banded Shovel-nosed Snake)</i>			
623.	42381 <i>Brachyuropis semifasciatus (Southern Shovel-nosed Snake)</i>			
624.	25295 <i>Demansia psammophis subsp. cupreiceps (Yellow-faced Whipsnake)</i>			
625.	25296 <i>Demansia psammophis subsp. reticulata (Yellow-faced Whipsnake)</i>			
626.	25251 <i>Echiopsis curta (Bardick)</i>			
627.	25250 <i>Elapognathus coronatus (Crowned Snake)</i>			
628.	25248 <i>Neelaps bimaculatus (Black-naped Snake)</i>			
629.	25249 <i>Neelaps calonotos (Black-striped Snake)</i>		P3	
630.	<i>Neelaps calonotos</i>			
631.	25252 <i>Notechis scutatus (Tiger Snake)</i>			
632.	25253 <i>Parasuta gouldii</i>			
633.	25255 <i>Parasuta nigriceps</i>			
634.	25261 <i>Pseudechis australis (Mulga Snake)</i>			
635.	25511 <i>Pseudonaja affinis (Dugite)</i>			
636.	25259 <i>Pseudonaja affinis subsp. affinis (Dugite)</i>			
637.	42416 <i>Pseudonaja mengdeni (Western Brown Snake)</i>			
638.	25263 <i>Pseudonaja modesta (Ringed Brown Snake)</i>			
639.	25266 <i>Simoselaps bertholdi (Jan's Banded Snake)</i>			
<b>Elateridae</b>				
640.	<i>Anilicus loricatus</i>			
<b>Empididae</b>				
641.	<i>Empididae sp.</i>			
<b>Encyrtidae</b>				
642.	<i>Xenanusia pulchripennis</i>			Y
<b>Engraulidae</b>				
643.	<i>Engraulis australis</i>			
<b>Equidae</b>				
644.	24258 <i>Equus caballus (Horse)</i>	Y		
<b>Estrilidae</b>				
645.	25686 <i>Neochmia temporalis (Red-browed Finch)</i>	Y		
646.	24645 <i>Stagonopleura oculata (Red-eared Firetail)</i>			
<b>Eulophidae</b>				
647.	<i>Astichus mirissimus</i>			
<b>Eunicidae</b>				
648.	<i>Marphysa sp.</i>			
<b>Eylaidae</b>				
649.	<i>Eylais sp.</i>			

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<b>Falconidae</b>				
650.	<i>Falco (Falco) longipennis subsp. longipennis</i>			
651.	<i>Falco (Ieracidea) berigora subsp. occidentalis</i>			
652.	<i>Falco (Tinnunculus) cenchroides</i>			
653.	25621 <i>Falco berigora (Brown Falcon)</i>			
654.	24471 <i>Falco berigora subsp. berigora (Brown Falcon)</i>			
655.	25622 <i>Falco cenchroides (Australian Kestrel)</i>			
656.	24472 <i>Falco cenchroides subsp. cenchroides (Australian Kestrel)</i>			
657.	25623 <i>Falco longipennis (Australian Hobby)</i>			
658.	24474 <i>Falco longipennis subsp. longipennis (Australian Hobby)</i>			
659.	25624 <i>Falco peregrinus (Peregrine Falcon)</i>		S	
660.	24475 <i>Falco peregrinus subsp. macropus (Australian Peregrine Falcon)</i>		S	
<b>Felidae</b>				
661.	24041 <i>Felis catus (Cat)</i>	Y		
<b>Filistatidae</b>				
662.	<i>Wandella barbarella</i>			
<b>Fissurellidae</b>				
663.	<i>Scutus (Scutus) antipodes</i>			
<b>Formicidae</b>				
664.	<i>Acropyga myops</i>			
665.	<i>Amblyopone aberrans</i>			
666.	<i>Amblyopone australis</i>			
667.	<i>Amblyopone ferruginea</i>			Y
668.	<i>Anisopheidole sp.</i>			
669.	<i>Anonychomyrma nitidiceps</i>			
670.	<i>Anonychomyrma sp.</i>			
671.	<i>Aphaenogaster poultoni</i>			
672.	<i>Aphaenogaster sp.</i>			
673.	<i>Austromorium hetericki</i>			Y
674.	<i>Camponotus chalceus</i>			
675.	<i>Camponotus cinereus subsp. amperei</i>			Y
676.	<i>Camponotus cinereus subsp. cinereus</i>			Y
677.	<i>Camponotus discors</i>			
678.	<i>Camponotus ephippium</i>			Y
679.	<i>Camponotus ephippium subsp. narses</i>			
680.	<i>Camponotus evae subsp. evae</i>			
681.	<i>Camponotus gasseri</i>			
682.	<i>Camponotus lividipes</i>			
683.	<i>Camponotus lownei</i>			
684.	<i>Camponotus marcens</i>			Y
685.	<i>Camponotus michaelsoni</i>			
686.	<i>Camponotus minimus</i>			
687.	<i>Camponotus sp.</i>			
688.	<i>Camponotus tumidus</i>			
689.	<i>Camponotus walkeri subsp. bardus</i>			
690.	<i>Cerapachys brevis</i>			
691.	<i>Cerapachys clarki</i>			
692.	<i>Cerapachys fervidus</i>			
693.	<i>Cerapachys gilesi</i>			
694.	<i>Cerapachys incontentus</i>			
695.	<i>Cerapachys latus</i>			Y
696.	<i>Cerapachys nigriventris</i>			
697.	<i>Cerapachys princeps</i>			
698.	<i>Cerapachys punctatissimus</i>			
699.	<i>Crematogaster rufotestacea</i>			
700.	<i>Crematogaster sp.</i>			
701.	<i>Doleromyrma darwiniana subsp. fida</i>			Y
702.	<i>Doleromyrma sp.</i>			
703.	<i>Dolichoderus clusor</i>			
704.	<i>Dolichoderus formosus</i>			
705.	<i>Dolichoderus ypsilon</i>			
706.	<i>Iridomyrmex bicknelli</i>			
707.	<i>Iridomyrmex chasei</i>			
708.	<i>Iridomyrmex conifer</i>			
709.	<i>Iridomyrmex continentis</i>			
710.	<i>Iridomyrmex discors</i>			
711.	<i>Iridomyrmex exsanguis</i>			
712.	<i>Iridomyrmex hartmeyeri</i>			

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713.	<i>Iridomyrmex innocens</i>			
714.	<i>Iridomyrmex lividus</i>			
715.	<i>Iridomyrmex purpureus</i>			
716.	<i>Iridomyrmex</i> sp.			
717.	<i>Iridomyrmex splendens</i>			
718.	<i>Iridomyrmex suchieri</i>			
719.	<i>Leptogenys neutralis</i>			
720.	<i>Meranoplus aureolus</i>			Y
721.	<i>Meranoplus rugosus</i>			Y
722.	<i>Monomorium crinitum</i>			Y
723.	<i>Monomorium fieldi</i>			
724.	<i>Monomorium laeve</i>			
725.	<i>Monomorium leae</i>			
726.	<i>Monomorium legulus</i>			
727.	<i>Monomorium rubriceps</i>			
728.	<i>Monomorium sordidum</i>			
729.	<i>Monomorium</i> sp.			
730.	<i>Monomorium sydneyense</i>			
731.	<i>Myrmecia chasei</i>			
732.	<i>Myrmecia clarki</i>			
733.	<i>Myrmecia desertorum</i>			
734.	<i>Myrmecia elegans</i>			
735.	<i>Myrmecia gratiosa</i>			
736.	<i>Myrmecia ludlowi</i>			
737.	<i>Myrmecia mandibularis</i>			
738.	<i>Myrmecia michaelsoni</i>			
739.	<i>Myrmecia nigra</i>			
740.	<i>Myrmecia nigriceps</i>			
741.	<i>Myrmecia picta</i>			
742.	<i>Myrmecia rufinodis</i>			
743.	<i>Myrmecia swalei</i>			
744.	<i>Myrmecia tepperi</i>			
745.	<i>Myrmecia urens</i>			
746.	<i>Myrmecia vindex</i>			
747.	<i>Notoncus</i> sp.			
748.	<i>Ochetellus glaber</i>			
749.	<i>Odontomachus ruficeps</i>			
750.	<i>Pachycondyla lutea</i>			
751.	<i>Papyrius nitidus</i> subsp. <i>queenslandensis</i>			
752.	<i>Pheidole bos</i>			Y
753.	<i>Pheidole</i> sp.			
754.	<i>Platythrea micans</i>			Y
755.	<i>Polyrhachis ops</i>			
756.	<i>Rhytidoponera foveolata</i>			
757.	<i>Rhytidoponera inornata</i>			
758.	<i>Rhytidoponera metallica</i>			
759.	<i>Rhytidoponera rufonigra</i>			
760.	<i>Rhytidoponera</i> sp.			
761.	<i>Rhytidoponera violacea</i>			
762.	<i>Solenopsis</i> sp.			
763.	<i>Sphinctomyrmex imbecilis</i>			
764.	<i>Sphinctomyrmex occidentalis</i>			
765.	<i>Stigmacros aemula</i>			Y
766.	<i>Stigmacros glauerti</i>			Y
767.	<i>Stigmacros rectangularis</i>			Y
768.	<i>Strumigenys quinqueidentata</i>			Y
769.	<i>Tapinoma</i> sp.			
<b>Fringillidae</b>				
770.	25625 <i>Carduelis carduelis</i> (Goldfinch, European Goldfinch)	Y		
771.	24480 <i>Carduelis carduelis</i> subsp. <i>britannica</i> (Goldfinch)	Y		
772.	<i>Serinus canarius</i>			
<b>Galaxiidae</b>				
773.	34028 <i>Galaxias occidentalis</i> (Western Minnow)			
774.	<i>Galaxias</i> sp.			
775.	34027 <i>Galaxiella nigrostriata</i> (Black-stripe Minnow)		P3	
<b>Galeommatidae</b>				
776.	<i>Arthritica</i> sp.			
<b>Gasteruptionidae</b>				

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777.	<i>Gasteruption angulare</i>			
778.	<i>Gasteruption secundum</i>			
<b>Gastropoda</b>				
779.	<i>Gastropoda marine sp. RCM1</i>			
<b>Gekkonidae</b>				
780.	24980 <i>Christinus marmoratus</i> (Marbled Gecko)			
781.	24959 <i>Gehyra variegata</i>			
782.	24961 <i>Heteronotia binoei</i> (Bynoe's Gecko)			
783.	24983 <i>Underwoodisaurus milii</i> (Barking Gecko)			
<b>Gelechiidae</b>				
784.	<i>Ardozyga irobela</i>			Y
<b>Geometridae</b>				
785.	<i>Anachloris sp.</i>			
786.	<i>Chlenias sp.</i>			
787.	<i>Ciampa sp.</i>			Y
788.	<i>Epyaxa sodaliata</i>			
789.	<i>Eucyclodes sp.</i>			Y
790.	<i>Gastrinodes argoplaca</i>			
791.	<i>Hypographa aristarcha</i>			
792.	<i>Loweria platydesma</i>			
793.	<i>Nisista notodontaria</i>			Y
794.	<i>Syneora mundifera</i>			
795.	<i>Xanthorhoe vacuaria</i>			
<b>Geotriidae</b>				
796.	34030 <i>Geotria australis</i> (Pouched Lamprey)		P1	
<b>Gerreidae</b>				
797.	<i>Gerres subfasciatus</i>			
<b>Girellidae</b>				
798.	<i>Girella tephraeops</i>			
<b>Gnaphosidae</b>				
799.	<i>Ceryerda cursitans</i>			
800.	<i>Hemicloea sp.</i>			
801.	<i>Hemicloea sublimbata</i>			
<b>Gobiidae</b>				
802.	<i>Acentrogobius bifrenatus</i>			
803.	<i>Arenigobius bifrenatus</i>			
804.	<i>Favonigobius sp.</i>			
805.	<i>Papillogobius punctatus</i>			
806.	<i>Pseudogobius olorum</i>			
807.	<i>Tridentiger trigonocephalus</i>			
<b>Gomphidae</b>				
808.	<i>Austrogomphus (Austrogomphus) collaris</i>			
809.	<i>Austrogomphus sp.</i>			
<b>Gonorynchidae</b>				
810.	<i>Gonorynchus greyi</i>			
<b>Gripopterygidae</b>				
811.	<i>Leptoperla australica</i>			
812.	<i>Newmanoperla exigua</i>			
<b>Halcyonidae</b>				
813.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
814.	30902 <i>Dacelo novaeguineae subsp. novaeguineae</i> (Laughing Kookaburra)	Y		
815.	<i>Todiramphus (Todiramphus) sanctus subsp. sanctus</i>			
816.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
817.	24309 <i>Todiramphus sanctus subsp. sanctus</i> (Sacred Kingfisher)			
<b>Halictidae</b>				
818.	<i>Lasioglossum (Chilactis) castor</i>			
819.	<i>Lasioglossum (Chilactis) chapmani</i>			
820.	<i>Lasioglossum (Chilactis) impunctatum</i>			Y
821.	<i>Lasioglossum (Chilactis) lanarium</i>			
822.	<i>Lipotriches (Austronomia) australica</i>			
823.	<i>Lipotriches (Austronomia) flavoviridis</i>			
824.	<i>Lipotriches (Austronomia) purnongensis</i>			Y
825.	<i>Lipotriches (austronomia)</i>			

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<b>Haliotidae</b>				
826.	<i>Haliotis laevigata</i>			
827.	<i>Haliotis roei</i>			
828.	<i>Haliotis scalaris</i> subsp. <i>scalaris</i>			
829.	<i>Haliotis semiplicata</i>			
<b>Haliplidae</b>				
830.	<i>Haliplus</i> sp.			
831.	<i>Haliplus testudo</i>			
<b>Helicidae</b>				
832.	<i>Cantareus aspersa</i>			
<b>Henicopidae</b>				
833.	<i>Henicops dentatus</i>			
<b>Hersiliidae</b>				
834.	<i>Tamopsis darlingtoniana</i>			
835.	<i>Tamopsis perthensis</i>			
<b>Hesperidae</b>				
836.	<i>Anisynta sphenosema</i>			
837.	<i>Exometoeca nycteris</i>			
838.	<i>Mesodina cyanophracta</i>			
839.	<i>Motasingha dirphia</i>			
840.	<i>Taractrocera papyria</i> subsp. <i>agraulia</i>			
<b>Heteroceridae</b>				
841.	<i>Heterocerus scabriusculus</i>			
<b>Heteromyzidae</b>				
842.	<i>Tapeigaster nigricornis</i>			Y
843.	<i>Tapeigaster paramonovi</i>			
<b>Hirudinea</b>				
844.	<i>Hirudinea</i> sp.			
<b>Hirundinidae</b>				
845.	<i>Cheramoeca leucosterna</i>			
846.	<i>Hirundo (Hirundo) neoxena</i> subsp. <i>carteri</i>			
847.	24489 <i>Hirundo ariel</i> (Fairy Martin)			
848.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
849.	25629 <i>Hirundo nigricans</i> (Tree Martin)			
850.	24492 <i>Hirundo nigricans</i> subsp. <i>nigricans</i> (Tree Martin)			
851.	<i>Petrochelidon (Hylochelidon) nigricans</i>			
<b>Histeridae</b>				
852.	<i>Acritus (Acritus) occidentalis</i>			Y
853.	<i>Chlamydopsis latipes</i>			
854.	<i>Hololepta (Hololepta) australica</i>			
<b>Hydrobiidae</b>				
855.	<i>Tatea rufilabris</i>			
856.	<i>Tatea</i> sp.			Y
857.	<i>Westrapyrgus slacksmithae</i>			
<b>Hydrochidae</b>				
858.	<i>Hydrochus</i> sp.			
<b>Hydrophilidae</b>				
859.	<i>Berosus (Enoplurus) australiae</i>			
860.	<i>Berosus pulchellus</i>			
861.	<i>Berosus</i> sp.			
862.	<i>Chledocyon marmoratus</i>			
863.	<i>Enochrus (Methydus) eyrensis</i>			
864.	<i>Enochrus elongatulus</i>			
865.	<i>Enochrus</i> sp.			
866.	<i>Hydrophilidae</i> sp.			
867.	<i>Limnoxenus zealandicus</i>			
868.	<i>Limnoxenus zelandicus</i>			
869.	<i>Paracymus pygmaeus</i>			
<b>Hydropsychidae</b>				
870.	<i>Cheumatopsyche modica</i>			
871.	<i>Smicrophylax australis</i>			
<b>Hydroptilidae</b>				

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872.	<i>Acritoptila globosa</i>			
873.	<i>Hellyethira litua</i>			
874.	<i>Hellyethira malleoforma</i>			
875.	<i>Hellyethira simplex</i>			
876.	<i>Hellyethira sp.</i>			
877.	<i>Hydroptila losida</i>			
878.	<i>Oxyethira (Trichoglene) retracta</i>			
<b>Hylidae</b>				
879.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
880.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
<b>Hyriidae</b>				
881.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T	
<b>Idiopidae</b>				
882.	<i>Aganippe cupulifex</i>			
883.	<i>Aganippe raphiduca</i>			
884.	33903 <i>Arbanitis inornatus</i> (trapdoor spider)		P1	
885.	<i>Eucyrtops latior</i>			
886.	<i>Euoplos inornatus</i>			
<b>Iulomorphidae</b>				
887.	<i>Dinocambala ingens</i>			
<b>Ixodidae</b>				
888.	<i>Amblyomma albolimbatum</i>			
889.	<i>Amblyomma fimbriatum</i>			
890.	<i>Amblyomma triguttatum</i>			
891.	<i>Ixodes feicalis</i>			
<b>Julidae</b>				
892.	<i>Ommatoiulus moreleti</i>			
893.	<i>Ommatoiulus moreletii</i>			
<b>Kalotermitidae</b>				
894.	<i>Kalotermes aemulus</i>			
<b>Labridae</b>				
895.	<i>Odax cyanomelas</i>			
896.	<i>Pseudolabrus sp.</i>			
<b>Lamponidae</b>				
897.	<i>Asadipus kunderang</i>			
898.	<i>Bigenditia zuytdorp</i>			
899.	<i>Lampona brevipes</i>			
900.	<i>Lampona cylindrata</i>			
901.	<i>Lampona yanchep</i>			
902.	<i>Lamponella ainslie</i>			
903.	<i>Lamponina elongata</i>			
904.	<i>Notsodipus muckera</i>			
905.	<i>Paralampona marangaroo</i>			
906.	<i>Prionosternum nitidiceps</i>			
907.	<i>Prionosternum scutatatum</i>			
<b>Laridae</b>				
908.	24506 <i>Anous tenuirostris subsp. melanops</i> (Australian Lesser Noddy)		T	
909.	<i>Chroicocephalus novaehollandiae</i>			
910.	<i>Hydroprogne caspia</i>			
911.	24511 <i>Larus novaehollandiae subsp. novaehollandiae</i> (Silver Gull)			
912.	24525 <i>Sterna fuscata subsp. nubilosa</i> (Sooty Tern)			
913.	24529 <i>Sterna leucoptera</i> (White-winged Black Tern)		IA	
914.	24530 <i>Sterna nereis subsp. nereis</i> (Fairy Tern)		T	
915.	<i>Thalasseus bergii</i>			
<b>Latidae</b>				
916.	<i>Psammoperca waigiensis</i>			
<b>Lepidoptera</b>				
917.	<i>Lepidoptera sp.</i>			
<b>Leporidae</b>				
918.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	Y		
<b>Leptoceridae</b>				
919.	<i>Notalina fulva</i>			
920.	<i>Oecetis laustra</i>			

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921.	<i>Oecetis pechana</i>			
922.	<i>Oecetis walpolica</i>			
923.	<i>Triplectides australis</i>			
<b>Lestidae</b>				
924.	<i>Austrolestes aleison</i>			
925.	<i>Austrolestes analis</i>			
926.	<i>Austrolestes annulosus</i>			
927.	<i>Austrolestes aridus</i>			
928.	<i>Austrolestes io</i>			
<b>Leucospidae</b>				
929.	<i>Leucospis rieki</i>			Y
<b>Libellulidae</b>				
930.	<i>Austrothemis nigrescens</i>			
931.	<i>Diplacodes bipunctata</i>			
932.	<i>Diplacodes haematodes</i>			
933.	<i>Nannophya dalei</i>			
934.	<i>Orthetrum caledonicum</i>			
935.	<i>Tramea</i> sp.			
936.	<i>Tramea stenoloba</i>			
<b>Limacidae</b>				
937.	<i>Lehmannia nyctelia</i>			
938.	<i>Limax maximus</i>			Y
<b>Limnadiidae</b>				
939.	<i>Eulimnadia</i> sp.			
<b>Limnesiidae</b>				
940.	<i>Limnesia</i> sp.			
<b>Limnichidae</b>				
941.	<i>Limnichidae</i> sp.			
<b>Limnocharidae</b>				
942.	<i>Limnochares australica</i>			
<b>Limnocytheridae</b>				
943.	<i>Limnocythere dorsosicula</i>			
944.	<i>Limnocythere mowbrayensis</i>			
945.	<i>Limnocythere</i> sp.			
946.	<i>Paralimnocythere</i> sp. 275 (south-west, CB)			
<b>Limnodynastidae</b>				
947.	25408 <i>Heleioporus albopunctatus</i> (Western Spotted Frog)			
948.	25409 <i>Heleioporus barycragus</i> (Hooting Frog)			
949.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
950.	25411 <i>Heleioporus inornatus</i> (Whooping Frog)			
951.	25412 <i>Heleioporus psammophilus</i> (Sand Frog)			
952.	<i>Heleioporus</i> sp.			
953.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
954.	25426 <i>Neobatrachus pelobatoides</i> (Humming Frog)			
<b>Limoniidae</b>				
955.	<i>Molophilus (Molophilus) flavoannulatus</i>			Y
<b>Linyphiidae</b>				
956.	<i>Erigone prominens</i>			
957.	<i>Laetesia mollita</i>			
958.	<i>Ostearius melanopygius</i>			
<b>Littorinidae</b>				
959.	<i>Bembicium melanostomum</i>			
<b>Lucanidae</b>				
960.	<i>Lamprima micardi</i>			
<b>Lycaenidae</b>				
961.	<i>Hypochrysops halyaetus</i>			
962.	<i>Lampides boeticus</i>			
963.	<i>Ogyris amaryllis</i> subsp. <i>meridionalis</i>			
964.	<i>Ogyris idmo</i>			
965.	<i>Zizina otis</i> subsp. <i>labradus</i>			
<b>Lycosidae</b>				
966.	<i>Artoria flavimana</i>			

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967.	<i>Artoria impedita</i>			
968.	<i>Artoria linnaei</i>			
969.	<i>Artoriopsis expolita</i>			
970.	<i>Dingosa serrata</i>			
971.	<i>Hoggicosa storri</i>			
972.	<i>Hogna crispipes</i>			
973.	<i>Hogna kuyani</i>			
974.	<i>Lycosa ariadnae</i>			
975.	<i>Lycosa gilberta</i>			
976.	<i>Lycosa godeffroyi</i>			
977.	<i>Tasmanicosa leuckartii</i>			
978.	<i>Tasmanicosa</i> sp.			
979.	<i>Venator immansueta</i>			
980.	<i>Venator koyuga</i>			
981.	<i>Venator</i> sp.			
982.	<i>Venatrix pullastra</i>			
<b>Lyncaeiidae</b>				
983.	<i>Lynceus</i> sp.			
<b>Macropodidae</b>				
984.	25488 <i>Macropus eugenii</i> (Tammar Wallaby)		P5	
985.	24131 <i>Macropus eugenii</i> subsp. <i>derbianus</i> (Tammar Wallaby (WA subsp))		P5	
986.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
987.	24133 <i>Macropus irma</i> (Western Brush Wallaby)		P4	
988.	24135 <i>Macropus robustus</i> subsp. <i>erubescens</i> (Euro, Biggada)			
989.	25506 <i>Petrogale lateralis</i> (Black-flanked Rock-wallaby)		T	
990.	24143 <i>Petrogale lateralis</i> subsp. <i>hacketti</i> (Recherche Black-footed Rock-wallaby)		T	
991.	24142 <i>Petrogale lateralis</i> subsp. <i>lateralis</i> (Black-flanked Rock-wallaby, Black-footed Rock-wallaby)		T	
992.	24144 <i>Petrogale rothschildi</i> (Rothschild's Rock-wallaby)			
993.	24145 <i>Setonix brachyurus</i> (Quokka)		T	
<b>Macrotrichidae</b>				
994.	<i>Macrotrix</i> sp.			
995.	<i>Macrotrix</i> sp. A (CB)			
996.	<i>Macrotrix</i> sp. b (of RJS) (SAP)			
<b>Maluridae</b>				
997.	<i>Malurus</i> ( <i>Malurus</i> ) <i>splendens</i>			
998.	<i>Malurus</i> ( <i>Malurus</i> ) <i>splendens</i> subsp. <i>splendens</i>			
999.	25650 <i>Malurus elegans</i> (Red-winged Fairy-wren)			
1000.	25651 <i>Malurus lamberti</i> (Variegated Fairy-wren)			
1001.	24544 <i>Malurus lamberti</i> subsp. <i>assimilis</i> (Variegated Fairy-wren)			
1002.	25652 <i>Malurus leucopterus</i> (White-winged Fairy-wren)			
1003.	24551 <i>Malurus pulcherrimus</i> (Blue-breasted Fairy-wren)			
1004.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
1005.	24552 <i>Malurus splendens</i> subsp. <i>splendens</i> (Splendid Fairy-wren)			
<b>Mantispidae</b>				
1006.	<i>Campion rubellus</i>			
1007.	<i>Campion tenuistrigus</i>			
1008.	<i>Theristria riei</i>			
<b>Megachilidae</b>				
1009.	<i>Coelioxys</i> ( <i>Coelioxys</i> ) <i>froggatti</i>			
1010.	<i>Coelioxys</i> sp.			
1011.	<i>Megachile</i> ( <i>Chalicodomoides</i> ) <i>aethiops</i>			
1012.	<i>Megachile</i> ( <i>Eutricharaea</i> ) <i>chrysopyga</i>			
1013.	<i>Megachile</i> ( <i>Eutricharaea</i> ) <i>macularis</i>			
1014.	<i>Megachile</i> ( <i>Eutricharaea</i> ) <i>obtusa</i>			
1015.	<i>Megachile</i> ( <i>Eutricharaea</i> ) <i>serricauda</i>			
1016.	<i>Megachile</i> ( <i>Eutricharaea</i> ) <i>simplex</i>			
1017.	<i>Megachile</i> ( <i>Hackeriapis</i> ) <i>oblonga</i>			
1018.	<i>Megachile</i> ( <i>Hackeriapis</i> ) <i>tosticauda</i>			
1019.	<i>Megachile</i> ( <i>Schizomegachile</i> ) <i>monstrosa</i>			
1020.	<i>Megachile</i> ( <i>austrochile</i> )			
1021.	<i>Megachile</i> <i>apicata</i>			
1022.	<i>Megachile</i> <i>aurifrons</i>			
1023.	<i>Megachile</i> <i>erythropyga</i>			
1024.	<i>Megachile</i> <i>latericauda</i>			Y
1025.	<i>Megachile</i> <i>rufolobata</i>			
1026.	<i>Megachile</i> <i>semiluctuosa</i>			

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1027.	<i>Megachile</i> sp.			
1028.	<i>Megachile speluncarum</i>			
<b>Megapodagrionidae</b>				
1029.	<i>Archiargiolestes pusillus</i>			
1030.	<i>Miniargiolestes minimus</i>			
<b>Meliphagidae</b>				
1031.	24559 <i>Acanthagenys rufogularis</i> ( <i>Spiny-cheeked Honeyeater</i> )			
1032.	24560 <i>Acanthorhynchus superciliosus</i> ( <i>Western Spinebill</i> )			
1033.	<i>Anthochaera (Anellobia) chrysoptera</i>			
1034.	<i>Anthochaera (Anellobia) lunulata</i>			
1035.	<i>Anthochaera (Anthochaera) carunculata</i> subsp. <i>woodwardi</i>			
1036.	24561 <i>Anthochaera carunculata</i> ( <i>Red Wattlebird</i> )			
1037.	24562 <i>Anthochaera lunulata</i> ( <i>Western Little Wattlebird</i> )			
1038.	24567 <i>Epthianura albifrons</i> ( <i>White-fronted Chat</i> )			
1039.	42314 <i>Gavicalis virescens</i> ( <i>Singing Honeyeater</i> )			
1040.	25659 <i>Lichenostomus leucotis</i> ( <i>White-eared Honeyeater</i> )			
1041.	<i>Lichmera (Lichmera) indistincta</i>			
1042.	<i>Lichmera (Lichmera) indistincta</i> subsp. <i>indistincta</i>			
1043.	25661 <i>Lichmera indistincta</i> ( <i>Brown Honeyeater</i> )			
1044.	24582 <i>Lichmera indistincta</i> subsp. <i>indistincta</i> ( <i>Brown Honeyeater</i> )			
1045.	<i>Manorina (Myzantha) flavigula</i> subsp. <i>obscura</i>			
1046.	24583 <i>Manorina flavigula</i> ( <i>Yellow-throated Miner</i> )			
1047.	25663 <i>Melithreptus brevirostris</i> ( <i>Brown-headed Honeyeater</i> )			
1048.	24586 <i>Melithreptus brevirostris</i> subsp. <i>leucogenys</i> ( <i>Brown-headed Honeyeater</i> )			
1049.	24587 <i>Melithreptus chloropsis</i> ( <i>Western White-naped Honeyeater</i> )			
1050.	<i>Phylidonyris (Meliornis) novaehollandiae</i>			
1051.	<i>Phylidonyris (Meliornis) novaehollandiae</i> subsp. <i>longirostris</i>			
1052.	24594 <i>Phylidonyris melanops</i> ( <i>Tawny-crowned Honeyeater</i> )			
1053.	25669 <i>Phylidonyris nigra</i> ( <i>White-cheeked Honeyeater</i> )			
1054.	24595 <i>Phylidonyris nigra</i> subsp. <i>gouldii</i> ( <i>White-cheeked Honeyeater</i> )			
1055.	24596 <i>Phylidonyris novaehollandiae</i> ( <i>New Holland Honeyeater</i> )			
1056.	42344 <i>Purnella albifrons</i> ( <i>White-fronted Honeyeater</i> )			
<b>Meropeidae</b>				
1057.	33972 <i>Austromerope poultoni</i> ( <i>scorpionfly</i> )		P2	
<b>Meropidae</b>				
1058.	24598 <i>Merops ornatus</i> ( <i>Rainbow Bee-eater</i> )		IA	
<b>Microcanthidae</b>				
1059.	<i>Microcanthus strigatus</i>			
1060.	<i>Neatypus obliquus</i>			
1061.	<i>Tilodon sexfasciatus</i>			
<b>Micronectidae</b>				
1062.	<i>Micronecta</i> sp.			
<b>Micropholcommatidae</b>				
1063.	<i>Raveniella cirrata</i>			
1064.	<i>Raveniella peckorum</i>			
<b>Milacidae</b>				
1065.	<i>Milax gagates</i>			
<b>Mimetidae</b>				
1066.	<i>Australomimetus aurioculatus</i>			
1067.	<i>Australomimetus ovidi</i>			
1068.	<i>Ero aphana</i>			
<b>Mitridae</b>				
1069.	<i>Mitra (Mitra) glabra</i>			
<b>Miturgidae</b>				
1070.	<i>Eupograptus kottae</i>			
1071.	<i>Mituliodon tarantulinus</i>			
<b>Moinidae</b>				
1072.	<i>Moina</i> sp.			
1073.	<i>Moinidae</i> sp.			Y
<b>Molossidae</b>				
1074.	24184 <i>Mormopterus planiceps</i> ( <i>Southern Freetail-bat</i> )			
1075.	24185 <i>Tadarida australis</i> ( <i>White-striped Freetail-bat</i> )			
<b>Monacanthidae</b>				

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1076.	<i>Acanthaluteres brownii</i>			
1077.	<i>Brachaluteres jacksonianus</i>			
1078.	<i>Chaetoderma penicilligera</i>			
1079.	<i>Meuschenia trachylepis</i>			
1080.	<i>Monacanthus chinensis</i>			
1081.	<i>Scobinichthys granulatus</i>			
<b>Monocentridae</b>				
1082.	<i>Cleidopus gloriamaris</i>			
<b>Motacillidae</b>				
1083.	25670 <i>Anthus australis</i> (Australian Pipit)			
1084.	24599 <i>Anthus australis</i> subsp. <i>australis</i> (Australian Pipit)			
<b>Mugilidae</b>				
1085.	<i>Aldrichetta forsteri</i>			
1086.	<i>Mugil cephalus</i>			
<b>Muricidae</b>				
1087.	<i>Pterochelus triformis</i>			
<b>Muridae</b>				
1088.	24215 <i>Hydromys chrysogaster</i> (Water-rat)		P4	
1089.	24223 <i>Mus musculus</i> (House Mouse)	Y		
1090.	24230 <i>Pseudomys albocinereus</i> (Ash-grey Mouse)			
1091.	24234 <i>Pseudomys delicatulus</i> (Delicate Mouse)			
1092.	24235 <i>Pseudomys desertor</i> (Desert Mouse)			
1093.	24243 <i>Rattus fuscipes</i> (Western Bush Rat)			
1094.	24245 <i>Rattus rattus</i> (Black Rat)	Y		
1095.	<i>Rattus</i> sp.			
<b>Myobatrachidae</b>				
1096.	25398 <i>Crinia georgiana</i> (Quacking Frog)			
1097.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
1098.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
1099.	25401 <i>Crinia pseudinsignifera</i> (Bleating Froglet)			
1100.	<i>Crinia</i> sp.			
1101.	25404 <i>Geocrinia leai</i> (Ticking Frog)			
1102.	25420 <i>Myobatrachus gouldii</i> (Turtle Frog)			
1103.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
<b>Myrmecobiidae</b>				
1104.	24146 <i>Myrmecobius fasciatus</i> (Numbat, Walpurti)		T	
<b>Myrmeleontidae</b>				
1105.	<i>Heoclisia fundata</i>			
1106.	<i>Periclystus aureolatus</i>			
1107.	<i>Stilbopteryx</i> sp.			
<b>Nacellidae</b>				
1108.	<i>Cellana radiata</i>			
<b>Nannoperacidae</b>				
1109.	<i>Edelia vittata</i>			
<b>Nemesiidae</b>				
1110.	<i>Aname mainae</i>			
1111.	<i>Aname tepperi</i>			
<b>Nemopteridae</b>				
1112.	<i>Chasmodon huttii</i>			
<b>Neopilionidae</b>				
1113.	<i>Ballarra longipalpus</i>			
<b>Neosittidae</b>				
1114.	<i>Daphoenositta</i> ( <i>Neositta</i> ) <i>chrysoptera</i> subsp. <i>pileata</i>			
1115.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
1116.	24606 <i>Daphoenositta chrysoptera</i> subsp. <i>pileata</i> (Varied Sittella, Black-capped Sittella)			
<b>Neotrichidae</b>				
1117.	<i>Neotrix armata</i>			
<b>Nephilidae</b>				
1118.	<i>Nephila edulis</i>			
<b>Nepidae</b>				
1119.	<i>Laccotrepes</i> ( <i>Laccotrepes</i> ) <i>tristis</i>			
1120.	<i>Ranatra dispar</i>			

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<b>Nereididae</b>				
1121.	<i>Australonereis ehlersi</i>			
1122.	<i>Simplisetia aequisetis</i>			
<b>Nicodamidae</b>				
1123.	<i>Ambicodamus kochi</i>			
1124.	<i>Nicodamus mainae</i>			
<b>Nitidulidae</b>				
1125.	<i>Thalycrodes mixtum</i>			Y
<b>Noctuidae</b>				
1126.	<i>Australothis rubescens</i>			
1127.	<i>Buciara bipartita</i>			Y
1128.	<i>Helicoverpa armigera</i>			
1129.	<i>Helicoverpa punctigera</i>			
1130.	<i>Heliothis punctifera</i>			
1131.	<i>Phytometra formosalis</i>			
1132.	<i>Proteuxoa chrysoaspila</i>			Y
<b>Nolidae</b>				
1133.	<i>Uraba lugens</i>			
<b>Notodontidae</b>				
1134.	<i>Ochrogaster lunifer</i>			
1135.	<i>Trichiocercus sparshalli</i>			
<b>Notodromadidae</b>				
1136.	<i>Newnhamia fenestrata</i>			
<b>Notonectidae</b>				
1137.	<i>Anisops hyperion</i>			
1138.	<i>Anisops occipitalis</i>			
1139.	<i>Anisops sp.</i>			
1140.	<i>Anisops stali</i>			
1141.	<i>Anisops thienemanni</i>			
1142.	<i>Notonecta (Enitharonecta) handlirschi</i>			
1143.	<i>Paranisops endymion</i>			
<b>Numididae</b>				
1144.	<i>Numida meleagris</i>			
<b>Nymphalidae</b>				
1145.	<i>Geitoneura klugii</i>			
1146.	<i>Geitoneura minyas</i>			
1147.	<i>Heteronympha merope subsp. duboulayi</i>			
1148.	<i>Junonia villida subsp. villida</i>			
<b>Ochteridae</b>				
1149.	<i>Ochterus occidentalis</i>			
<b>Oecobiidae</b>				
1150.	<i>Oecobius navus</i>			
<b>Oecophoridae</b>				
1151.	<i>Metaphrastis acrochalca</i>			Y
<b>Oedemeridae</b>				
1152.	<i>Copidita erythroderes</i>			
<b>Oligochaeta</b>				
1153.	<i>Oligochaeta sp.</i>			
<b>Olpidae</b>				
1154.	<i>Xenolpium sp.</i>			
<b>Oonopidae</b>				
1155.	<i>Opopaea sp.</i>			
<b>Orbiniidae</b>				
1156.	<i>Scoloplos simplex</i>			
<b>Oryidae</b>				
1157.	<i>Orphnaeus brevilabiatus</i>			
<b>Ostraciidae</b>				
1158.	<i>Aracana aurita</i>			
<b>Oxyopidae</b>				
1159.	<i>Oxyopes gracilipes</i>			

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1160.	<i>Oxyopes punctatus</i>			
<b>Pachycephalidae</b>				
1161.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
1162.	24613 <i>Colluricincla harmonica</i> subsp. <i>rufiventris</i> (Grey Shrike-thrush)			
1163.	24616 <i>Falcunculus frontatus</i> subsp. <i>leucogaster</i> (Western Shrike-tit, Crested Shrike-tit)			
1164.	<i>Pachycephala (Alisterornis) rufiventris</i> subsp. <i>rufiventris</i>			
1165.	25679 <i>Pachycephala pectoralis</i> (Golden Whistler)			
1166.	24623 <i>Pachycephala pectoralis</i> subsp. <i>fuliginosa</i> (Golden Whistler)			
1167.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
1168.	24624 <i>Pachycephala rufiventris</i> subsp. <i>rufiventris</i> (Rufous Whistler)			
<b>Palaemonidae</b>				
1169.	<i>Leander</i> sp.			
<b>Paradoxosomatidae</b>				
1170.	<i>Akamptogonus novarae</i>			
1171.	<i>Antichiropus variabilis</i>			
1172.	<i>Antichiropus whistleri</i>			
<b>Pararchaeidae</b>				
1173.	<i>Ozarchaea westraliensis</i>			
1174.	<i>Westrarchaea pusilla</i>			
1175.	<i>Westrarchaea spinosa</i>			
<b>Parastacidae</b>				
1176.	33939 <i>Cherax cainii</i> (Marron)			
1177.	<i>Cherax destructor</i>			
1178.	<i>Cherax quinquecarinatus</i>			
1179.	<i>Cherax</i> sp.			
1180.	<i>Parastacidae</i> sp.			
<b>Pardalotidae</b>				
1181.	<i>Pardalotus (Pardalotinus) striatus</i>			
1182.	<i>Pardalotus (Pardalotinus) striatus</i> subsp. <i>substriatus</i>			
1183.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
1184.	24625 <i>Pardalotus punctatus</i> subsp. <i>punctatus</i> (Spotted Pardalote)			
1185.	24626 <i>Pardalotus punctatus</i> subsp. <i>xanthopyge</i> (Yellow-rumped Pardalote)			
1186.	24627 <i>Pardalotus rubricatus</i> (Red-browed Pardalote)			
1187.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
1188.	24628 <i>Pardalotus striatus</i> subsp. <i>murchisoni</i> (Striated Pardalote)			
1189.	24630 <i>Pardalotus striatus</i> subsp. <i>westraliensis</i> (Striated Pardalote)			
<b>Passeridae</b>				
1190.	25687 <i>Passer domesticus</i> (House Sparrow)	Y		
<b>Patellidae</b>				
1191.	<i>Patella (scutellastra)</i>			
<b>Pelecanidae</b>				
1192.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
<b>Pentatomidae</b>				
1193.	<i>Dictyotus inconspicuus</i>			Y
1194.	<i>Pseudapines geminata</i>			
<b>Peramelidae</b>				
1195.	24149 <i>Chaeropus ecaudatus</i> (Pig-footed Bandicoot)		X	
1196.	24150 <i>Isoodon auratus</i> subsp. <i>auratus</i> (Golden Bandicoot)		T	
1197.	24151 <i>Isoodon auratus</i> subsp. <i>barrowensis</i> (Barrow Island Golden Bandicoot)		T	
1198.	24152 <i>Isoodon macrourus</i> (Northern Brown Bandicoot)			
1199.	25478 <i>Isoodon obesulus</i> (Southern Brown Bandicoot)		P5	
1200.	24153 <i>Isoodon obesulus</i> subsp. <i>fusciventer</i> (Quenda, Southern Brown Bandicoot)		P5	
<b>Percichthyidae</b>				
1201.	<i>Bostockia porosa</i>			
1202.	<i>Nannoperca vittata</i>			
<b>Peripatopsidae</b>				
1203.	<i>Occiperipatoides gilesii</i>			
<b>Petaluridae</b>				
1204.	<i>Petalura hesperia</i>			
<b>Petroicidae</b>				
1205.	<i>Eopsaltria (Eopsaltria) griseogularis</i> subsp. <i>rosinae</i>			
1206.	25692 <i>Eopsaltria australis</i> (Yellow Robin)			
1207.	24652 <i>Eopsaltria georgiana</i> (White-breasted Robin)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1208.	25693 <i>Microeca fascians</i> (Jacky Winter)			
1209.	<i>Petroica</i> ( <i>Petroica</i> ) <i>boodang</i> subsp. <i>campbelli</i>			
1210.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
1211.	25695 <i>Petroica multicolor</i> (Scarlet Robin)			
1212.	24660 <i>Petroica multicolor</i> subsp. <i>campbelli</i> (Scarlet Robin)			
<b>Phalacridae</b>				
1213.	<i>Parasemus australiae</i>			
<b>Phalacrocoracidae</b>				
1214.	<i>Microcarbo melanoleucos</i>			
1215.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
1216.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
1217.	<i>Phalacrocorax</i> sp.			
1218.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
1219.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
<b>Phalangeridae</b>				
1220.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
1221.	24158 <i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (Common Brushtail Possum)			
<b>Phasianidae</b>				
1222.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)			
<b>Philotarsidae</b>				
1223.	<i>Latrobiella guttatus</i>			
<b>Pholcidae</b>				
1224.	<i>Holocnemus pluchei</i>			
1225.	<i>Pholcus phalangioides</i>			
1226.	<i>Smeringopus natalensis</i>			
1227.	<i>Smeringopus natalensis?</i>			Y
1228.	<i>Trichocyclus nullarbor</i>			
<b>Physidae</b>				
1229.	<i>Physa</i> sp.			
<b>Pionidae</b>				
1230.	<i>Acercella falcipes</i>			
1231.	<i>Piona murleyi</i>			
1232.	<i>Piona</i> sp.			
<b>Planorbidae</b>				
1233.	<i>Gyraulus</i> sp.			
1234.	<i>Physastra</i> sp.			
<b>Platycephalidae</b>				
1235.	<i>Platycephalus indicus</i>			
1236.	<i>Platycephalus westraliae</i>			
<b>Platystomatidae</b>				
1237.	<i>Lenophila nila</i>			
<b>Plesiopidae</b>				
1238.	<i>Paraplesiops meleagris</i>			
<b>Plotosidae</b>				
1239.	<i>Cnidoglanis macrocephalus</i>			
<b>Podargidae</b>				
1240.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
1241.	24679 <i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
<b>Podicipedidae</b>				
1242.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			
1243.	24680 <i>Podiceps cristatus</i> subsp. <i>australis</i> (Great Crested Grebe)			
1244.	24681 <i>Polioccephalus polioccephalus</i> (Hoary-headed Grebe)			
1245.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
1246.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
<b>Poeciliidae</b>				
1247.	<i>Gambusia holbrooki</i>			
1248.	<i>Gambusia</i> sp.			
<b>Pomatomidae</b>				
1249.	<i>Pomatomus saltatrix</i>			
<b>Pomatostomidae</b>				

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1250.	24683 <i>Pomatostomus superciliosus</i> (White-browed Babbler)			
<b>Potoroidae</b>				
1251.	24162 <i>Bettongia penicillata</i> subsp. <i>ogilbyi</i> (Woylie, Brush-tailed Bettong)		T	
<b>Procellariidae</b>				
1252.	24689 <i>Halobaena caerulea</i> (Blue Petrel)			
1253.	24693 <i>Pachyptila desolata</i> (Antarctic Prion)			
1254.	24703 <i>Pterodroma lessonii</i> (White-headed Petrel)			
<b>Prodidomidae</b>				
1255.	<i>Cryptoerithus quobba</i>			
1256.	<i>Molycris vokes</i>			
1257.	<i>Myandra bicincta</i>			
<b>Pseudocheiridae</b>				
1258.	24166 <i>Pseudocheirus occidentalis</i> (Western Ringtail Possum)		T	
<b>Pseudocheylidae</b>				
1259.	<i>Anoplocheylus clavatus</i>			Y
<b>Pseudococcidae</b>				
1260.	<i>Maconellicoccus lanigerus</i>			
1261.	<i>Peliococcus subcorticicola</i>			Y
1262.	<i>Pseudococcus longispinus</i>			
<b>Psittacidae</b>				
1263.	<i>Barnardius zonarius</i>			
1264.	<i>Barnardius zonarius</i> subsp. <i>semitorquatus</i>			
1265.	<i>Cacatua</i> ( <i>Cacatua</i> ) <i>galerita</i>			
1266.	25713 <i>Cacatua galerita</i> ( <i>Sulphur-crested Cockatoo</i> )			
1267.	24721 <i>Cacatua galerita</i> subsp. <i>galerita</i> ( <i>Sulphur-crested Cockatoo</i> )	Y		
1268.	24722 <i>Cacatua leadbeateri</i> ( <i>Major Mitchell's Cockatoo</i> )		S	
1269.	25714 <i>Cacatua pastinator</i> ( <i>Western Long-billed Corella</i> )			
1270.	24723 <i>Cacatua pastinator</i> subsp. <i>butleri</i> ( <i>Butler's Corella</i> )			
1271.	24724 <i>Cacatua pastinator</i> subsp. <i>pastinator</i> ( <i>Muir's Corella, Muir's Corella (Western Corella SW WA)</i> )		S	
1272.	25715 <i>Cacatua roseicapilla</i> ( <i>Galah</i> )			
1273.	25716 <i>Cacatua sanguinea</i> ( <i>Little Corella</i> )			
1274.	24727 <i>Cacatua sanguinea</i> subsp. <i>westralensis</i> ( <i>Little Corella</i> )			
1275.	<i>Cacatua</i> sp.			
1276.	<i>Cacatua sulphurea</i> subsp. <i>galerita</i>			Y
1277.	24729 <i>Cacatua tenuirostris</i> ( <i>Eastern Long-billed Corella</i> )	Y		
1278.	<i>Calyptorhynchus</i> ( <i>Zanda</i> ) <i>baudinii</i>			
1279.	<i>Calyptorhynchus</i> ( <i>Zanda</i> ) <i>latirostris</i>			
1280.	25717 <i>Calyptorhynchus banksii</i> ( <i>Red-tailed Black-Cockatoo</i> )			
1281.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> ( <i>Forest Red-tailed Black-Cockatoo</i> )		T	
1282.	24733 <i>Calyptorhynchus baudinii</i> ( <i>Baudin's Cockatoo (long-billed black-cockatoo), Baudin's Cockatoo</i> )		T	
1283.	24734 <i>Calyptorhynchus latirostris</i> ( <i>Carnaby's Cockatoo (short-billed black-cockatoo), Carnaby's Cockatoo</i> )		T	
1284.	<i>Calyptorhynchus</i> sp.			
1285.	<i>Cyanorhamphus auriceps</i>			Y
1286.	30918 <i>Glossopsitta concinna</i> ( <i>Musk Lorikeet</i> )	Y		
1287.	24735 <i>Glossopsitta porphyrocephala</i> ( <i>Purple-crowned Lorikeet</i> )			
1288.	24738 <i>Neophema elegans</i> ( <i>Elegant Parrot</i> )			
1289.	<i>Neophema pulchella</i>			
1290.	24742 <i>Nymphicus hollandicus</i> ( <i>Cockatiel</i> )			
1291.	<i>Platycercus elegans</i>			
1292.	25720 <i>Platycercus icterotis</i> ( <i>Western Rosella</i> )			
1293.	24747 <i>Platycercus spurius</i> ( <i>Red-capped Parrot</i> )			
1294.	25721 <i>Platycercus zonarius</i> ( <i>Australian Ringneck, Ring-necked Parrot</i> )			
1295.	24750 <i>Platycercus zonarius</i> subsp. <i>semitorquatus</i> ( <i>Twenty-eight Parrot</i> )			
1296.	24751 <i>Platycercus zonarius</i> subsp. <i>zonarius</i> ( <i>Port Lincoln Parrot</i> )			
1297.	25722 <i>Polytelis anthopeplus</i> ( <i>Regent Parrot</i> )			
1298.	30854 <i>Polytelis anthopeplus</i> subsp. <i>westralis</i> ( <i>Regent Parrot</i> )			
1299.	<i>Purpurecephalus spurius</i>			
1300.	<i>Trichoglossus chlorolepidotus</i>			
1301.	25723 <i>Trichoglossus haematodus</i> ( <i>Rainbow Lorikeet</i> )			
1302.	24755 <i>Trichoglossus haematodus</i> subsp. <i>moluccanus</i> ( <i>Rainbow Lorikeet</i> )	Y		
1303.	24754 <i>Trichoglossus haematodus</i> subsp. <i>rubitorquis</i> ( <i>Red-collared Lorikeet</i> )			
<b>Pteromalidae</b>				
1304.	<i>Pachyneuron emersoni</i>			Y

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1305.	<i>Perilampomyia notatifrons</i>			Y
<b>Ptiliidae</b>				
1306.	<i>Rodwayia occidentalis</i>			Y
<b>Ptilodactylidae</b>				
1307.	<i>Ptilodactylidae</i> sp.			
<b>Pygopodidae</b>				
1308.	24990 <i>Aprasia pulchella</i> (Granite Worm-lizard)			
1309.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)			
1310.	25766 <i>Delma fraseri</i> (Fraser's Legless Lizard)			
1311.	24999 <i>Delma grayii</i>			
1312.	25002 <i>Delma pax</i>			
1313.	25005 <i>Lialis burtonis</i>			
1314.	25509 <i>Pletholax gracilis</i> (Keeled Legless Lizard)			
1315.	25007 <i>Pletholax gracilis</i> subsp. <i>gracilis</i> (Keeled Legless Lizard)			
1316.	25008 <i>Pygopus lepidopodus</i> (Common Scaly Foot)			
<b>Pyralidae</b>				
1317.	<i>Achroia grisella</i>			
1318.	<i>Galleria mellonella</i>			
<b>Pyrgotidae</b>				
1319.	<i>Frontalia genalis</i>			Y
<b>Rallidae</b>				
1320.	25727 <i>Fulica atra</i> (Eurasian Coot)			
1321.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
1322.	<i>Gallinula</i> ( <i>Gallinula</i> ) <i>tenebrosa</i> subsp. <i>tenebrosa</i>			
1323.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)			
1324.	24763 <i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
1325.	24764 <i>Gallinula ventralis</i> (Black-tailed Native-hen)			
1326.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
1327.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
1328.	24767 <i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
1329.	24769 <i>Porzana fluminea</i> (Australian Spotted Crane)			
1330.	25732 <i>Porzana pusilla</i> (Baillon's Crane)			
1331.	24770 <i>Porzana pusilla</i> subsp. <i>palustris</i> (Baillon's Crane)			
1332.	24771 <i>Porzana tabuensis</i> (Spotless Crane)			
1333.	<i>Tribonyx ventralis</i>			
<b>Recurvirostridae</b>				
1334.	24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
1335.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
1336.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
<b>Reduviidae</b>				
1337.	<i>Ptilocnemus lemur</i>			Y
<b>Rhinotermitidae</b>				
1338.	<i>Coptotermes acinaciformis</i> subsp. <i>raffrayi</i>			
1339.	<i>Coptotermes michaelsoni</i>			
1340.	<i>Heterotermes intermedius</i>			
1341.	<i>Heterotermes platycephalus</i>			
<b>Rhyparochromidae</b>				
1342.	<i>Austrodrymus flindersi</i>			Y
1343.	<i>Pseudodrymus florestalis</i>			Y
<b>Rostratulidae</b>				
1344.	24777 <i>Rostratula benghalensis</i> subsp. <i>australis</i> (Australian Painted Snipe)		T	
<b>Salticidae</b>				
1345.	<i>Breda jovialis</i>			
1346.	<i>Clynotis severus</i>			
1347.	<i>Hypoblemum</i> sp.			Y
1348.	<i>Lycidas michaelsoni</i>			
1349.	<i>Maratus pavonis</i>			
1350.	<i>Ocrisiona leucocomis</i>			
1351.	<i>Sandalodes joannae</i>			
1352.	<i>Sandalodes superbis</i>			
1353.	<i>Servaea melaina</i>			
1354.	<i>Servaea spinibarbis</i>			
<b>Scarabaeidae</b>				
1355.	<i>Anoplostethus opalinus</i>			

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1356.	<i>Aplopsis lineoligera</i>			
1357.	<i>Aplopsis longipes</i>			Y
1358.	<i>Ataenius picinus</i>			Y
1359.	<i>Australaphodius frenchi</i>			
1360.	<i>Automolius granulatus</i>			Y
1361.	<i>Bryantella castanea</i>			Y
1362.	<i>Colpochila</i> sp.			
1363.	<i>Colpochilodes raucipennis</i>			Y
1364.	<i>Cryptodus costulipennis</i>			
1365.	<i>Cryptodus</i> sp.			Y
1366.	<i>Cryptodus variolosus</i>			
1367.	<i>Glossoscheillifer labialis</i>			Y
1368.	<i>Heteronychus arator</i>			
1369.	<i>Heteronyx agrestis</i>			
1370.	<i>Lepanus occidentalis</i>			
1371.	<i>Liparetrus gravidus</i>			
1372.	<i>Liparetrus laevis</i>			
1373.	<i>Liparetrus lepidopygus</i>			
1374.	<i>Liparetrus picipennis</i>			
1375.	<i>Liparetrus rubefactus</i>			
1376.	<i>Liparetrus striatus</i>			
1377.	<i>Liparetrus tristis</i>			
1378.	<i>Neocnecus minor</i>			
1379.	<i>Neodon laevis</i>			
1380.	<i>Neodon pecuarius</i>			
1381.	<i>Neophyllotocus rostratus</i>			
1382.	<i>Novapus crassus</i>			
1383.	<i>Onthophagus ferox</i>			
1384.	<i>Pachytricha tecta</i>			
1385.	<i>Paraschizognathus prasinus</i>			Y
1386.	<i>Podotenus insignior</i>			Y
1387.	<i>Prochelyna heterodoxa</i>			
1388.	<i>Rhyssemus blackburnei</i>			Y
1389.	<i>Saprosites mansuetus</i>			Y
1390.	<i>Scitala</i> sp.			Y
1391.	<i>Semanopterus angustatus</i>			
1392.	<i>Semanopterus leai</i>			
1393.	<i>Sphaeroscelis pectoralis</i>			
1394.	<i>Trissodon curtus</i>			
1395.	<i>Trissodon subopacus</i>			
<b>Scelionidae</b>				
1396.	<i>Bracalba</i> sp.			Y
<b>Scincidae</b>				
1397.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)			
1398.	25015 <i>Carlia munda</i> (Shaded-litter Rainbow Skink)			
1399.	30893 <i>Cryptoblepharus buchananii</i>			
1400.	25020 <i>Cryptoblepharus plagiocephalus</i>			
1401.	25027 <i>Ctenotus australis</i>			
1402.	25035 <i>Ctenotus delli</i> (Dell's Ctenotus, Darling Range Heath Ctenotus)		P4	
1403.	25039 <i>Ctenotus fallens</i>			
1404.	25040 <i>Ctenotus gemmula</i> (Jewelled South-west Ctenotus (Swan Coastal Plain pop P3), skink)			
1405.	25047 <i>Ctenotus impar</i>			
1406.	25049 <i>Ctenotus labillardieri</i>			
1407.	25073 <i>Ctenotus saxatilis</i> (Rock Ctenotus)			
1408.	25087 <i>Cyclodomorphus celatus</i> (Western Slender Blue-tongue)			
1409.	25096 <i>Egernia kingii</i> (King's Skink)			
1410.	25100 <i>Egernia napoleonis</i>			
1411.	25474 <i>Hemiergis initialis</i>			
1412.	25115 <i>Hemiergis initialis</i> subsp. <i>initialis</i>			
1413.	25475 <i>Hemiergis peronii</i>			
1414.	25119 <i>Hemiergis quadrilineata</i>			
1415.	25128 <i>Lerista christinae</i>			
1416.	25131 <i>Lerista distinguenda</i>			
1417.	25133 <i>Lerista elegans</i>			
1418.	30929 <i>Lerista jacksoni</i>			
1419.	25148 <i>Lerista lineopunctulata</i>			
1420.	25165 <i>Lerista praepedita</i>			
1421.	25184 <i>Menetia greyii</i>			

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1422.	25191 <i>Morethia lineocellata</i>			
1423.	25192 <i>Morethia obscura</i>			
1424.	25495 <i>Morethia ruficauda</i>			
1425.	25499 <i>Notoscincus ornatus</i>			
1426.	<i>Pseudemoia</i> sp.			Y
1427.	25203 <i>Tiliqua occipitalis</i> (Western Bluetongue)			
1428.	25519 <i>Tiliqua rugosa</i>			
1429.	25204 <i>Tiliqua rugosa</i> subsp. <i>aspera</i>			
1430.	25207 <i>Tiliqua rugosa</i> subsp. <i>rugosa</i>			
<b>Sciomyzidae</b>				
1431.	<i>Sciomyzidae</i> sp.			
<b>Scirtidae</b>				
1432.	<i>Scirtidae</i> sp.			
<b>Scolopacidae</b>				
1433.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
1434.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
1435.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
1436.	24808 <i>Tringa nebularia</i> (Common Greenshank)		IA	
<b>Scolopendridae</b>				
1437.	<i>Cormocephalus aurantiipes</i>			
1438.	<i>Cormocephalus novaehollandiae</i>			
1439.	<i>Cormocephalus rubriceps</i>			
1440.	<i>Cormocephalus strigosus</i>			
1441.	<i>Cormocephalus turneri</i>			
1442.	<i>Ethmostigmus rubripes</i>			
1443.	<i>Notiasemus glauerti</i>			
1444.	<i>Scolopendra laeta</i>			
<b>Scutigeridae</b>				
1445.	<i>Allothreua maculata</i>			
<b>Scytodidae</b>				
1446.	<i>Scytodes thoracica</i>			
<b>Selenopidae</b>				
1447.	<i>Karaops ellenae</i>			
<b>Serranidae</b>				
1448.	<i>Acanthistius serratus</i>			
<b>Sididae</b>				
1449.	<i>Diaphanosoma</i> sp.			
1450.	<i>Latonopsis</i> sp.			
<b>Sparassidae</b>				
1451.	<i>Eodelena convexa</i>			
1452.	<i>Eodelena lapidicola</i>			
1453.	<i>Holconia westralia</i>			
1454.	<i>Isopeda leishmanni</i>			
1455.	<i>Isopeda magna</i>			
1456.	<i>Isopedella cana</i>			
1457.	<i>Isopedella tindalei</i>			
1458.	<i>Neosparassus</i> sp.			
1459.	<i>Pediana occidentalis</i>			
1460.	<i>Zachria flavicoma</i>			
<b>Sparidae</b>				
1461.	<i>Rhabdosargus sarba</i>			
<b>Sphyraenidae</b>				
1462.	<i>Sphyraena novaehollandiae</i>			
<b>Squillidae</b>				
1463.	<i>Belosquilla laevis</i>			
<b>Staphylinidae</b>				
1464.	<i>Aleochara (Xenochara) puberula</i>			Y
1465.	<i>Ctenisophus rivularis</i>			Y
1466.	<i>Eupines (Eupines) mira</i>			
1467.	<i>Eupines (byraxis)</i>			
1468.	<i>Paederus meyricki</i>			
1469.	<i>Plectostenus gracilicornis</i>			
1470.	<i>Staphylinidae</i> sp.			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1471.	<i>Stenus (Hemistenus) guttulifer</i>			Y
1472.	<i>Stenus sp.</i>			
1473.	<i>Tiracerus cultripes</i>			
1474.	<i>Tiracerus subcylindricornis</i>			
<b>Stiphidiidae</b>				
1475.	<i>Baiami volucripes</i>			
1476.	<i>Corasoides sp.</i>			
<b>Stratiomyidae</b>				
1477.	<i>Stratiomyidae sp.</i>			
<b>Strigidae</b>				
1478.	<i>Ninox (Ninox) novaeseelandiae subsp. ocellata</i>			
1479.	25747 <i>Ninox connivens (Barking Owl)</i>			
1480.	25748 <i>Ninox novaeseelandiae (Boobook Owl)</i>			
1481.	24820 <i>Ninox novaeseelandiae subsp. boobook (Boobook Owl)</i>			
<b>Sturnidae</b>				
1482.	25751 <i>Acridotheres tristis (Common Myna)</i>	Y		Y
1483.	<i>Gracula religiosa</i>			
<b>Succineidae</b>				
1484.	<i>Succinea (succinea)</i>			
1485.	<i>Succinea sp.</i>			
<b>Sylviidae</b>				
1486.	<i>Acrocephalus (Acrocephalus) australis</i>			
1487.	<i>Acrocephalus (Acrocephalus) australis subsp. gouldi</i>			
1488.	25755 <i>Acrocephalus australis (Australian Reed Warbler)</i>			
1489.	<i>Acrocephalus stentoreus</i>			
1490.	24833 <i>Cincloramphus cruralis (Brown Songlark)</i>			
1491.	24834 <i>Cincloramphus mathewsi (Rufous Songlark)</i>			
1492.	25758 <i>Megalurus gramineus (Little Grassbird)</i>			
<b>Syngnathidae</b>				
1493.	<i>Stigmatopora argus</i>			
1494.	<i>Urocampus carinirostris</i>			
<b>Synthemistidae</b>				
1495.	<i>Archaeosynthemis leachii</i>			
1496.	<i>Archaeosynthemis occidentalis</i>			
1497.	<i>Austrosynthemis cyanitincta</i>			
1498.	<i>Synthemis eustalacta</i>			Y
<b>Syrphidae</b>				
1499.	<i>Oligeriops dimorphon</i>			
1500.	<i>Simosyrphus grandicornis</i>			
<b>Tabanidae</b>				
1501.	<i>Scaptia (Scaptia) minuscula</i>			
1502.	<i>Tabanidae sp.</i>			
1503.	<i>Tabanus townsvilli</i>			Y
<b>Tachyglossidae</b>				
1504.	24207 <i>Tachyglossus aculeatus (Short-beaked Echidna)</i>			
<b>Tarsipedidae</b>				
1505.	24167 <i>Tarsipes rostratus (Honey Possum, Noolbenger)</i>			
<b>Telephlebiidae</b>				
1506.	<i>Austroaeschna (Austroaeschna) anacantha</i>			
<b>Tenebrionidae</b>				
1507.	<i>Adelium sp.</i>			Y
1508.	<i>Alphitobius laevigatus</i>			
1509.	<i>Caedius sphaeroides</i>			
1510.	<i>Chalcopteroides eremita</i>			
1511.	<i>Chalcopteroides longipennis</i>			Y
1512.	<i>Chalcopteroides puncticollis</i>			
1513.	<i>Cheirodes sardous</i>			
1514.	<i>Ecnolagria sp.</i>			Y
1515.	<i>Ectyche erebea</i>			
1516.	<i>Euclarkia costata</i>			
1517.	<i>Euomma testacea</i>			Y
1518.	<i>Gonocephalum elderi</i>			Y
1519.	<i>Helea gilesi</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1520.	<i>Helea opacicollis</i>			
1521.	<i>Helea perforata</i>			
1522.	<i>Hyocis (Hyocis) occidentalis</i>			
1523.	<i>Hyocis (Nannohyocis) inquilina</i>			Y
1524.	<i>Isopteron costatum</i>			
1525.	<i>Leptogasterus occidentalis</i>			Y
1526.	<i>Micrectyche ferruginea</i>			
1527.	<i>Notocistela tibialis</i>			Y
1528.	<i>Omolipus cyaneus</i>			
1529.	<i>Platydemia aries</i>			Y
1530.	<i>Pterohelaeus cereus</i>			
1531.	<i>Pterohelaeus parallelus</i>			
1532.	<i>Sympetes gagates</i>			
1533.	<i>Sympetes patelliformis</i>			
1534.	<i>Sympetes rotundatus</i>			Y
1535.	<i>Sympetes subrugosus</i>			
1536.	<i>Thorictosoma ectatommae</i>			Y
1537.	<i>Trachyscelis ciliaris</i>			
1538.	<i>Ulomoides tetraspilatus</i>			
<b>Tephritidae</b>				
1539.	<i>Tephritis</i> sp.			
<b>Terapontidae</b>				
1540.	<i>Amniataba caudavittata</i>			
1541.	<i>Pelates octolineatus</i>			
<b>Teredinidae</b>				
1542.	<i>Teredo bartschi</i>			
1543.	<i>Teredo furcifera</i>			
<b>Termitidae</b>				
1544.	<i>Amitermes conformis</i>			
1545.	<i>Amitermes modicus</i>			
1546.	<i>Amitermes obeuntis</i>			
1547.	<i>Amitermes pallidiceps</i>			
1548.	<i>Amitermes procerus</i>			
1549.	<i>Hesperotermes infrequens</i>			
1550.	<i>Microcerotermes distinctus</i>			
1551.	<i>Microcerotermes newmani</i>			
1552.	<i>Microcerotermes serratus</i>			
1553.	<i>Nasutitermes magnus</i>			
1554.	<i>Occasitermes occasus</i>			
1555.	<i>Paracapritermes kraepelinii</i>			
1556.	<i>Tumulitermes apiocephalus</i>			
1557.	<i>Tumulitermes westraliensis</i>			
1558.	<i>Xylochomitermes tomentosus</i>			
<b>Tetragnathidae</b>				
1559.	<i>Pinkfloydia harveii</i>			
1560.	<i>Tetragnatha demissa</i>			
1561.	<i>Tetragnatha luteocincta</i>			Y
1562.	<i>Tetragnatha nitens</i>			
<b>Tetraodontidae</b>				
1563.	<i>Torquigener vicinus</i>			
<b>Tetrarogidae</b>				
1564.	<i>Gymnapistes marmoratus</i>			
<b>Tettigoniidae</b>				
1565.	<i>Kawanaphila nartee</i>			
1566.	<i>Metaballus decticoides</i>			
1567.	<i>Metaballus frontalis</i>			
1568.	<i>Pachysaga australis</i>			
1569.	<i>Psacadonotus serratimerus</i>			
1570.	<i>Tympanophora similis</i>			
<b>Thelohaniidae</b>				
1571.	<i>Thelohania parastaci</i>			Y
<b>Therevidae</b>				
1572.	<i>Ectinorhynchus levis</i>			Y
<b>Theridiidae</b>				
1573.	<i>Argyrodes</i> sp.			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1574.	<i>Ariamnes</i> sp.			
1575.	<i>Crustulina bicrucciata</i>			
1576.	<i>Latrodectus hasselti</i>			Y
1577.	<i>Latrodectus hasseltii</i>			
1578.	<i>Steatoda capensis</i>			
1579.	<i>Steatoda grossa</i>			
1580.	<i>Steatoda nasata</i>			Y
1581.	<i>unknown unknown</i>			Y
<b>Thiaridae</b>				
1582.	<i>Thiara</i> sp.			
<b>Thomisidae</b>				
1583.	<i>Diaea pilula</i>			
<b>Threskiornithidae</b>				
1584.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
1585.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
1586.	24844 <i>Threskiornis molucca</i> (Australian White Ibis)			
1587.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
<b>Thripidae</b>				
1588.	<i>Frankliniella occidentalis</i>			
1589.	<i>Thrips imuginis</i>			
<b>Thylacomyidae</b>				
1590.	24168 <i>Macrotis lagotis</i> (Bilby, Dalgyte)		T	
<b>Tortricidae</b>				
1591.	<i>Strepsicrates ejectana</i>			
<b>Trapezidae</b>				
1592.	<i>Fluviolanatus subtortus</i>			
<b>Triaenonychidae</b>				
1593.	<i>Nunciella aspera</i>			
<b>Triakidae</b>				
1594.	<i>Furgaleus macki</i>			
<b>Trochanteriidae</b>				
1595.	<i>Trachycosmus sculptilis</i>			
1596.	<i>Trachyspina mundaring</i>			
<b>Trochidae</b>				
1597.	<i>Prothalia sp.</i>			
<b>Trogidae</b>				
1598.	<i>Omorgus (Omorgus) australasiae</i>			
1599.	<i>Omorgus (Omorgus) stellatus</i>			Y
<b>Turbellaria</b>				
1600.	<i>Turbellaria</i> sp.			
<b>Turbinidae</b>				
1601.	<i>Astrarium aureum</i>			
1602.	<i>Phasianella ventricosa</i>			
1603.	<i>Turbo (Ninella) torquatus</i>			
<b>Turnicidae</b>				
1604.	24849 <i>Turnix varia</i> subsp. <i>varia</i> (Painted Button-quail)			
1605.	24851 <i>Turnix velox</i> (Little Button-quail)			
<b>Typhlopidae</b>				
1606.	44629 <i>Anilios australis</i>			
<b>Tytonidae</b>				
1607.	<i>Tyto (Megastrix) novaehollandiae</i> subsp. <i>novaehollandiae</i>			Y
1608.	25762 <i>Tyto alba</i> (Barn Owl)			
1609.	24852 <i>Tyto alba</i> subsp. <i>delicatula</i> (Barn Owl)			
1610.	25764 <i>Tyto novaehollandiae</i> (Masked Owl)			
1611.	24855 <i>Tyto novaehollandiae</i> subsp. <i>novaehollandiae</i> (Masked Owl (southern subsp))		P3	
<b>Urodacidae</b>				
1612.	<i>Urodacus armatus</i>			
1613.	<i>Urodacus novaehollandiae</i>			
1614.	<i>Urodacus planimanus</i>			
1615.	<i>Urodacus woodwardii</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Valloniidae</b>				
1616.	<i>Vallonia excentrica</i>			
<b>Varanidae</b>				
1617.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
1618.	25225 <i>Varanus rosenbergi</i> (Heath Monitor)			
1619.	<i>Varanus</i> sp.			
1620.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			
<b>Vespertilionidae</b>				
1621.	24186 <i>Chalinolobus gouldii</i> (Gould's Wattled Bat)			
1622.	24187 <i>Chalinolobus morio</i> (Chocolate Wattled Bat)			
1623.	24189 <i>Falsistrellus mackenziei</i> (Western False Pipistrelle)		P4	
1624.	24194 <i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)			
1625.	24199 <i>Scotorepens balstoni</i> (Inland Broad-nosed Bat)			
1626.	24206 <i>Vespadelus regulus</i> (Southern Forest Bat)			
<b>Vespidae</b>				
1627.	<i>Australozethus occidentalis</i>			
<b>Withiidae</b>				
1628.	<i>Withius piger</i>			
<b>Zodariidae</b>				
1629.	<i>Holasteron perth</i>			
1630.	<i>Holasteron</i> sp.			
1631.	<i>Masasteron mas</i>			
1632.	<i>Masasteron tuart</i>			
1633.	<i>Pentasteron securifer</i>			
1634.	<i>Phenasteron longiconductor</i>			
1635.	<i>Phenasteron machinosum</i>			Y
1636.	<i>Storena formosa</i>			
1637.	<i>Storosa tetrica</i>			
<b>Zosteropidae</b>				
1638.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			
1639.	<i>Zosterops lateralis</i> subsp. <i>chloronotus</i>			
1640.	24856 <i>Zosterops lateralis</i> subsp. <i>gouldi</i> (Grey-breasted White-eye)			
<b>Zygaenidae</b>				
1641.	<i>Pollanisus cupreus</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.

# SPG15286.01 Naturemap

Created By Daniel Panickar on 21/03/2016

**Kingdom** Plantae  
**Current Names Only** Yes  
**Core Datasets Only** Yes  
**Method** 'By Circle'  
**Centre** 116° 01' 04" E, 31° 45' 46" S  
**Buffer** 3km  
**Group By** Family

Family	Species	Records
Acrobolbaceae	1	1
Aizoaceae	1	1
Amaranthaceae	5	8
Anarthriaceae	1	1
Apiaceae	10	21
Araceae	1	1
Araliaceae	7	17
Asparagaceae	24	40
Asphodelaceae	1	3
Aspleniaceae	1	3
Asteraceae	72	149
Boraginaceae	4	4
Boryaceae	2	9
Brassicaceae	3	5
Bryaceae	1	1
Campanulaceae	13	22
Caryophyllaceae	4	6
Casuarinaceae	4	8
Celastraceae	1	1
Centrolepidaceae	7	23
Chenopodiaceae	1	1
Colchicaceae	8	14
Combretaceae	1	1
Crassulaceae	4	7
Cyperaceae	29	70
Dasygongonaceae	3	6
Dennstaedtiaceae	1	1
Dilleniaceae	12	36
Droseraceae	16	41
Elaeocarpaceae	4	14
Ericaceae	30	64
Euphorbiaceae	1	1
Fabaceae	78	130
Gentianaceae	2	7
Geraniaceae	2	2
Goodeniaceae	31	67
Haemodoraceae	15	39
Haloragaceae	8	13
Hemerocallidaceae	6	8
Hydatellaceae	3	15
Hypericaceae	1	2
Hypoxidaceae	1	3
Iridaceae	7	20
Isoetaceae	2	3
Juncaceae	8	15
Juncaginaceae	3	3
Lamiaceae	4	5
Lauraceae	6	8
Lentibulariaceae	3	8
Lepidoziaceae	1	1
Linaceae	2	2
Loganiaceae	2	3
Loranthaceae	1	1
Malvaceae	4	5
Marsileaceae	1	1
Menyanthaceae	1	1
Molluginaceae	1	2
Myrtaceae	52	103
Olcaceae	1	1
Orchidaceae	18	30
Orobanchaceae	3	10
Oxalidaceae	1	2
Papaveraceae	1	2
Philydraceae	2	5
Phrymaceae	1	1
Phyllanthaceae	2	4
Pittosporaceae	6	9
Plantaginaceae	4	5
Poaceae	40	86
Polygalaceae	4	7
Polygonaceae	2	2
Portulacaceae	2	2
Primulaceae	3	4
Proteaceae	88	160
Pteridaceae	5	8

Ranunculaceae	3	4
Restionaceae	8	12
Rhamnaceae	11	16
Rubiaceae	4	7
Rutaceae	11	16
Santalaceae	2	3
Sapindaceae	7	10
Scrophulariaceae	12	13
Selaginellaceae	1	5
Solanaceae	5	6
Stylidiaceae	25	54
Surianaceae	1	2
Thymelaeaceae	7	16
Violaceae	1	1
Vitaceae	1	3
Xanthorrhoeaceae	1	5
Zygophyllaceae	1	3
<b>TOTAL</b>	<b>802</b>	<b>1561</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Acrobolbaceae</b>				
1.	<i>Goebelobryum unguiculatum</i>			
<b>Aizoaceae</b>				
2.	2811 <i>Lampranthus glaucus</i>	Y		
<b>Amaranthaceae</b>				
3.	45296 <i>Gomphrena globosa</i>	Y		
4.	2716 <i>Ptilotus declinatus</i> (Curved Mulla Mulla)			
5.	11260 <i>Ptilotus drummondii</i> var. <i>drummondii</i> (Pussytail)			
6.	41506 <i>Ptilotus gaudichaudii</i> subsp. <i>gaudichaudii</i>			
7.	2742 <i>Ptilotus manglesii</i> (Pom Poms, Mulamula)			
<b>Anarthriaceae</b>				
8.	18049 <i>Lyginia imberbis</i>			
<b>Apiaceae</b>				
9.	6205 <i>Actinotus leucocephalus</i> (Flannel Flower)			
10.	<i>Actinotus</i> sp.			
11.	12040 <i>Apium prostratum</i> var. <i>prostratum</i> (Sea Celery)			
12.	6218 <i>Daucus glochidiatus</i> (Australian Carrot)			
13.	6219 <i>Eryngium pinnatifidum</i> (Blue Devils)			
14.	15446 <i>Eryngium pinnatifidum</i> subsp. <i>pinnatifidum</i>			
15.	6222 <i>Homalosciadium homalocarpum</i>			
16.	<i>Platysace</i> sp.			
17.	6263 <i>Schoenolaena juncea</i>			
18.	<i>Xanthosia</i> sp.			
<b>Araceae</b>				
19.	1051 <i>Lemna disperma</i> (Duckweed)			
<b>Araliaceae</b>				
20.	6223 <i>Hydrocotyle alata</i>			
21.	6224 <i>Hydrocotyle blepharocarpa</i>			
22.	6226 <i>Hydrocotyle callicarpa</i> (Small Pennywort)			
23.	6229 <i>Hydrocotyle diantha</i>			
24.	6233 <i>Hydrocotyle lemnoides</i> (Aquatic Pennywort)		P4	
25.	6266 <i>Trachymene coerulea</i> (Blue Lace Flower)			
26.	<i>Trachymene</i> sp.			
<b>Asparagaceae</b>				
27.	<i>Arthropodium fimbriatum</i>			
28.	11299 <i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>			
29.	11878 <i>Chamaescilla corymbosa</i> var. <i>paradoxa</i>			
30.	8788 <i>Chamaescilla versicolor</i>			
31.	1215 <i>Chamaexeros fimbriata</i>			
32.	1303 <i>Laxmannia grandiflora</i>			
33.	11815 <i>Laxmannia grandiflora</i> subsp. <i>grandiflora</i>			
34.	1304 <i>Laxmannia minor</i>			
35.	1305 <i>Laxmannia omnifertilis</i>			
36.	11911 <i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
37.	11464 <i>Laxmannia sessiliflora</i> subsp. <i>australis</i>			
38.	1223 <i>Lomandra caespitosa</i> (Tufted Mat Rush)			
39.	14542 <i>Lomandra micrantha</i> subsp. <i>micrantha</i>			
40.	1239 <i>Lomandra preissii</i>			
41.	1240 <i>Lomandra purpurea</i> (Purple Mat Rush)			
42.	1243 <i>Lomandra sericea</i> (Silky Mat Rush)			
43.	1246 <i>Lomandra suaveolens</i>			
44.	1312 <i>Sowerbaea laxiflora</i> (Purple Tassels)			
45.	1328 <i>Thysanotus dichotomus</i> (Branching Fringe Lily)			
46.	1338 <i>Thysanotus manglesianus</i> (Fringed Lily)			
47.	1343 <i>Thysanotus patersonii</i>			
48.	1354 <i>Thysanotus tenellus</i>			
49.	1357 <i>Thysanotus thyrsoides</i>			
50.	1358 <i>Thysanotus triandrus</i>			
<b>Asphodelaceae</b>				
51.	1366 <i>Bulbine semibarbata</i> (Leek Lily)			
<b>Aspleniaceae</b>				
52.	65 <i>Pleurosorus rutifolius</i> (Blanket Fern)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Asteraceae</b>				
53.	7817 <i>Actinobole uliginosum</i> (Flannel Cudweed)			
54.	7846 <i>Asteridea athrixioides</i>			
55.	7850 <i>Asteridea nivea</i>			
56.	7851 <i>Asteridea pulverulenta</i> (Common Bristle Daisy)			
57.	<i>Asteridea</i> sp.			
58.	7875 <i>Brachyscome glandulosa</i>			
59.	7878 <i>Brachyscome iberidifolia</i>			
60.	7882 <i>Brachyscome perpusilla</i>			
61.	7905 <i>Calotis multicaulis</i> (Many-stemmed Burr-daisy)			
62.	19761 <i>Centipeda crateriformis</i> subsp. <i>compacta</i>			
63.	7922 <i>Cephalopterum drummondii</i> (Pompom Head)			
64.	7943 <i>Cotula australis</i> (Common Cotula)			
65.	7945 <i>Cotula coronopifolia</i> (Waterbuttons)	Y		
66.	12740 <i>Erymophyllum tenellum</i>			
67.	15137 <i>Euchiton sphaericus</i>			
68.	12780 <i>Gilberta tenuifolia</i>			
69.	7991 <i>Gnephosis drummondii</i>			
70.	8002 <i>Gnephosis tenuissima</i>			
71.	8024 <i>Helichrysum leucopsidium</i>			
72.	29594 <i>Helichrysum luteoalbum</i> (Jersey Cudweed)			
73.	12741 <i>Hyalosperma cotula</i>			
74.	8086 <i>Hypochoeris glabra</i> (Smooth Catsear)	Y		
75.	8087 <i>Isoetopsis graminifolia</i> (Cushion Grass)			
76.	29046 <i>Lactuca serriola</i> forma <i>serriola</i>	Y		
77.	18585 <i>Lagenophora huegelii</i>			
78.	<i>Lawrencella</i> sp.			
79.	8105 <i>Millotia myosotidifolia</i>			
80.	14344 <i>Millotia tenuifolia</i> var. <i>tenuifolia</i> (Soft Millotia)			
81.	8114 <i>Myriocephalus appendiculatus</i> (White-tip Myriocephalus)			
82.	14187 <i>Myriocephalus occidentalis</i>			
83.	<i>Myriocephalus</i> sp.			
84.	8140 <i>Olearia muelleri</i> (Goldfields Daisy)			
85.	8143 <i>Olearia paucidentata</i> (Autumn Scrub Daisy)			
86.	18352 <i>Pithocarpa pulchella</i> var. <i>melanostigma</i>			
87.	<i>Pithocarpa</i> sp.			
88.	8173 <i>Podolepis capillaris</i> (Wiry Podolepis)			
89.	8175 <i>Podolepis gracilis</i> (Slender Podolepis)			
90.	8177 <i>Podolepis lessonii</i>			
91.	8182 <i>Podotheca angustifolia</i> (Sticky Longheads)			
92.	8184 <i>Podotheca gnaphalioides</i> (Golden Long-heads)			
93.	8188 <i>Pogonolepis stricta</i>			
94.	13255 <i>Pterochaeta paniculata</i>			
95.	8195 <i>Quinetia urvillei</i>			
96.	13241 <i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>			
97.	13300 <i>Rhodanthe citrina</i>			
98.	15035 <i>Rhodanthe corymbosa</i>			
99.	13294 <i>Rhodanthe laevis</i>			
100.	13234 <i>Rhodanthe manglesii</i>			
101.	13252 <i>Rhodanthe pygmaea</i>			
102.	13312 <i>Rhodanthe pyrethrum</i>			
103.	8200 <i>Schoenia cassiniana</i> (Schoenia)			
104.	8205 <i>Senecio gilbertii</i>		P1	
105.	8207 <i>Senecio glossanthus</i> (Slender Groundsel)			
106.	20663 <i>Senecio multicaulis</i> subsp. <i>multicaulis</i>			
107.	25884 <i>Senecio pinnatifolius</i> var. <i>latilobus</i>			
108.	8223 <i>Sigesbeckia orientalis</i> (Indian Weed)	Y		
109.	8224 <i>Siloxerus filifolius</i>			
110.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
111.	14583 <i>Siloxerus multiflorus</i>			
112.	8230 <i>Sonchus asper</i> (Rough Sowthistle)	Y		
113.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
114.	8236 <i>Streptoglossa cylindriceps</i>			
115.	8238 <i>Streptoglossa liatroides</i>			
116.	8251 <i>Trichocline spathulata</i> (Native Gerbera)			
117.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
118.	38388 <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Y		
119.	11885 <i>Vittadinia cervicalis</i> var. <i>oldfieldii</i>		P1	
120.	13331 <i>Waitzia acuminata</i> var. <i>acuminata</i>			
121.	13330 <i>Waitzia acuminata</i> var. <i>albicans</i>			

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122.	13328 <i>Waitzia nitida</i>			
123.	8282 <i>Waitzia suaveolens</i> (Fragrant Waitzia)			
124.	<i>Xerochrysum</i> sp.			
<b>Boraginaceae</b>				
125.	6681 <i>Echium plantagineum</i> (Paterson's Curse)	Y		
126.	17485 <i>Halgania anagalloides</i>			
127.	<i>Halgania anagalloides</i> var. <i>Southern</i> (A.E.Orchard 1609)			
128.	11750 <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>			
<b>Boryaceae</b>				
129.	1272 <i>Borya scirpoidea</i>			
130.	1273 <i>Borya sphaerocephala</i> (Pincushions)			
<b>Brassicaceae</b>				
131.	3011 <i>Diplotaxis muralis</i> (Wall Rocket)	Y		
132.	3061 <i>Raphanus raphanistrum</i> (Wild Radish)	Y		
133.	3080 <i>Stenopetalum robustum</i>			
<b>Bryaceae</b>				
134.	<i>Bryum pachythea</i>			
<b>Campanulaceae</b>				
135.	7394 <i>Grammatotheca bergiana</i>	Y		
136.	7396 <i>Isotoma hypocrateriformis</i> (Woodbridge Poison)			
137.	7398 <i>Isotoma pusilla</i> (Small Isotome)			
138.	7399 <i>Isotoma scapigera</i> (Long-scaped Isotome)			
139.	9289 <i>Lobelia anceps</i> (Angled Lobelia)			
140.	7402 <i>Lobelia gibbosa</i> (Tall Lobelia)			
141.	36863 <i>Lobelia heterophylla</i> subsp. <i>heterophylla</i>			
142.	7406 <i>Lobelia rhombifolia</i> (Tufted Lobelia)			
143.	7407 <i>Lobelia rhytidosperra</i> (Wrinkled-seeded Lobelia)			
144.	7410 <i>Monopsis debilis</i>	Y		
145.	37440 <i>Monopsis debilis</i> var. <i>depressa</i>	Y		
146.	7386 <i>Wahlenbergia gracilentia</i> (Annual Bluebell)			
147.	7388 <i>Wahlenbergia multicaulis</i>			
<b>Caryophyllaceae</b>				
148.	2906 <i>Sagina apetala</i> (Annual Pearlwort)	Y		
149.	2909 <i>Silene gallica</i> (French Catchfly)	Y		
150.	11803 <i>Silene gallica</i> var. <i>quinquevulnera</i>	Y		
151.	<i>Spergularia</i> sp.			
<b>Casuarinaceae</b>				
152.	1721 <i>Allocasuarina campestris</i>			
153.	1728 <i>Allocasuarina fraseriana</i> (Sheoak, Kondii)			
154.	1732 <i>Allocasuarina humilis</i> (Dwarf Sheoak)			
155.	1742 <i>Casuarina obesa</i> (Swamp Sheoak, Kuli)			
<b>Celastraceae</b>				
156.	4725 <i>Psammomoya choretroides</i>			
<b>Centrolepidaceae</b>				
157.	1117 <i>Aphelia cyperoides</i>			
158.	1118 <i>Aphelia drummondii</i>			
159.	1121 <i>Centrolepis aristata</i> (Pointed Centrolepis)			
160.	1125 <i>Centrolepis drummondiana</i>			
161.	1129 <i>Centrolepis glabra</i> (Smooth Centrolepis)			
162.	1132 <i>Centrolepis mutica</i>			
163.	1134 <i>Centrolepis polygyna</i> (Wiry Centrolepis)			
<b>Chenopodiaceae</b>				
164.	<i>Tecticornia</i> sp.			
<b>Colchicaceae</b>				
165.	1383 <i>Burchardia bairdiae</i>			
166.	12770 <i>Burchardia congesta</i>			
167.	1385 <i>Burchardia multiflora</i> (Dwarf Burchardia)			
168.	1391 <i>Wurmbea densiflora</i>			
169.	12072 <i>Wurmbea dioica</i> subsp. <i>alba</i>			
170.	1395 <i>Wurmbea drummondii</i> (York Gum Nancy)			
171.	1401 <i>Wurmbea pygmaea</i>			
172.	1403 <i>Wurmbea tenella</i> (Eight Nancy)			
<b>Combretaceae</b>				
173.	<i>Terminalia</i> sp.			

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<b>Crassulaceae</b>				
174.	11709 <i>Crassula colorata</i> var. <i>acuminata</i>			
175.	11563 <i>Crassula colorata</i> var. <i>colorata</i>			
176.	11349 <i>Crassula decumbens</i> var. <i>decumbens</i>			
177.	15706 <i>Crassula natans</i> var. <i>minus</i>	Y		
<b>Cyperaceae</b>				
178.	759 <i>Carex tereticaulis</i>		P3	
179.	763 <i>Chorizandra enodis</i> (Black Bristlerush)			
180.	768 <i>Cyathochaeta avenacea</i>			
181.	16245 <i>Cyathochaeta teretifolia</i>		P3	
182.	794 <i>Cyperus gymnocaulos</i> (Spiny Flat-sedge)			
183.	815 <i>Cyperus tenellus</i> (Tiny Flatsedge)	Y		
184.	17605 <i>Eleocharis keigheryi</i>		T	
185.	894 <i>Fimbristylis velata</i>			
186.	910 <i>Isolepis cernua</i> (Nodding Club-rush)			
187.	14540 <i>Isolepis hystrix</i>	Y		
188.	917 <i>Isolepis marginata</i> (Coarse Club-rush)			
189.	919 <i>Isolepis oldfieldiana</i>			
190.	924 <i>Isolepis stellata</i> (Star Club-rush)			
191.	925 <i>Lepidosperma angustatum</i>			
192.	930 <i>Lepidosperma costale</i>			
193.	940 <i>Lepidosperma pubisquamum</i>			
194.	968 <i>Schoenoplectus pungens</i> (Sharpleaf Rush)			
195.	975 <i>Schoenus bifidus</i>			
196.	980 <i>Schoenus capillifolius</i>		P3	
197.	985 <i>Schoenus discifer</i>			
198.	994 <i>Schoenus humilis</i>			
199.	1003 <i>Schoenus natans</i> (Floating Bog-rush)		P4	
200.	1006 <i>Schoenus odontocarpus</i>			
201.	17614 <i>Schoenus plumosus</i>			
202.	1011 <i>Schoenus rigens</i>			
203.	17731 <i>Schoenus</i> sp. Waroona (G.J. Keighery 12235)		P3	
204.	1023 <i>Schoenus tenellus</i>			
205.	1026 <i>Schoenus unispiculatus</i>			
206.	17409 <i>Schoenus variicellae</i>			
<b>Dasypogonaceae</b>				
207.	19309 <i>Calectasia narragara</i>			
208.	1218 <i>Dasypogon bromeliifolius</i> (Pineapple Bush)			
209.	1221 <i>Kingia australis</i> (Kingia, Pulonok)			
<b>Dennstaedtiaceae</b>				
210.	57 <i>Pteridium esculentum</i> (Bracken)			
<b>Dilleniaceae</b>				
211.	5108 <i>Hibbertia acerosa</i> (Needle Leaved Guinea Flower)			
212.	5111 <i>Hibbertia argentea</i> (Silver Leaved Guinea Flower)		P3	
213.	5112 <i>Hibbertia aurea</i>			
214.	5114 <i>Hibbertia commutata</i>			
215.	5118 <i>Hibbertia cunninghamii</i>			
216.	5129 <i>Hibbertia glomerata</i>			
217.	5134 <i>Hibbertia huegelii</i>			
218.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
219.	5139 <i>Hibbertia lasiopus</i> (Large Hibbertia)			
220.	5162 <i>Hibbertia racemosa</i> (Stalked Guinea Flower)			
221.	<i>Hibbertia</i> sp. Bankstown (R.T.Miller & C.P.Gibson s.n. 18/10/06)			
222.	5172 <i>Hibbertia stellaris</i> (Orange Stars)			
<b>Droseraceae</b>				
223.	13219 <i>Drosera bulbosa</i> subsp. <i>bulbosa</i>			
224.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
225.	3097 <i>Drosera gigantea</i> (Giant Sundew)			
226.	15453 <i>Drosera gigantea</i> subsp. <i>gigantea</i>			
227.	3098 <i>Drosera glanduligera</i> (Pimpernel Sundew)			
228.	3101 <i>Drosera heterophylla</i> (Swamp Rainbow)			
229.	3105 <i>Drosera leucoblata</i> (Wheel Sundew)			
230.	14298 <i>Drosera macrantha</i> subsp. <i>macrantha</i>			
231.	13387 <i>Drosera macrophylla</i> subsp. <i>macrophylla</i>			
232.	11853 <i>Drosera menziesii</i> subsp. <i>menziesii</i>			
233.	13188 <i>Drosera paleacea</i> subsp. <i>paleacea</i>			
234.	3118 <i>Drosera pallida</i> (Pale Rainbow)			

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235.	3123 <i>Drosera platystigma</i> (Black-eyed Sundew)			
236.	8911 <i>Drosera rosulata</i>			
237.	3131 <i>Drosera stolonifera</i> (Leafy Sundew)			
238.	3132 <i>Drosera stricticaulis</i> (Erect Sundew)			
<b>Elaeocarpaceae</b>				
239.	4524 <i>Platytheca galioides</i>			
240.	4535 <i>Tetradthea hirsuta</i> (Black Eyed Susan)			
241.	4537 <i>Tetradthea nuda</i>			
242.	4540 <i>Tetradthea pilifera</i>		P3	
<b>Ericaceae</b>				
243.	6314 <i>Andersonia lehmanniana</i>			
244.	11471 <i>Andersonia lehmanniana</i> subsp. <i>lehmanniana</i>			
245.	6321 <i>Andersonia sprengelioides</i>			
246.	6323 <i>Astroloma ciliatum</i> (Candle Cranberry)			
247.	6324 <i>Astroloma compactum</i>			
248.	6326 <i>Astroloma epacridis</i>			
249.	6327 <i>Astroloma foliosum</i> (Candle Cranberry)			
250.	6331 <i>Astroloma microcalyx</i> (Native Cranberry)			
251.	6334 <i>Astroloma pallidum</i> (Kick Bush)			
252.	6336 <i>Astroloma serratifolium</i> (Kondrung)			
253.	<i>Astroloma</i> sp.			
254.	6337 <i>Astroloma stomarrhena</i> (Red Swamp Cranberry)			
255.	6339 <i>Astroloma xerophyllum</i>			
256.	6349 <i>Conostephium preissii</i>			
257.	<i>Conostephium</i> sp.			
258.	6367 <i>Leucopogon capitellatus</i>			
259.	6374 <i>Leucopogon conostephioides</i>			
260.	6408 <i>Leucopogon lasiophyllum</i>		P4	
261.	6416 <i>Leucopogon nutans</i> (Drooping Leucopogon)			
262.	6420 <i>Leucopogon oldfieldii</i>			
263.	6436 <i>Leucopogon propinquus</i>			
264.	<i>Leucopogon</i> sp.			
265.	40803 <i>Leucopogon squarrosus</i> subsp. <i>squarrosus</i>			
266.	6451 <i>Leucopogon tenuis</i>			
267.	6454 <i>Leucopogon verticillatus</i> (Tassel Flower)			
268.	6456 <i>Lysinema ciliatum</i> (Curry Flower)			
269.	34736 <i>Lysinema pentapetalum</i>			
270.	<i>Lysinema</i> sp.			
271.	<i>Styphelia</i> sp.			
272.	<i>Styphelia tenuifolia</i>			
<b>Euphorbiaceae</b>				
273.	4716 <i>Stachystemon vermicularis</i>			
<b>Fabaceae</b>				
274.	15466 <i>Acacia appplanata</i>			
275.	15469 <i>Acacia barbinervis</i> subsp. <i>barbinervis</i>			
276.	3254 <i>Acacia celastrifolia</i> (Glowing Wattle)			
277.	3294 <i>Acacia dentifera</i>			
278.	11229 <i>Acacia drummondii</i> subsp. <i>affinis</i>		P3	
279.	3323 <i>Acacia ericifolia</i>			
280.	3324 <i>Acacia erinacea</i>			
281.	11519 <i>Acacia lasiocarpa</i> var. <i>bracteolata</i>			
282.	3410 <i>Acacia lateriticola</i>			
283.	32116 <i>Acacia latior</i>			
284.	3454 <i>Acacia nervosa</i> (Rib Wattle)			
285.	3502 <i>Acacia pulchella</i> (Prickly Moses)			
286.	15483 <i>Acacia pulchella</i> var. <i>pulchella</i>			
287.	3507 <i>Acacia quadrimarginea</i>			
288.	3527 <i>Acacia saligna</i> (Orange Wattle, Kudjong)			
289.	<i>Acacia</i> sp.			
290.	3577 <i>Acacia tetragonophylla</i> (Kurara, Wakalpuka)			
291.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
292.	3719 <i>Bossiaea spinescens</i>			
293.	8971 <i>Chorizema cordatum</i>			
294.	12974 <i>Chorizema thynchotropis</i>			
295.	35838 <i>Cristonia biloba</i> subsp. <i>biloba</i>			
296.	3793 <i>Daviesia angulata</i>			
297.	15656 <i>Daviesia brachyphylla</i>			
298.	3815 <i>Daviesia horrida</i> (Prickly Bitter-pea)			

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299.	14755 <i>Daviesia oxylobium</i>		P4	
300.	3832 <i>Daviesia physodes</i>			
301.	3834 <i>Daviesia polyphylla</i>			
302.	3835 <i>Daviesia preissii</i>			
303.	<i>Daviesia</i> sp.			
304.	20473 <i>Gastrolobium ebracteolatum</i>			
305.	3907 <i>Gastrolobium laytonii</i> (Breelya, Prilya)			
306.	20483 <i>Gastrolobium linearifolium</i>			
307.	3909 <i>Gastrolobium microcarpum</i> (Sandplain Poison)			
308.	<i>Gastrolobium</i> sp.			
309.	3923 <i>Gastrolobium spathulatum</i> (Poison Bush)			
310.	3924 <i>Gastrolobium spinosum</i> (Prickly Poison)			
311.	3933 <i>Gastrolobium villosum</i> (Crinkle-leaved Poison)			
312.	3945 <i>Gompholobium aristatum</i>			
313.	3950 <i>Gompholobium knightianum</i>			
314.	3951 <i>Gompholobium marginatum</i>			
315.	3954 <i>Gompholobium polymorphum</i>			
316.	11083 <i>Gompholobium scabrum</i>			
317.	3957 <i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
318.	3964 <i>Hovea chorizemifolia</i> (Holly-leaved Hovea)			
319.	3966 <i>Hovea pungens</i> (Devil's Pins, Puyenak)			
320.	3968 <i>Hovea trisperma</i> (Common Hovea)			
321.	3992 <i>Isotropis cuneifolia</i> (Granny Bonnets)			
322.	3995 <i>Isotropis juncea</i> (Slender Lamb Poison)			
323.	<i>Isotropis</i> sp.			
324.	4005 <i>Jacksonia condensata</i>			
325.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
326.	4025 <i>Jacksonia restioides</i>			
327.	4027 <i>Jacksonia sericea</i> (Waldjumi)		P4	
328.	4029 <i>Jacksonia sternbergiana</i> (Stinkwood, Kapur)			
329.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
330.	4044 <i>Kennedia prostrata</i> (Scarlet Runner)			
331.	4045 <i>Kennedia stirlingii</i> (Bushy Kennedia)			
332.	11289 <i>Labichea lanceolata</i> subsp. <i>lanceolata</i>			
333.	15428 <i>Leptosema aphyllum</i>			
334.	4084 <i>Melilotus albus</i>	Y		
335.	4097 <i>Mirbelia ramulosa</i>			
336.	<i>Mirbelia</i> sp.			
337.	4100 <i>Mirbelia spinosa</i>			
338.	<i>Oxylobium</i> sp.			
339.	<i>Senna artemisioides</i> subsp. <i>x petiolaris</i>			
340.	4205 <i>Sphaerolobium linophyllum</i>			
341.	4207 <i>Sphaerolobium medium</i>			
342.	4221 <i>Swainsona colutooides</i> (Bladder Vetch)			
343.	4226 <i>Swainsona elegans</i>			
344.	12356 <i>Swainsona formosa</i>			
345.	4242 <i>Swainsona pterostylis</i>			
346.	4243 <i>Swainsona rostellata</i>			
347.	4257 <i>Templetonia smithiana</i>			
348.	4313 <i>Trifolium subterraneum</i> (Subterranean Clover)	Y		
349.	34772 <i>Vachellia karroo</i>	Y		
350.	4322 <i>Vicia sativa</i> (Common Vetch)	Y		
351.	4325 <i>Viminaria juncea</i> (Swishbush, Koweda)			
<b>Gentianaceae</b>				
352.	6543 <i>Cicendia filiformis</i> (Slender Cicendia)	Y		
353.	6544 <i>Sebaea ovata</i> (Yellow Sebaea)			
<b>Geraniaceae</b>				
354.	4332 <i>Erodium botrys</i> (Long Storksbill)	Y		
355.	4340 <i>Geranium retrorsum</i>			
<b>Goodeniaceae</b>				
356.	12724 <i>Anthotium junciforme</i>			
357.	7413 <i>Brunonia australis</i> (Native Cornflower)			
358.	7420 <i>Dampiera alata</i> (Winged-stem Dampiera)			
359.	7428 <i>Dampiera coronata</i> (Wedge-leaved Dampiera)			
360.	7438 <i>Dampiera eriocephala</i> (Woolly-headed Dampiera)			
361.	13156 <i>Dampiera haematotricha</i> subsp. <i>dura</i>			
362.	7451 <i>Dampiera lavandulacea</i>			
363.	7454 <i>Dampiera linearis</i> (Common Dampiera)			
364.	7456 <i>Dampiera luteiflora</i> (Yellow Dampiera)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
365.	<i>Dampiera</i> sp.			
366.	7495 <i>Goodenia berardiana</i>			
367.	29362 <i>Goodenia coerulea</i>			
368.	12516 <i>Goodenia convexa</i>			
369.	12520 <i>Goodenia fasciculata</i>			
370.	7514 <i>Goodenia havilandii</i>			
371.	12523 <i>Goodenia helmsii</i>			
372.	12551 <i>Goodenia micrantha</i>			
373.	7527 <i>Goodenia mimuloides</i>			
374.	7538 <i>Goodenia pulchella</i>			
375.	7568 <i>Lechenaultia biloba</i> (Blue <i>Lechenaultia</i> )			
376.	7572 <i>Lechenaultia expansa</i>			
377.	7575 <i>Lechenaultia formosa</i> (Red <i>Lechenaultia</i> )			
378.	<i>Lechenaultia</i> sp.			
379.	7603 <i>Scaevola canescens</i> (Grey <i>Scaevola</i> )			
380.	7613 <i>Scaevola glandulifera</i> (Viscid Hand-flower)			
381.	7619 <i>Scaevola lanceolata</i> (Long-leaved <i>Scaevola</i> )			
382.	7635 <i>Scaevola pilosa</i> (Hairy Fan-flower)			
383.	7639 <i>Scaevola restiacea</i>			
384.	<i>Scaevola</i> sp.			
385.	7656 <i>Velleia cynopotamica</i>			
386.	7658 <i>Velleia discophora</i> (Cabbage Poison)			
<b>Haemodoraceae</b>				
387.	11470 <i>Anigozanthos bicolor</i> subsp. <i>bicolor</i>			
388.	11434 <i>Anigozanthos humilis</i> subsp. <i>humilis</i>			
389.	11261 <i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>			
390.	11566 <i>Anigozanthos viridis</i> subsp. <i>viridis</i>			
391.	12109 <i>Conostylis aculeata</i> subsp. <i>preissii</i>			
392.	1420 <i>Conostylis androstemma</i> (Trumpets)			
393.	1425 <i>Conostylis bracteata</i>		P3	
394.	12035 <i>Conostylis caricina</i> subsp. <i>caricina</i>			
395.	1455 <i>Conostylis setosa</i> (White Cottonhead)			
396.	1468 <i>Haemodorum laxum</i>			
397.	1469 <i>Haemodorum loratum</i>		P3	
398.	1472 <i>Haemodorum simplex</i>			
399.	1477 <i>Macropidia fuliginosa</i> (Black Kangaroo Paw)			
400.	1481 <i>Tribonanthes australis</i>			
401.	1483 <i>Tribonanthes longipetala</i>			
<b>Haloragaceae</b>				
402.	33620 <i>Glischrocaryon angustifolium</i>			
403.	6143 <i>Glischrocaryon aureum</i> (Common Popflower)			
404.	6149 <i>Gonocarpus cordiger</i>			
405.	6159 <i>Gonocarpus nodulosus</i>			
406.	34676 <i>Meionectes brownii</i> (Swamp Raspwort)			
407.	33638 <i>Meionectes tenuifolia</i>		P3	
408.	6189 <i>Myriophyllum crispatum</i>			
409.	6192 <i>Myriophyllum drummondii</i>			
<b>Hemerocallidaceae</b>				
410.	1276 <i>Caesia micrantha</i> (Pale Grass Lily)			
411.	1259 <i>Dianella revoluta</i> (Blueberry Lily)			
412.	<i>Dianella</i> sp.			
413.	19632 <i>Johnsonia pubescens</i> subsp. <i>pubescens</i>			
414.	1260 <i>Stypandra glauca</i> (Blind Grass)			
415.	1361 <i>Tricoryne elatior</i> (Yellow Autumn Lily)			
<b>Hydatellaceae</b>				
416.	1139 <i>Trithuria bibracteata</i>			
417.	32658 <i>Trithuria occidentalis</i> (Swan Hydatella)		T	
418.	1141 <i>Trithuria submersa</i>			
<b>Hypericaceae</b>				
419.	5180 <i>Hypericum gramineum</i> (Small St John's Wort)			
<b>Hypoxidaceae</b>				
420.	43761 <i>Pauridia occidentalis</i> var. <i>occidentalis</i>			
<b>Iridaceae</b>				
421.	1526 <i>Hesperanthes falcata</i>	Y		
422.	19179 <i>Moraea flaccida</i> (One-leaf Cape Tulip)	Y		
423.	1537 <i>Orthrosanthus laxus</i> (Morning Iris)			
424.	1546 <i>Patersonia juncea</i> (Rush Leaved Patersonia)			

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425.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
426.	1556 <i>Romulea rosea</i> (Guildford Grass)	Y		
427.	18118 <i>Watsonia meriana</i> var. <i>meriana</i>	Y		
<b>Isoetaceae</b>				
428.	11 <i>Isoetes drummondii</i> (Quillwort)			
429.	<i>Isoetes</i> sp.			
<b>Juncaceae</b>				
430.	1178 <i>Juncus bufonius</i> (Toad Rush)	Y		
431.	1179 <i>Juncus caespiticus</i> (Grassy Rush)			
432.	1180 <i>Juncus capitatus</i> (Capitate Rush)	Y		
433.	1182 <i>Juncus flavidus</i>			
434.	11922 <i>Juncus kraussii</i> subsp. <i>australiensis</i>			
435.	1188 <i>Juncus pallidus</i> (Pale Rush)			
436.	1190 <i>Juncus planifolius</i> (Broadleaf Rush)			
437.	1198 <i>Luzula meridionalis</i> (Field Woodrush)			
<b>Juncaginaceae</b>				
438.	40661 <i>Cynogeton lineare</i>			
439.	<i>Triglochin procera</i>			
440.	<i>Triglochin</i> sp.			
<b>Lamiaceae</b>				
441.	6836 <i>Hemiandra incana</i>			
442.	<i>Mentha</i> sp.			
443.	6812 <i>Pityrodia lepidota</i>			
444.	6925 <i>Prostanthera striatiflora</i>			
<b>Lauraceae</b>				
445.	11351 <i>Cassytha aurea</i> var. <i>hirta</i>			
446.	2951 <i>Cassytha flava</i> (Dodder Laurel)			
447.	2952 <i>Cassytha glabella</i> (Tangled Dodder Laurel)			
448.	11501 <i>Cassytha glabella</i> forma <i>casuarinae</i>			
449.	2956 <i>Cassytha pomiformis</i> (Dodder Laurel)			
450.	11242 <i>Cassytha racemosa</i> forma <i>pilosa</i>			
<b>Lentibulariaceae</b>				
451.	7131 <i>Utricularia dichotoma</i> (Fairy Aprons)			
452.	7138 <i>Utricularia inaequalis</i>			
453.	7148 <i>Utricularia multifida</i>			
<b>Lepidoziaceae</b>				
454.	<i>Paracromastigum longiscyphum</i>			
<b>Linaceae</b>				
455.	4362 <i>Linum marginale</i> (Wild Flax)			
456.	4363 <i>Linum trigynum</i> (French Flax)	Y		
<b>Loganiaceae</b>				
457.	6506 <i>Logania campanulata</i> (Bell-flowered Logania)			
458.	16824 <i>Phyllangium sulcatum</i>			
<b>Loranthaceae</b>				
459.	2401 <i>Nuytsia floribunda</i> (Christmas Tree, Mudja)			
<b>Malvaceae</b>				
460.	4905 <i>Alyogyne hakeifolia</i>			
461.	<i>Commersonia</i> sp.			
462.	5023 <i>Keraudrenia integrifolia</i> (Common Firebush)			
463.	<i>Sida</i> sp.			
<b>Marsileaceae</b>				
464.	78 <i>Pilularia novae-hollandiae</i> (Austral Pillwort)			
<b>Menyanthaceae</b>				
465.	36160 <i>Liparophyllum capitatum</i>			
<b>Molluginaceae</b>				
466.	2836 <i>Glinus oppositifolius</i>			
<b>Myrtaceae</b>				
467.	5316 <i>Agonis flexuosa</i> (Peppermint, Wonil)			
468.	19463 <i>Aluta aspera</i>			
469.	20350 <i>Astartea affinis</i>			
470.	20249 <i>Astartea leptophylla</i>			
471.	<i>Astartea</i> sp.			
472.	36441 <i>Babingtonia camphorosmae</i> (Camphor Myrtle)			

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473.	5394 <i>Callistemon glaucus</i>			
474.	5429 <i>Calothamnus sanguineus</i> (Silky-leaved Blood flower, Pindak)			
475.	5439 <i>Calytrix angulata</i> (Yellow Starflower)			
476.	5458 <i>Calytrix flavescens</i> (Summer Starflower)			
477.	5481 <i>Calytrix sylvana</i>			
478.	35598 <i>Chamelaucium</i> sp. Winchester (C. Chapman s.n. PERTH 07879180)			
479.	17104 <i>Corymbia calophylla</i> (Marri)			
480.	5508 <i>Darwinia citriodora</i> (Lemon-scented Darwinia)			
481.	13547 <i>Eucalyptus marginata</i> subsp. <i>marginata</i> (Jarrah)			
482.	5739 <i>Eucalyptus patens</i> (Swan River Blackbutt, Dwuda)			
483.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
484.	13511 <i>Eucalyptus rudis</i> subsp. <i>rudis</i>			
485.	5766 <i>Eucalyptus salmonophloia</i> (Salmon Gum, Wurak)			
486.	5767 <i>Eucalyptus salubris</i> (Gimlet)			
487.	5817 <i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
488.	5835 <i>Kunzea micrantha</i>			
489.	5841 <i>Kunzea recurva</i>			
490.	<i>Kunzea</i> sp.			
491.	5847 <i>Leptospermum erubescens</i> (Roadside Teatree)			
492.	<i>Leptospermum</i> sp.			
493.	5857 <i>Leptospermum spinescens</i>			
494.	17982 <i>Melaleuca carrii</i>			
495.	5926 <i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
496.	5931 <i>Melaleuca leptospermoides</i>			
497.	17981 <i>Melaleuca orbicularis</i>			
498.	18394 <i>Melaleuca parviceps</i>			
499.	<i>Melaleuca</i> sp.			
500.	18598 <i>Melaleuca systema</i>			
501.	5983 <i>Melaleuca trichophylla</i>			
502.	6012 <i>Regelia ciliata</i>			
503.	6020 <i>Rinzia crassifolia</i>		P1	
504.	12388 <i>Verticordia acerosa</i> var. <i>preissii</i>			
505.	6073 <i>Verticordia chrysantha</i>			
506.	12402 <i>Verticordia chrysanthella</i>			
507.	6076 <i>Verticordia densiflora</i> (Compacted Featherflower)			
508.	12411 <i>Verticordia densiflora</i> var. <i>cespitosa</i>			
509.	12422 <i>Verticordia eriocephala</i> (Common Cauliflower)			
510.	6082 <i>Verticordia grandiflora</i> (Claw Featherflower)			
511.	6088 <i>Verticordia huegelii</i> (Variegated Featherflower)			
512.	15434 <i>Verticordia insignis</i> subsp. <i>insignis</i>			
513.	12439 <i>Verticordia lindleyi</i> subsp. <i>purpurea</i>			
514.	6101 <i>Verticordia nitens</i> (Morrison Featherflower, Kodjeningara)			
515.	6109 <i>Verticordia picta</i> (Painted Featherflower)			
516.	15267 <i>Verticordia roei</i> subsp. <i>roei</i>			
517.	12458 <i>Verticordia serrata</i> var. <i>ciliata</i>			
518.	12460 <i>Verticordia serrata</i> var. <i>linearis</i>		P3	
<b>Olacaceae</b>				
519.	2365 <i>Olax benthamiana</i>			
<b>Orchidaceae</b>				
520.	1592 <i>Caladenia flava</i> (Cowslip Orchid)			
521.	15354 <i>Caladenia hirta</i> subsp. <i>hirta</i>			
522.	1596 <i>Caladenia huegelii</i> (Grand Spider Orchid)		T	
523.	<i>Caladenia patersonii</i> var. <i>longicauda</i>			
524.	1613 <i>Caladenia reptans</i> (Little Pink Fairy Orchid)			
525.	15380 <i>Caladenia splendens</i>			
526.	15114 <i>Cyanicula gemmata</i>			
527.	13826 <i>Cyanicula ixioides</i> subsp. <i>ixioides</i>		P4	
528.	1634 <i>Diuris laxiflora</i> (Bee Orchid)			
529.	1643 <i>Elythranthera brunonis</i> (Purple Enamel Orchid)			
530.	1653 <i>Leporella fimbriata</i> (Hare Orchid)			
531.	15418 <i>Leptoceras menziesii</i>			
532.	15419 <i>Microtis media</i> subsp. <i>media</i>			
533.	1667 <i>Paracaleana nigrita</i> (Flying Duck Orchid)			
534.	1671 <i>Prasophyllum elatum</i> (Tall Leek Orchid)			
535.	1672 <i>Prasophyllum fimbria</i> (Fringed Leek Orchid)			
536.	16367 <i>Pyrorchis nigricans</i> (Red beaks, Elephants ears)			
537.	1701 <i>Thelymitra antennifera</i> (Vanilla Orchid)			
<b>Orobanchaceae</b>				
538.	7122 <i>Orobanche minor</i> (Lesser Broomrape)			

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		Y		
539.	7089 <i>Parentucellia latifolia</i> (Common Bartsia)	Y		
540.	7090 <i>Parentucellia viscosa</i> (Sticky Bartsia)	Y		
<b>Oxalidaceae</b>				
541.	4355 <i>Oxalis perennans</i>			
<b>Papaveraceae</b>				
542.	2969 <i>Fumaria capreolata</i> (Whiteflower Fumitory)	Y		
<b>Philydraceae</b>				
543.	1172 <i>Philydrella drummondii</i>			
544.	1173 <i>Philydrella pygmaea</i> (Butterfly Flowers)			
<b>Phrymaceae</b>				
545.	7061 <i>Glossostigma drummondii</i> (Mudmat)			
<b>Phyllanthaceae</b>				
546.	4675 <i>Phyllanthus calycinus</i> (False Boronia)			
547.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
<b>Pittosporaceae</b>				
548.	25788 <i>Billardiera fraseri</i> (Elegant Pronaya)			
549.	25796 <i>Billardiera heterophylla</i> (Australian Bluebell)			
550.	3169 <i>Cheiranthra preissiana</i>			
551.	19421 <i>Marianthus bicolor</i> (Painted Marianthus)			
552.	17637 <i>Marianthus candidus</i> (White Marianthus)			
553.	17636 <i>Marianthus coeruleopunctatus</i> (Blue-spotted Marianthus)			
<b>Plantaginaceae</b>				
554.	14282 <i>Gratiola pubescens</i>			
555.	11785 <i>Plantago coronopus</i> subsp. <i>commutata</i>	Y		
556.	17615 <i>Plantago coronopus</i> subsp. <i>coronopus</i>	Y		
557.	<i>Plantago</i> sp.			
<b>Poaceae</b>				
558.	184 <i>Aira caryophyllea</i> (Silvery Hairgrass)	Y		
559.	185 <i>Aira cupaniana</i> (Silvery Hairgrass)	Y		
560.	207 <i>Aristida contorta</i> (Bunched Kerosene Grass)			
561.	17233 <i>Austrostipa campylachne</i>			
562.	17237 <i>Austrostipa elegantissima</i>			
563.	17240 <i>Austrostipa flavescens</i>			
564.	17254 <i>Austrostipa tenuifolia</i>			
565.	233 <i>Avena barbata</i> (Bearded Oat)	Y		
566.	234 <i>Avena fatua</i> (Wild Oat)	Y		
567.	235 <i>Avena sativa</i> (Common Oat)	Y		
568.	8661 <i>Brachypodium distachyon</i> (False Brome)	Y		
569.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
570.	245 <i>Briza minor</i> (Shivery Grass)	Y		
571.	249 <i>Bromus diandrus</i> (Great Brome)	Y		
572.	250 <i>Bromus hordeaceus</i> (Soft Brome)	Y		
573.	253 <i>Bromus rubens</i> (Red Brome)	Y		
574.	41567 <i>Cenchrus macrourus</i> (African Feather Grass)	Y		
575.	41568 <i>Cenchrus setaceus</i> (Fountain Grass)	Y		
576.	307 <i>Dichelachne micrantha</i> (Shorthair Plumegrass)			
577.	347 <i>Ehrharta calycina</i> (Perennial Veldt Grass)	Y		
578.	349 <i>Ehrharta longiflora</i> (Annual Veldt Grass)	Y		
579.	<i>Eragrostis</i> sp.			
580.	17575 <i>Hordeum distichon</i>	Y		
581.	19955 <i>Lachnagrostis plebeia</i>			
582.	<i>Lachnagrostis</i> sp.			
583.	468 <i>Lamarckia aurea</i> (Goldentop)	Y		
584.	485 <i>Microlaena stipoides</i> (Weeping Grass)			
585.	492 <i>Neurachne alopecuroidea</i> (Foxtail Mulga Grass)			
586.	<i>Neurachne alopecuroides</i>			
587.	40423 <i>Pentameris airoides</i> (False Hairgrass)	Y		
588.	551 <i>Phalaris minor</i> (Lesser Canary Grass)	Y		
589.	<i>Poa</i> sp.			
590.	582 <i>Polypogon monspeliensis</i> (Annual Beardgrass)	Y		
591.	583 <i>Polypogon tenellus</i>			
592.	40427 <i>Rytidosperma setaceum</i>			
593.	667 <i>Tetrarrhena laevis</i> (Forrest Ricegrass)			
594.	673 <i>Themeda triandra</i>			
595.	708 <i>Triticum aestivum</i> (Wheat)	Y		

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596.	722 <i>Vulpia bromoides</i> (Squirrel Tail Fescue)	Y		
597.	724 <i>Vulpia myuros</i> (Rat's Tail Fescue)	Y		
<b>Polygalaceae</b>				
598.	4550 <i>Comesperma calymega</i> (Blue-spike Milkwort)			
599.	4551 <i>Comesperma ciliatum</i>			
600.	4553 <i>Comesperma drummondii</i> (Drummond's Milkwort)			
601.	4561 <i>Comesperma scoparium</i> (Broom Milkwort)			
<b>Polygonaceae</b>				
602.	2409 <i>Emex australis</i> (Doublegee)	Y		
603.	13911 <i>Persicaria decipiens</i>			
<b>Portulacaceae</b>				
604.	2854 <i>Calandrinia granulifera</i> (Pygmy Purslane)			
605.	2856 <i>Calandrinia liniflora</i> (Parakeelya)			
<b>Primulaceae</b>				
606.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
607.	6483 <i>Samolus junceus</i>			
608.	6484 <i>Samolus repens</i> (Creeping Brookweed)			
<b>Proteaceae</b>				
609.	14970 <i>Adenanthos barbiger</i>			
610.	1775 <i>Adenanthos cygnorum</i> (Common Woollybush)			
611.	1791 <i>Adenanthos obovatus</i> (Basket Flower)			
612.	32681 <i>Banksia armata</i> (Prickly Dryandra)			
613.	1800 <i>Banksia attenuata</i> (Slender Banksia, Piara)			
614.	32677 <i>Banksia bipinnatifida</i>			
615.	32521 <i>Banksia fraseri</i>			
616.	32523 <i>Banksia fraseri</i> var. <i>fraseri</i>			
617.	1819 <i>Banksia grandis</i> (Bull Banksia, Pulgarla)			
618.	1830 <i>Banksia littoralis</i> (Swamp Banksia, Pungura)			
619.	32142 <i>Banksia proteoides</i> (King Dryandra)			
620.	32076 <i>Banksia sessilis</i> (Parrot Bush, Pudjak)			
621.	<i>Banksia</i> sp.			
622.	1851 <i>Banksia sphaerocarpa</i> (Round-fruit Banksia)			
623.	12111 <i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i> (Fox Banksia)			
624.	32044 <i>Banksia squarrosa</i> (Pingle)			
625.	1861 <i>Conospermum brownii</i> (Blue-eyed Smokebush)			
626.	1864 <i>Conospermum crassinervium</i> (Summer Smokebush)			
627.	8824 <i>Conospermum croniniae</i>			
628.	14876 <i>Conospermum densiflorum</i> subsp. <i>densiflorum</i>			
629.	1870 <i>Conospermum eatoniae</i>		P3	
630.	1871 <i>Conospermum ephedroides</i>			
631.	1874 <i>Conospermum glumaceum</i> (Hooded Smokebush)			
632.	1875 <i>Conospermum huegelii</i> (Slender Smokebush)			
633.	1876 <i>Conospermum incurvum</i> (Plume Smokebush)			
634.	1882 <i>Conospermum stoechadis</i> (Common Smokebush)			
635.	15520 <i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>			
636.	15611 <i>Conospermum stoechadis</i> subsp. <i>stoechadis</i> (Common Smokebush)			
637.	1885 <i>Conospermum triplinervium</i> (Tree Smokebush)			
638.	15521 <i>Conospermum unilaterale</i>			
639.	13447 <i>Grevillea anethifolia</i>			
640.	19630 <i>Grevillea bipinnatifida</i> subsp. <i>pagna</i>		P1	
641.	14408 <i>Grevillea curviloba</i> subsp. <i>curviloba</i>		T	
642.	14409 <i>Grevillea curviloba</i> subsp. <i>incurva</i>		T	
643.	13430 <i>Grevillea hakeoides</i> subsp. <i>stenophylla</i>			
644.	19435 <i>Grevillea hookeriana</i> subsp. <i>hookeriana</i>			
645.	13450 <i>Grevillea manglesii</i> subsp. <i>manglesii</i>			
646.	15981 <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i>			
647.	2056 <i>Grevillea paniculata</i>			
648.	2066 <i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)			
649.	2068 <i>Grevillea pityophylla</i>			
650.	2071 <i>Grevillea polybotrya</i>			
651.	2101 <i>Grevillea synapheae</i> (Catkin Grevillea)			
652.	2115 <i>Grevillea umbellulata</i>			
653.	2116 <i>Grevillea uncinulata</i> (Hook-leaf Grevillea)			
654.	12824 <i>Grevillea vestita</i> subsp. <i>vestita</i>			
655.	2122 <i>Grevillea wilsonii</i> (Native Fuchsia)			
656.	2124 <i>Grevillea yorkrakinensis</i>			
657.	2149 <i>Hakea cristata</i> (Snail Hakea)			
658.	2152 <i>Hakea cyclocarpa</i> (Ramshorn)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
659.	2158 <i>Hakea erinacea</i> (Hedge-hog Hakea)			
660.	2163 <i>Hakea francisiana</i> (Emu Tree)			
661.	2164 <i>Hakea gilbertii</i>			
662.	2166 <i>Hakea incrassata</i> (Marble Hakea)			
663.	2175 <i>Hakea lissocarpha</i> (Honey Bush)			
664.	2179 <i>Hakea marginata</i>			
665.	2184 <i>Hakea multilineata</i> (Grass Leaf Hakea)			
666.	2185 <i>Hakea myrtoidea</i> (Myrtle Hakea)			
667.	2195 <i>Hakea platysperma</i> (Cricket Ball Hakea)			
668.	2196 <i>Hakea preissii</i> (Needle Tree, Dandjin)			
669.	2197 <i>Hakea prostrata</i> (Harsh Hakea)			
670.	17557 <i>Hakea recurva</i> subsp. <i>recurva</i>			
671.	2203 <i>Hakea ruscifolia</i> (Candle Hakea)			
672.	19131 <i>Hakea scoparia</i> subsp. <i>scoparia</i>			
673.	2206 <i>Hakea stenocarpa</i> (Narrow-fruited Hakea)			
674.	2214 <i>Hakea trifurcata</i> (Two-leaf Hakea)			
675.	2215 <i>Hakea undulata</i> (Wavy-leaved Hakea)			
676.	2216 <i>Hakea varia</i> (Variable-leaved Hakea)			
677.	2221 <i>Isopogon asper</i>			
678.	2227 <i>Isopogon divergens</i> (Spreading Coneflower)			
679.	2229 <i>Isopogon dubius</i> (Pincushion Coneflower)			
680.	2237 <i>Isopogon sphaerocephalus</i> (Drumstick Isopogon)			
681.	2249 <i>Lambertia multiflora</i> (Many-flowered Honeysuckle)			
682.	2271 <i>Persoonia rudis</i>		P3	
683.	2278 <i>Persoonia sulcata</i>		P4	
684.	2284 <i>Petrophile biloba</i> (Granite Petrophile)			
685.	2286 <i>Petrophile brevifolia</i>			
686.	2295 <i>Petrophile ericifolia</i>			
687.	14443 <i>Petrophile ericifolia</i> subsp. <i>ericifolia</i>			
688.	2299 <i>Petrophile linearis</i> (Pixie Mops)			
689.	2308 <i>Petrophile seminuda</i>			
690.	2309 <i>Petrophile serruriae</i>			
691.	2312 <i>Petrophile striata</i>			
692.	12856 <i>Stirlingia abrotanoides</i>			
693.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
694.	2321 <i>Synaphea acutiloba</i> (Granite Synaphea)			
695.	16761 <i>Synaphea interioris</i>			
696.	<i>Synaphea</i> sp.			
<b>Pteridaceae</b>				
697.	25 <i>Adiantum aethiopicum</i> (Common Maidenhair)			
698.	29 <i>Anogramma leptophylla</i> (Annual Fern)			
699.	34 <i>Cheilanthes distans</i> (Bristly Cloak Fern)			
700.	<i>Cheilanthes</i> sp.			
701.	8462 <i>Cheilanthes tenuifolia</i> (Rock Fern)			
<b>Ranunculaceae</b>				
702.	10804 <i>Clematis linearifolia</i>			
703.	2932 <i>Ranunculus colonorum</i> (Common Buttercup)			
704.	11927 <i>Ranunculus sessiliflorus</i> var. <i>sessiliflorus</i>			
<b>Restionaceae</b>				
705.	17663 <i>Desmocladus asper</i>			
706.	17691 <i>Desmocladus fasciculatus</i>			
707.	1070 <i>Hypolaena exsulca</i>			
708.	18074 <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>			
709.	17683 <i>Meeboldina cana</i>			
710.	17679 <i>Meeboldina coangustata</i>			
711.	17747 <i>Meeboldina decipiens</i>			
712.	17694 <i>Meeboldina scariosa</i>			
<b>Rhamnaceae</b>				
713.	4792 <i>Cryptandra arbutiflora</i> (Waxy Cryptandra)			
714.	13470 <i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i>			
715.	9076 <i>Cryptandra myriantha</i>			
716.	<i>Cryptandra</i> sp.			
717.	16198 <i>Stenanthemum intricatum</i>			
718.	15066 <i>Stenanthemum notiale</i> subsp. <i>chamelum</i>			
719.	4839 <i>Trymalium angustifolium</i>			
720.	13479 <i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>			
721.	33418 <i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>			
722.	<i>Trymalium</i> sp.			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
723.	<i>Ventilago ecorollata</i>			Y
<b>Rubiaceae</b>				
724.	7321 <i>Galium divaricatum</i>	Y		
725.	7323 <i>Galium murale</i> (Small Goosegrass)	Y		
726.	<i>Opercularia</i> sp.			
727.	18255 <i>Opercularia vaginata</i> (Dog Weed)			
<b>Rutaceae</b>				
728.	11274 <i>Boronia coerulescens</i> subsp. <i>spinescens</i>			
729.	16636 <i>Boronia crenulata</i> subsp. <i>viminea</i>			
730.	4414 <i>Boronia cymosa</i> (Granite Boronia)			
731.	4432 <i>Boronia ovata</i>			
732.	17665 <i>Boronia purdieana</i> subsp. <i>purdieana</i>			
733.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
734.	4440 <i>Boronia scabra</i> (Rough Boronia)			
735.	4443 <i>Boronia subsessilis</i>			
736.	18537 <i>Philotheca brucei</i> subsp. <i>brucei</i>			
737.	18508 <i>Philotheca sericea</i>			
738.	18529 <i>Philotheca spicata</i> (Pepper and Salt)			
<b>Santalaceae</b>				
739.	2356 <i>Santalum acuminatum</i> (Quandong, Warnga)			
740.	2359 <i>Santalum spicatum</i> (Sandalwood, Wilarak)			
<b>Sapindaceae</b>				
741.	4746 <i>Diplopeltis huegelii</i>			
742.	18589 <i>Diplopeltis huegelii</i> subsp. <i>lehmannii</i>			
743.	18542 <i>Diplopeltis huegelii</i> subsp. <i>subintegra</i>			
744.	4755 <i>Dodonaea bursariifolia</i>			
745.	4775 <i>Dodonaea pinifolia</i>			
746.	11247 <i>Dodonaea viscosa</i> subsp. <i>angustissima</i>			
747.	11202 <i>Dodonaea viscosa</i> subsp. <i>spatulata</i> (Sticky Hop-bush)			
<b>Scrophulariaceae</b>				
748.	7055 <i>Dischisma capitatum</i> (Woolly-headed Dischisma)	Y		
749.	7189 <i>Eremophila clarkei</i> (Turpentine Bush)			
750.	15052 <i>Eremophila forrestii</i> subsp. <i>forrestii</i>			
751.	7230 <i>Eremophila latrobei</i> (Warty Fuchsia Bush, Mintjingka)			
752.	7231 <i>Eremophila lehmanniana</i>			
753.	7234 <i>Eremophila longifolia</i> (Berrigan, Tulypurpa)			
754.	17168 <i>Eremophila oldfieldii</i> subsp. <i>oldfieldii</i>			
755.	18570 <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>			
756.	15155 <i>Eremophila youngii</i> subsp. <i>youngii</i>			
757.	7073 <i>Limosella australis</i> (Common Mudwort)			
758.	7289 <i>Myoporum caprarioides</i> (Slender Myoporum)			
759.	<i>Myoporum</i> sp.			
<b>Selaginellaceae</b>				
760.	6 <i>Selaginella gracillima</i> (Tiny Clubmoss)			
<b>Solanaceae</b>				
761.	6949 <i>Anthocercis littorea</i> (Yellow Tailflower)			
762.	6966 <i>Duboisia hopwoodii</i> (Pituri, Kundugu)			
763.	7002 <i>Solanum diversiflorum</i>			
764.	7023 <i>Solanum nummularium</i> (Money-leaved Solanum)			
765.	7025 <i>Solanum oldfieldii</i>			
<b>Stylidiaceae</b>				
766.	7676 <i>Levenhookia pusilla</i> (Midget Stylewort)			
767.	7677 <i>Levenhookia stipitata</i> (Common Stylewort)			
768.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
769.	7694 <i>Stylidium bulbiferum</i> (Circus Triggerplant)			
770.	7698 <i>Stylidium caricifolium</i> (Milkmaids)			
771.	7708 <i>Stylidium crassifolium</i> (Thick-leaved Triggerplant)			
772.	7712 <i>Stylidium despectum</i> (Dwarf Triggerplant)			
773.	7713 <i>Stylidium dichotomum</i> (Pins-and-needles)			
774.	7716 <i>Stylidium diuroides</i> (Donkey Triggerplant)			
775.	11808 <i>Stylidium diuroides</i> subsp. <i>diuroides</i>			
776.	7717 <i>Stylidium divaricatum</i> (Daddy-long-legs)			
777.	7719 <i>Stylidium ecorne</i> (Foot Triggerplant)			
778.	19251 <i>Stylidium eriopodum</i>			
779.	7736 <i>Stylidium hispidum</i> (White Butterfly Triggerplant)			
780.	7756 <i>Stylidium longitubum</i> (Jumping Jacks)			

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Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
781.	7773 <i>Stylidium petiolare</i> (Horn Triggerplant)			
782.	7774 <i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
783.	7782 <i>Stylidium pulchellum</i> (Thumbelina Triggerplant)			
784.	25837 <i>Stylidium purpureum</i> (Purple Fountain Triggerplant)			
785.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
786.	20521 <i>Stylidium rigidulum</i>			
787.	25806 <i>Stylidium scariosum</i>			
788.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
789.	23511 <i>Stylidium thesioides</i> (Delicate Triggerplant)			
790.	7806 <i>Stylidium utricularioides</i> (Pink Fan Triggerplant)			

#### Surianaceae

791. 3181 *Stylobasium australe*

#### Thymelaeaceae

792. 5231 *Pimelea angustifolia* (Narrow-leaved Pimelea)  
 793. 5232 *Pimelea argentea* (Silvery Leaved Pimelea)  
 794. 11404 *Pimelea imbricata* var. *major*  
 795. 11402 *Pimelea imbricata* var. *piligera*  
 796. 11182 *Pimelea lehmanniana* subsp. *nervosa*  
 797. 5266 *Pimelea suaveolens* (Scented Banjine)  
 798. 12041 *Pimelea suaveolens* subsp. *suaveolens*

#### Violaceae

799. 5216 *Hybanthus calycinus* (Wild Violet)

#### Vitaceae

800. 17042 *Vitis vinifera* Y

#### Xanthorrhoeaceae

801. 1256 *Xanthorrhoea preissii* (Grass tree, Palga)

#### Zygophyllaceae

802. 4383 *Tribulus terrestris* (Caltrop) Y

#### Conservation Codes

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

<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.



# EPBC Act Protected Matters Report

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

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

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 21/03/16 19:02:37

## [Summary](#)

### [Details](#)

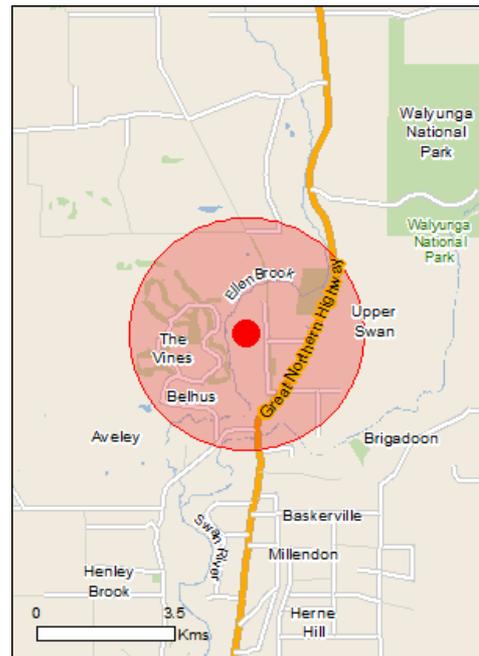
[Matters of NES](#)

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

[Extra Information](#)

### [Caveat](#)

### [Acknowledgements](#)



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[Coordinates](#)

Buffer: 3.0Km



# 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>	None
<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>	20
<a href="#">Listed Migratory Species:</a>	7

## 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>	10
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Commonwealth Reserves Marine:</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>	3
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Invasive Species:</a>	36
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

### Listed Threatened Ecological Communities [\[ Resource Information \]](#)

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

Name	Status	Type of Presence
<a href="#">Claypans of the Swan Coastal Plain</a>	Critically Endangered	Community likely to occur within area
<a href="#">Corymbia calophylla - Xanthorrhoea preissii woodlands and shrublands of the Swan Coastal Plain</a>	Endangered	Community known to occur within area
<a href="#">Shrublands and Woodlands on Muchea Limestone of the Swan Coastal Plain</a>	Endangered	Community known to occur within area

### Listed Threatened Species [\[ Resource Information \]](#)

Name	Status	Type of Presence
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#### Birds

##### [Calyptorhynchus banksii naso](#)

Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat may occur within area
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##### [Calyptorhynchus baudinii](#)

Baudin's Black-Cockatoo, Long-billed Black-Cockatoo [769]	Vulnerable	Species or species habitat likely to occur within area
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##### [Calyptorhynchus latirostris](#)

Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Breeding likely to occur within area
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##### [Leipoa ocellata](#)

Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
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##### [Rostratula australis](#)

Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
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#### Mammals

##### [Dasyurus geoffroi](#)

Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
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#### Plants

##### [Andersonia gracilis](#)

Slender Andersonia [14470]	Endangered	Species or species habitat likely to occur within area
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##### [Anigozanthos viridis subsp. terraspectans](#)

Dwarf Green Kangaroo Paw [3435]	Vulnerable	Species or species habitat may occur within area
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##### [Caladenia huegelii](#)

King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
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Name	Status	Type of Presence
<a href="#">Darwinia foetida</a> Mucheia Bell [83190]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
<a href="#">Drakaea elastica</a> Glossy-leafed Hammer-orchid, Praying Virgin [16753]	Endangered	Species or species habitat likely to occur within area
<a href="#">Eleocharis keigheryi</a> Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Eucalyptus balanites</a> Cadda Road Mallee, Cadda Mallee [24264]	Endangered	Species or species habitat may occur within area
<a href="#">Grevillea curviloba subsp. curviloba</a> Curved-leaf Grevillea [64908]	Endangered	Species or species habitat known to occur within area
<a href="#">Grevillea curviloba subsp. incurva</a> Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat known to occur within area
<a href="#">Lepidosperma rostratum</a> Beaked Lepidosperma [14152]	Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra dedmaniarum</a> Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra stellata</a> Star Sun-orchid [7060]	Endangered	Species or species habitat likely to occur within area

#### Reptiles

<a href="#">Pseudemydura umbrina</a> Western Swamp Tortoise [1760]	Critically Endangered	Species or species habitat likely to occur within area
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#### Listed Migratory Species

[ [Resource Information](#) ]

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

Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area

#### Migratory Terrestrial Species

<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

#### Migratory Wetlands Species

<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat may occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely 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="#">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]		Species or species habitat likely to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to 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="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat may occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<a href="#">Thinornis rubricollis</a> Hooded Plover [59510]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
<a href="#">Tringa nebularia</a>		
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

## Extra Information

### State and Territory Reserves [\[ Resource Information \]](#)

Name	State
Ellen Brook	WA
Unnamed WA46875	WA
Unnamed WA49300	WA

### Regional Forest Agreements [\[ Resource Information \]](#)

Note that all areas with completed RFAs have been included.

Name	State
<a href="#">South West WA RFA</a>	Western Australia

### Invasive Species [\[ Resource Information \]](#)

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

Name	Status	Type of Presence
<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

Name	Status	Type of Presence
<i>Sturnus vulgaris</i> Common Starling [389]		Species or species habitat likely to occur within area
<b>Mammals</b>		
<i>Bos taurus</i> Domestic Cattle [16]		Species or species habitat likely to occur within area
<i>Canis lupus familiaris</i> Domestic Dog [82654]		Species or species habitat likely to occur within area
<i>Capra hircus</i> Goat [2]		Species or species habitat likely to occur within area
<i>Felis catus</i> Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
<i>Funambulus pennantii</i> Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
<i>Mus musculus</i> House Mouse [120]		Species or species habitat likely to occur within area
<i>Oryctolagus cuniculus</i> Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
<i>Rattus norvegicus</i> Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
<i>Rattus rattus</i> Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
<i>Sus scrofa</i> Pig [6]		Species or species habitat likely to occur within area
<i>Vulpes vulpes</i> Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
<i>Asparagus asparagoides</i> Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
<i>Brachiaria mutica</i> Para Grass [5879]		Species or species habitat may occur within area
<i>Cenchrus ciliaris</i> Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
<i>Chrysanthemoides monilifera</i> Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> Boneseed [16905]		Species or species habitat likely to occur

Name	Status	Type of Presence
Genista sp. X Genista monspessulana Broom [67538]		within area  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] Olea europaea Olive, Common Olive [9160]		Species or species habitat likely to occur within area  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
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, Kariba Weed [13665]		Species or species 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
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area

# 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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

-31.76131 116.0199

# 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](#)
- [-Parks and Wildlife Commission NT, Northern Territory Government](#)
- [-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, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- 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 5**  
**Vascular plant taxa recorded by site**  
**and vegetation type**



Site	VT	Species
1	2	<i>Acacia saligna</i>
		* <i>Acetosa vesicaria</i>
		* <i>Conyza bonariensis</i>
		<i>Eucalyptus rudis</i>
		<i>Hypocalymma hirsutum</i>
		<i>Melaleuca raphiophylla</i>
		* <i>Poaceae sp.</i>
		* <i>Sonchus oleraceus</i>
		* <i>Stenotaphrum secundatum</i>
2	1	* <i>Conyza bonariensis</i>
		<i>Eucalyptus rudis</i>
		<i>Melaleuca raphiophylla</i>
		* <i>Stenotaphrum secundatum</i>
		* <i>Watsonia meriana var. bulbifera</i>
OPPO	3	* <i>Arundo donax</i>
		* <i>Ehrharta calycina</i>
		<i>Eucalyptus wandoo</i>
		* <i>Gomphocarpus fruticosus</i>
		* <i>Hyparrhenia hirta</i>
		<i>Hypocalymma angustifolium</i>
		* <i>Pinus pinaster</i>
		<i>Viminaria juncea</i>
		* <i>Watsonia meriana var. bulbifera</i>



**Appendix 6**  
**Fauna taxa recorded within the survey**  
**area or expected to occur based on**  
**habitat present**



Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Baudin's Black Cockatoo	<i>Calyptorhynchus baudinii</i>	T - E	T - E		This species occasionally occurs on the Swan Coastal Plain. Marri trees are recognised as a primary foraging habitat for this species by the federal DotE. Breeding occurs within the forests to the south of the survey area.	Occasional visitor	
Carnaby's Black Cockatoo	<i>Calyptorhynchus latirostris</i>	T - E	T - E		This species is likely to be a regular visitor to the survey area as it is known to occur locally and regionally on the Perth Swan Coastal Plain and Darling Range. Marri trees are recognised as a primary foraging habitat for this species by the federal DotE. The survey area also contains potential nesting trees for black cockatoos based on the definition within the EPBC Act referral guidelines (DSEWPaC 2012). Details about habitat values of the survey area for Black cockatoos are presented in Section 4.2.6.	Frequent visitor	
Forest Red-tailed Black Cockatoo	<i>Calyptorhynchus banksii naso</i>	T - V	T - V		This species was recorded based on old and recent foraging signs in the form of chewed Marri nuts (Appendix 10). Likely to be a regular visitor to the survey area as the species is known to occur locally and regionally on the Perth Swan Coastal Plain and Darling Range. Marri trees are recognised as a primary foraging habitat for Black cockatoos by the federal DotE. The survey area also contains potential nesting trees for black cockatoos based on the definition within the EPBC Act referral guidelines (DSEWPaC 2012). Details about habitat values of the survey area for black cockatoos are presented in Section 4.2.6.	Frequent visitor	
Fork-tailed Swift	<i>Apus pacificus</i>	M	M		This is a summer migrant species that can occur aerially over a wide range of habitat types throughout much of coastal and inland Australia. This species does not breed in Australia, but may occur on an occasional basis on the Perth Swan Coastal bioregion.	Occasional migrant	
Cattle Egret	<i>Ardea ibis</i>	M	M		This species is known to occur locally and regionally over a wide variety of permanent and temporary wetlands and artificial water bodies. All species potentially occur within the Ellen Brook and adjacent flood plain on a least an occasional basis in small numbers. It should be noted that the Upper Swan survey area lacks suitable habitat such as extensive shallow estuarine mud flats or tidal shorelines for migratory shorebirds such as sandpipers, but the Commo Greenshank is the most likely of this group to visit flooded grassy shallows.	Occasional visitor	
Eastern Great Egret	<i>Ardea modesta</i>	M	M		This species is known to occur locally. A very widespread and highly mobile species that will visit a range of freshwater and estuarine shorelines and shallow wetlands including artificial water bodies such as drainage and irrigation channels and temporary wetlands such as flooded lowland plains. Expected to occasionally visit Ellen Brook and also adjacent floodplain.	Occasional visitor	
Little Egret	<i>Ardea garzetta</i>	M	M		This species is known to occur locally. A very widespread and highly mobile species that will visit a range of freshwater and estuarine shorelines and shallow wetlands including artificial water bodies such as drainage and irrigation channels and temporary wetlands such as flooded lowland plains. Expected to occasionally visit Ellen Brook and also adjacent floodplain.	Vagrant	
Glossy Ibis	<i>Plegadis falcinellus</i>	M	M		This species is known to occur locally and regionally over a wide variety of permanent and temporary wetlands and artificial water bodies. All species potentially occur within the Ellen Brook and adjacent flood plain on a least an occasional basis in small numbers. It should be noted that the Upper Swan survey area lacks suitable habitat such as extensive shallow estuarine mud flats or tidal shorelines for migratory shorebirds such as sandpipers, but the Commo Greenshank is the most likely of this group to visit flooded grassy shallows.	Occasional visitor	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Rainbow Bee-eater	<i>Merops ornatus</i>	M	M		This species is a common summer migrant that breeds in the Perth area, and the survey area represents potential breeding habitat. While this species is of high conservation significance (CS1) because of its listing as a migratory species under the EPBC Act, it is widespread and frequently uses areas cleared of native vegetation and other disturbed environments.	Seasonal visitor	
Western False Pipistrelle	<i>Falsistrellus mackenzie</i>		P4		This species may occur in nearby forest to east and individuals could occasionally fly along Ellen Brook. The survey area itself provides no habitat for this species.	Possible resident	
Water Rat	<i>Hydromys chrysogaster</i>		P4		This species was not recorded during the field survey, but is almost certainly resident along Ellen Brook and occurs within the wider Swan River system. Freshwater Mussels ( <i>Westralunio carteri</i> ) and Freshwater Crayfish (Gilgies <i>Cherax quinquecarinata</i> ), both key food items for the Rakali, were found in Ellen Brook. Databases have recorded this species within 5 kilometres, including a 2014 record on the Swan River near the Garret Road Bridge (Bamford Consulting database). Ellen Brook was not included in the recent Rakali survey conducted by WWF and Parks and Wildlife (Trocini <i>et al.</i> 2015), but that survey did confirm the presence of the species at multiple locations around Perth.	Possible Resident Ellen Brook	
Blue-billed Duck	<i>Oxyura australis</i>		P4			Occasional visitor	
Quenda	<i>Isoodon obesulus</i>		P4		Foraging signs and footprints of this species (Appendix 10) were found along the western edge of the survey area. Resident individuals potentially shelter within the low dense vegetation associated with the Ellen Brook riparian habitat (VSA4) located directly adjacent to the western edge of the survey area and this area may represent a significant dispersal and movement corridor along the Swan – Ellen Brook river system. It is worth noting that Quenda have disappeared from many isolated bushland reserves in the Perth metropolitan area and their survival in the region can be enhanced by the retention of connecting corridors of suitable vegetation.	Possible resident	X
Southern Carpet Python	<i>(Morelia spilota imbricata)</i>			L	This species occurs widely through south-western Australia and potentially occurs on an occasional basis in the riparian vegetation associated with Ellen Brook (VSA4).	Occasional visitor	
Common Bronzewing	<i>Phaps chalcoptera</i>			L	This species is considered to be of local conservation significance because it has been identified in the Bush Forever Report (Dell and Banyard 2000) as declining in the Perth region and being reliant on native vegetation. For many of the species this conclusion has been reinforced by Davis <i>et al.</i> (2012). This species is reliant to varying degrees on large and interconnected areas of native vegetation within the urban landscape. This species may use remnant vegetation within the Upper Swan area, and adjacent Ellen Brook riparian habitat.	Resident	X
Brush Bronzewing	<i>Phaps elegans</i>			L	This species is considered to be of local conservation significance because it has been identified in the Bush Forever Report (Dell and Banyard 2000) as declining in the Perth region and being reliant on native vegetation. For many of the species this conclusion has been reinforced by Davis <i>et al.</i> (2012). This species is reliant to varying degrees on large and interconnected areas of native vegetation within the urban landscape. This species may use remnant vegetation within the Upper Swan area, and adjacent Ellen Brook riparian habitat.	Vagrant	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Collared Sparrowhawk	<i>Accipiter cirrhocephalus</i>			L	This species is considered to be of local conservation significance because it has been identified in the Bush Forever Report (Dell and Banyard 2000) as declining in the Perth region and being reliant on native vegetation. For many of the species this conclusion has been reinforced by Davis <i>et al.</i> (2012). This species is reliant to varying degrees on large and interconnected areas of native vegetation within the urban landscape. This species may use remnant vegetation within the Upper Swan area, and adjacent Ellen Brook riparian habitat.	Occasional visitor	
Brown Goshawk	<i>Accipiter fasciatus</i>			L	As for Common Bronzewing.	Occasional visitor	
Whistling Kite	<i>Haliastur sphenurus</i>			L	As for Common Bronzewing.	Occasional visitor	
Little Eagle	<i>Hieraaetus morphnoides</i>			L		Occasional visitor	
Wedge-tailed Eagle	<i>Aquila audax</i>			L		Occasional visitor	
Square-tailed Kite	<i>Lophoictinia isura</i>			L	As for Common Bronzewing.	Occasional visitor	
Brown Falcon	<i>Falco berigora</i>			L	As for Common Bronzewing.	Occasional visitor	
Splendid Fairy-wren	<i>Malurus splendens</i>			L	As for Common Bronzewing. Splendid Fairy-wrens were observed as a small group at the south-west corner of the survey area in dense vegetation along Ellen Brook (VSA 4), and in a small patch of scattered Wandoo trees (VSA 1). The occurrence of the Splendid Fairy-wren in the survey area is significant as the species has disappeared from many reserves in the Perth region (Bamford <i>et al.</i> 2014).	Resident	X
Inland Thornbill	<i>Acanthiza apicalis</i>			L	This species is considered to be of local conservation significance because it has been identified in the Bush Forever Report (Dell and Banyard 2000) as declining in the Perth region and being reliant on native vegetation. For many of the species this conclusion has been reinforced by Davis <i>et al.</i> (2012). This species is reliant to varying degrees on large and interconnected woodland habitat within the urban landscape. This species may use remnant woodland within the Upper Swan area, and adjacent Ellen Brook riparian habitat.	Possible resident	
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>			L		Resident	X
Western Thornbill	<i>Acanthiza inornata</i>			L	As for Common Bronzewing.	Possible resident, Ellen Brook	
White-browed Scrubwren	<i>Sericornis frontalis</i>			L	As for Common Bronzewing.	Occasional visitor	
White-cheeked Honeyeater	<i>Phylidonyris nigra</i>			L	As for Common Bronzewing. A single White-cheeked Honeyeater was observed feeding in <i>Eucalyptus erythrocorys</i> near sheds south of Apple Road	Frequent visitor	X
Varied Sittella	<i>Daphoenositta chrysoptera</i>			L	As for Common Bronzewing.	Occasional visitor	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Grey Shrike-thrush	<i>Colluricincla harmonica</i>			L	This species is considered to be of local conservation significance because it has been identified in the Bush Forever Report (Dell and Banyard 2000) as declining in the Perth region and being reliant on native vegetation. For many of the species this conclusion has been reinforced by Davis <i>et al.</i> (2012). This species is reliant to varying degrees on large and interconnected woodland habitat within the urban landscape. This species may use remnant woodland within the Upper Swan area.	Occasional visitor	
Golden Whistler	<i>Pachycephala pectoralis</i>			L		Occasional visitor	
Rufous Whistler	<i>Pachycephala rufiventris</i>			L	As for Common Bronzewing. A single Rufous Whistler was heard calling from a patch of Wandoo trees.	Regular visitor	X
Black-faced Woodswallow	<i>Artamus cinereus</i>			L	This species is considered to be of local conservation significance because it has been identified in the Bush Forever Report (Dell and Banyard 2000) as declining in the Perth region and being reliant on native vegetation. For many of the species this conclusion has been reinforced by Davis <i>et al.</i> (2012). This species is reliant to varying degrees on large and interconnected areas of native vegetation within the urban landscape. This species may use remnant vegetation within the Upper Swan area, and adjacent Ellen Brook riparian habitat.	Occasional visitor	
Dusky Woodswallow	<i>Artamus cyanopterus</i>			L	As for Common Bronzewing.	Occasional visitor	
Grey Currawong	<i>Strepera versicolor</i>			L	As for Common Bronzewing.	Vagrant	
Red-capped Robin	<i>Petroica goodenovii</i>			L	This species is considered to be of local conservation significance because it has been identified in the Bush Forever Report (Dell and Banyard 2000) as declining in the Perth region and being reliant on native vegetation. For many of the species this conclusion has been reinforced by Davis <i>et al.</i> (2012). This species is reliant to varying degrees on large and interconnected areas of native vegetation within the urban landscape. This species may use remnant vegetation within the Upper Swan area, and adjacent Ellen Brook riparian habitat.	Occasional visitor	
Scarlet Robin	<i>Petroica boodang</i>			L	As for Common Bronzewing.	Possible resident	
Echidna	<i>Tachyglossus aculeatus</i>			L	This species widely across Australia including the Perth Swan Coastal bioregion although has undergone local decline due to threats such as habitat loss and road mortality. There are recent local records, and it potentially occurs within the Upper Swan area as an occasional visitor.	Occasional visitor	
Western Minnow	<i>Galaxias occidentalis</i>					Possible resident, Ellen Brook	
Glauert's Froglet	<i>Crinia glauerti</i>					Possible resident	
Quacking Frog	<i>Crinia georgiana</i>					Possible resident	
Sandplain Froglet	<i>Crinia insignifera</i>					Possible resident	
Hooting Frog	<i>Heleioporus barycragus</i>					Vagrant	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Moaning Frog	<i>Heleioporus eyrei</i>					Possible resident	
Banjo Frog	<i>Limnodynastes dorsalis</i>					Possible resident, Ellen Brook	
Turtle Frog	<i>Myobatrachus gouldii</i>					Occasional, vagrant	
Humming Frog	<i>Neobatrachus pelobatoides</i>					Possible resident	
Guenther's Toadlet	<i>Pseudophryne guentheri</i>					Possible resident	
Slender Tree Frog	<i>Litoria adelaidensis</i>					Possible resident	
Motorbike Frog	<i>Litoria moorei</i>					Possible resident	
Oblong Turtle	<i>Chelodina colliei</i>					Possible resident, Ellen Brook	
Marbled Gecko	<i>Christinus marmoratus</i>					Resident	
Clawless Gecko	<i>Crenadactylus ocellatus</i>					Possible resident	
Southern Spiny-tailed Gecko	<i>Strophurus spinigerus</i>					Possible Resident	
Sand-Plain Worm-Lizard	<i>Aprasia repens</i>					Possible resident	
Fraser's Legless Lizard	<i>Delma fraseri</i>					Possible resident	
Burton's Legless Lizard	<i>Lialis burtonis</i>					Possible resident	
Western Bearded Dragon	<i>Pogona minor</i>					Possible resident	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Gould's Sand Goanna	<i>Varanus gouldii</i>					Occasional visitor	
Tree Goanna	<i>Varanus tristis</i>					Occasional visitor	
Western Three-lined Skink	<i>Acritoscincus trilineatus</i>					Resident, Ellen Brook	X
Fence Skink	<i>Cryptoblepharus buchmanii</i>					Resident	X
West Coast Ctenotus	<i>Ctenotus fallens</i>					Resident	
King's Skink	<i>Egernia kingii</i>					Vagrant, occasional	
Salmon-bellied Skink	<i>Egernia napoleonis</i>					Vagrant, occasional	
Two-toed Earless Skink	<i>Hemiergus quadrilineata</i>					Possible resident	
Southwest Sand Skink	<i>Lerista distinguenda</i>					Possible resident	
West Coast Sand Skink	<i>Lerista elegans</i>					Possible resident	
Common Dwarf Skink	<i>Menetia greyii</i>					Resident	
West Coast Morethia	<i>Morethia lineocellata</i>					Occasional visitor	
Dusky Morethia	<i>Morethia obscura</i>					Resident	X
Bobtail	<i>Tiliqua rugosa</i>					Resident	X
Southern Blind Snake	<i>Anilius australis</i>					Possible resident	
Western Tiger Snake	<i>Notechis scutatus</i>					Resident	X
Gould's Snake	<i>Parasuta gouldii</i>					Occasional visitor	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Mulga Snake	<i>Pseudechis australis</i>					Occasional visitor	
Dugite	<i>Pseudonaja affinis</i>					Resident	
Western Brown Snake	<i>Pseudonaja mengdeni</i>					Occasional visitor	
Jan's Bandy-Bandy	<i>Simoselaps bertholdi</i>					Occasional visitor	
Stubble Quail	<i>Coturnix pectoralis</i>					Occasional visitor	
Emu	<i>Dromaius novaehollandiae</i>					Occasional visitor	
Grey Teal	<i>Anas gracilis</i>					Resident	
Mallard	<i>Anas platyrhynchos</i>					Resident	X
Australasian Shoveller	<i>Anas rhynchotis</i>					Occasional visitor	
Black Swan	<i>Cygnus anatinae</i>					Occasional visitor	
Pacific Black Duck	<i>Anas superciliosa</i>					Resident	X
Hardhead	<i>Aythya australis</i>					Occasional visitor	
Musk Duck	<i>Niziura lobata</i>					Occasional visitor	
Australian Wood Duck	<i>Chenonetta jubata</i>					Resident, Ellen Brook	
Australian Shelduck	<i>Tadorna tadornoides</i>					Occasional visitor	
Pink-eared Duck	<i>Malacorrhynchus membranaceus</i>					Occasional visitor	
Australasian Grebe	<i>Tachybaptus novaehollandiae</i>					Occasional visitor	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Peregrine Falcon	<i>Falco peregrinus</i>				This species is known to occur over a wide range of habitats throughout most of Australia. Preferred nesting locations include a range of highly elevated location with steep topography such as rocky hills, breakaways, cliffs and will also nest on high artificial structures. It will also nest in very large, horizontally-aligned tree hollows, with such a nest in Whiteman Park (M. Bamford pers. Obs.). The survey area could therefore provide a suitable nesting site, and is at least likely to be within the foraging range of a pair of the species who would thus be frequent visitors.	Regular visitor	
Hoary-headed Grebe	<i>Poliiocephalus poliocephalus</i>					Occasional visitor	
Crested Pigeon	<i>Ocyphaps lophotes</i>					Regular visitor	X
Tawny Frogmouth	<i>Podargus strigoides</i>					Occasional visitor	
White-faced Heron	<i>Egretta novaehollandia</i>					Frequent visitor	X
White-necked Herron	<i>Ardea pacifica</i>					Occasional visitor	
Nankeen Night Herron	<i>Nyctocorax caledonicus</i>					Occasional visitor	
Australian White Ibis	<i>Threskiornis molucca</i>					Frequent visitor	X
Straw-necked Ibis	<i>Threskiornis spinicollis</i>					Occasional visitor	
Yellow-billed Spoonbill	<i>Platalea flavipes</i>					Occasional visitor	
Little Pied Cormorant	<i>Microcarbo melanoleucos</i>					Frequent visitor	X
Great Cormorant	<i>Phalacrocorax carbo</i>					Frequent visitor	
Pied Cormorant	<i>Phalacrocorax varius</i>					Frequent visitor	
Swamp Harrier	<i>Circus approximans</i>					Occasional visitor	
Spotted Harrier	<i>Circus assimilis</i>					Occasional visitor	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Black-shouldered Kite	<i>Elanus caeruleus axillaris</i>					Occasional visitor	
Nankeen Kestrel	<i>Falco cenchroides</i>					Resident	
Australian Hobby	<i>Falco longipennis</i>					Regular visitor	
Eurasian Coot	<i>Fulica atra</i>					Occasional visitor	
Dusky Moorhen	<i>Gallinula tenebrosa</i>					Occasional visitor	
Purple Swamphen	<i>Porphyrio porphyrio</i>					Occasional visitor	
Red-kneed Dotterel	<i>Erythronyx cinctus</i>					Occasional visitor	
Black-fronted Dotterel	<i>Charadrius melanops</i>					Occasional visitor	
Spotless Crane	<i>Porzana torbensis</i>					Vagrant	
Common Greenshank	<i>Tringa nebularia</i>					vagrant	
Western Long-billed Corella	<i>Cacatua pastinator</i>					Occasional visitor	
Galah	<i>Cacatua roseicapilla</i>					Resident	X
Little Corella	<i>Cacatua sanguinea</i>					Frequent visitor	X
Australian Ringneck	<i>Platycercus zonarius</i>					Resident	X
Red-capped Parrot	<i>Purpureicephalus spurius</i>					Resident	X
Rainbow Lorikeet	<i>Trichoglossus haematodus</i>					Resident	X

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Horsfield's Bronze-Cuckoo	<i>Chrysococcyx basalis</i>					Occasional visitor	
Shining Bronze-Cuckoo	<i>Chrysococcyx lucidus</i>					Occasional visitor	
Pallid Cuckoo	<i>Cuculus pallidus</i>					Occasional visitor	
Fan-tailed Cuckoo	<i>Cuculus pyrrhophanus</i>					Occasional visitor	
Southern Boobook Owl	<i>Ninox novaeseelandiae</i>					Occasional visitor	
Barn Owl	<i>Tyto alba</i>					Occasional visitor	
Laughing Kookaburra	<i>Dacelo novaeguineae</i>					Resident	X
Sacred Kingfisher	<i>Todiramphus sanctus</i>					Possible resident	
Western Gerygone	<i>Gerygone fusca</i>					Frequent visitor	X
Weebill	<i>Smicromis brevirostris</i>					Resident	X
Spotted Pardalote	<i>Pardalotus punctatus</i>					Regular visitor	
Striated Pardalote	<i>Pardalotus striatus</i>					Regular visitor	
Western Spinebill	<i>Acanthorhynchus superciliosus</i>					Occasional visitor	
Red Wattlebird	<i>Anthochaera carunculata</i>					Resident	X
Western Wattlebird	<i>Anthochaera lunulata</i>					Occasional visitor	
Singing Honeyeater	<i>Lichenostomus virescens</i>					Resident	X

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Brown Honeyeater	<i>Lichmera indistincta</i>					Resident	X
Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>					Occasional visitor	
New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>					frequent visitor	
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>					Resident	
White-winged Triller	<i>Lalage sueurii</i>					Occasional visitor	
Grey Fantail	<i>Rhipidura fuliginosa</i>					Resident	X
Willie Wagtail	<i>Rhipidura leucophrys</i>					Resident	X
Australian Raven	<i>Corvus coronoides</i>					Resident	X
Pied Butcherbird	<i>Cracticus nigrogularis</i>					Occasional visitor	
Australian Magpie	<i>Cracticus tibicen</i>					Resident	X
Grey Butcherbird	<i>Cracticus torquatus</i>					Frequent Visitor	X
Magpie-lark	<i>Grallina cyanoleuca</i>					Resident	
Reed Warbler	<i>Acrocephalus australis</i>					Possible resident, Ellen Brook	
Little Grassbird	<i>Megalurus gramineus</i>					Frequent visitor	
Brown Songlark	<i>Cincloramphus cruralis</i>					Occasional visitor	
Silvereye	<i>Zosterops lateralis</i>					Frequent visitor	X

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Welcome Swallow	<i>Hirundo neoxena</i>					Resident	X
Tree Martin	<i>Petrochelidon nigricans</i>					Frequent visitor	
Fairy Martin	<i>Petrochelidon ariel</i>					Occasional visitor	
Australasian (Richard's) Pipit	<i>Anthus australis</i>					Possible Resident	
Brush-tailed Possum	<i>Trichosurus vulpecula</i>					Possible resident	X
Western Grey Kangaroo	<i>Macropus fuliginosus</i>					Recorded	X
White-striped Bat	<i>Tadarida australis</i>					Possible resident	
Gould's Wattled Bat	<i>Chalinolobus gouldii</i>					Possible resident	
Chocolate Wattled Bat	<i>Chalinolobus morio</i>					Possible resident	
Lesser Long-eared Bat	<i>Nyctophilus geoffroyi</i>					Possible resident	
Gould's Long-eared Bat	<i>Nyctophilus gouldii</i>					Possible resident	
Southern Forest Bat	<i>Vespedalus regulus</i>					Occasional visitor	
Rock Dove	* <i>Columba livia</i>			I		Regular visitor	
Spotted Turtle-Dove	* <i>Streptopelia chinensis</i>			I		Resident	
Laughing Turtle-Dove	* <i>Streptopelia senegalensis</i>			I		Resident	
Eastern Long-billed Corella	* <i>Cacatua tenuirostris</i>			I		Frequent visitor	
House Mouse	* <i>Mus musculus</i>			I		Resident	

Common name	Scientific name	Conservation status			Field observations and likelihood of presence/habitat within survey area	Expected status	Recorded
		EPBC Act	WC Act	Local significance			
Brown Rat	* <i>Rattus norvegicus</i>			I		Resident	
Black Rat	* <i>Rattus rattus</i>			I		Resident	
European Cattle				I		Resident	
Rabbit	* <i>Oryctolagus cuniculus</i>			I		Resident	X
Domestic Dog	* <i>Canis lupus familiaris</i>			I		Resident	
European Red Fox	* <i>Vulpes vulpes</i>			I		Resident	X
Feral Cat	* <i>Felis catus</i>			I		Resident	
Mosquito Fish	* <i>Gambusia holbrooki</i>			I		Resident in Ellen Brook and upper Swan River	X
Goldfish	* <i>Carassius auratus</i>			I		Resident in Ellen Brook and upper Swan River	X
Carp	* <i>Cyprinus carpio</i>			I		Possible resident, Ellen Brook	

T= Threatened, E= Endangered, V= Vulnerable, M= Migratory, P= Priority, L= Locally significant (Bamford Consulting Ecologists), I= Introduced.

Note: This list is based on desktop review and their expected status within the survey area and adjacent Ellen Brook riparian habitat. Species recorded are marked with an 'X'. Presence has been inferred from foraging signs and burrows. Species recorded are indicated and the conservation status of each species in the survey area is also given (as per Section 2.1.4)



**Appendix 7**  
**Vertebrate species returned in**  
**database searches but unlikely to occur**  
**in survey area**



Common name	Latin name
<b>FISH</b>	
Western Pygmy-perch	<i>Edelia vittata</i>
Western Minnow	<i>Galaxias occidentalis</i>
Swan River Goby	<i>Pseudogobius olorum</i> (Ellen Brook?)
Black-striped Minnow	<i>Galaxiella nigrostriata</i>
<b>REPTILES</b>	
Western Swamp Turtle	<i>Pseudemydura umbrina</i>
Odd-striped Skink	<i>Ctenotus impar</i>
Bold Striped Sand Skink	<i>Lerista christinae</i>
West Coast Worm Skink	<i>Lerista praepedita</i>
Western Bluetongue Skink	<i>Tiliqua occipitalis</i>
Stone Gecko	<i>Diplodactylus granariensis</i>
Granite Worm Lizard	<i>Aprasia pulchella</i>
Keeled Legless Lizard	<i>Pletholax gracilis</i>
Southern Heath Dragon	<i>Ctenophorus adelaidensis</i>
Shovel-nosed Snake	<i>Brachyurophis semifasciatus</i>
Black-striped Snake	<i>Neelaps calonotos</i>
<b>BIRDS</b>	
Black-faced Cormorant	<i>Phalacrocorax fuscescens</i>
Grey Wagtail	<i>Motacilla cinerea</i>
Malleefowl	<i>Leipoa ocellata</i>
Wandering Whistling Duck	<i>Dendrocygna arcuata</i>
Musk Duck	<i>Biziura lobata</i>
Freckled Duck	<i>Stictonetta naevosa</i>
Australian Painted-snipe	<i>Rostratula australis</i>
Hooded Plover	<i>Charadrius rubricollis</i>
Eastern Osprey	<i>Pandion cristatus</i>
Blue-breasted Fairy-wren	<i>Malurus pulcherrimus</i>
Jacky Winter	<i>Micriceca fascinans</i>
European Goldfinch	<i>Carduelis carduelis</i>
House Sparrow	<i>Passer domesticus</i>
Eurasian Tree Sparrow	<i>Passer montanus</i>
Common Myna	<i>Acridotheres tristis</i>
Common Starling	<i>Sturnus vulgaris</i>
Common Blackbird	<i>Turdus merula</i>
Indian Myna	<i>Acridotheres tristis</i>
<b>MAMMALS</b>	
Chuditch	<i>Dasyurus geoffroii</i>
Bilby, Dalgyte or Walpiri	<i>Macrotis lagotis</i>
Honey Possum	<i>Tarsipes rostratus</i>
Black-flanked Rock-Wallaby	<i>Petrogale lateralis lateralis</i>

Common name	Latin name
Brush Wallaby	<i>Macropus irma</i>
Pig	<i>Sus scrofa</i>
Indian Palm Squirrel	<i>Funambulus pennantii</i>

Database searches often return species that may have been recorded historically but are now extinct in a region. In addition, databases can include species found nearby but that are unlikely to be present in the survey area due to lack of suitable habitat (e.g. aquatic species) or ecological barriers preventing them from reaching the area (e.g. island species). There are also some errors, out-of-date Latin names, zoo specimens and subtleties of distribution that are not recognised in databases. All of the species listed below are considered unlikely to be found in the survey area (although some species could occur as very rare vagrants).

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**Appendix 8**  
**VSAs identified within the survey area**





Plate1: VSA 1 – Wandoo open woodland



Plate 2: VSA 2 – Marri and Flooded gum open woodland



Plate 3: VSA 3 - Cleared Paddocks with weeds and exotic pasture species



Plate 4: VSA 4 - Ellen Brook riparian woodland of flooded gum and paperbarks



Plate 5: VSA 6 - Grevillea heath over exotic grasses



**Appendix 9**  
**Explanation of fauna values**



### *Fauna values*

Fauna values are the features of a site and its fauna that contribute to biodiversity, and it is these values that are potentially at threat from a development proposal. Fauna values can be examined under the five headings outlined below. It must be stressed that these values are interdependent and should not be considered equal, but contribute to an understanding of the biodiversity of a site. Understanding fauna values provides opportunities to predict and therefore mitigate impacts.

### *Assemblage characteristics*

**Uniqueness.** This refers to the combination of species present at a site. For example, a site may support an unusual assemblage that has elements from adjacent biogeographic zones, it may have species present or absent that might be otherwise expected, or it may have an assemblage that is typical of a very large region. For the purposes of impact assessment, an unusual assemblage has greater value for biodiversity than a typical assemblage.

**Completeness.** An assemblage may be complete (i.e. has all the species that would have been present at the time of European settlement), or it may have lost species due to a variety of factors. Note that a complete assemblage, such as on an island, may have fewer species than an incomplete assemblage (such as in a species-rich but degraded site on the mainland).

**Richness.** This is a measure of the number of species at a site. At a simple level, a species rich site is more valuable than a species poor site, but value is also determined, for example, by the sorts of species present.

### *Vegetation/substrate associations (VSAs)*

VSAs combine broad vegetation types, the soils or other substrate with which they are associated, and the landform. In the context of fauna assessment, VSAs are the environments that provide habitats for fauna. The term habitat is widely used in this context, but by definition an animal's habitat is the environment that it utilises (Calver et al. 2009), not the environment as a whole. Habitat is a function of the animal and its ecology, rather than being a function of the environment. For example, a species may occur in eucalypt canopy or in leaf-litter on sand, and that habitat may be found in only one or in several VSAs. VSAs are not the same as vegetation types since these may not incorporate soil and landform, and recognise floristics to a degree that VSAs do not. Vegetation types may also not recognise minor but often significant (for fauna) structural differences in the environment. VSAs also do not necessarily correspond with soil types, but may reflect some of these elements.

Because VSAs provide the habitat for fauna, they are important in determining assemblage characteristics. For the purposes of impact assessment, VSAs can also provide a surrogate for detailed information on the fauna assemblage. For example, rare, relictual or restricted VSAs should automatically be considered a significant fauna value. Impacts may be significant if the VSA is rare, a large proportion of the VSA is affected and/or the VSA supports significant fauna. The disturbance of even small amounts of habitat in a localised area can have significant impacts to fauna if rare or unusual habitats are disturbed.



**Appendix 10**  
**Photographic evidence of foraging and**  
**presence of conservation significant**  
**fauna**





Plate 1: Foraging residue (chewed Marri fruit) of two ages left by Forest Red-tailed Black Cockatoo in VSA 2.



Plate 2: Scratch marks made by Brush-tailed Possum on Wandoo tree in VSA 1.



Plate 3: Quenda foraging hole VSA 1.



Plate 4: Potential black cockatoo nest tree hollow in a flooded gum found in VSA 2.



**Appendix 11**  
**Introduced fauna species expected to**  
**occur within the survey area**



Common Name	Latin Name	Expected Status
Goldfish	<i>Carassius auratus</i>	Resident (recorded)
Carp	<i>Cyprinus carpio</i>	Possible resident, Ellen Brook
Mosquito Fish	<i>Gambusia holbrooki</i>	Resident (recorded)
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	Occasional visitor
Eastern Long-billed Corella	<i>Cacatua tenuirostris</i>	Visitor
Rock Dove	<i>Columba livia</i>	Visitor
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	Resident (recorded)
Spotted Turtle-Dove	<i>Streptopelia chinensis</i>	Resident
Laughing Turtle-Dove	<i>Streptopelia senegalensis</i>	Resident (recorded)
Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	Regular visitor (recorded)
Domestic Dog	<i>Canis lupus familiaris</i>	Resident (recorded)
Feral Cat	<i>Felis catus</i>	Resident (recorded)
House Mouse	<i>Mus musculus</i>	Resident
European Cattle	<i>Bos taurus</i>	Resident
Rabbit	<i>Oryctolagus cuniculus</i>	Resident
Brown Rat	<i>Rattus norvegicus</i>	Resident
Black Rat	<i>Rattus rattus</i>	Resident (recorded)
European Red Fox	<i>Vulpes vulpes</i>	Resident

Note: This list is based on desktop review and field investigation and includes species either recorded or expected to occur.



**Appendix 12**  
**Black cockatoo background**  
**information**



### *Species, ecology, habitat requirements and threats*

The three south-western Western Australian taxa of black cockatoo are listed in Table i. All species are listed under both the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999 and the Western Australian Wildlife Conservation Act 1950, as indicated in Table i. Two of these are likely to occur in the vicinity of the project area (Forest Red-tailed and Carnaby's Black Cockatoo), with Baudin's Black Cockatoo not expected (in the Perth area this species is generally restricted to the Darling Range and/or the very eastern edge of the Swan Coastal Plain).

Table i: Black cockatoos likely to occur in the vicinity of the project area. The status of each species under the Environment Protection and Biodiversity Conservation Act 1999 (EPBCA 1999) and the Western Australian Wildlife Conservation Act 1950 (WCA 1950) is shown.

Species	EPBC Act 1999	WC Act 1950
<i>Calyptorhynchus banksii naso</i> -Forest Red-tailed Black Cockatoo	Vulnerable	Vulnerable
<i>Calyptorhynchus latirostris</i> - Carnaby's Black Cockatoo	Endangered	Endangered
<i>Calyptorhynchus baudinii</i> - Baudin's Black Cockatoo	Vulnerable	Endangered

There is considerable published information on the ecology of, and threats to, these black cockatoo species. Key references include:

- Action plans (Garnett et al. 2011)
- Recovery plans (Cale 2003; DEC 2007; DEC 2012)
- EPBC guidelines (DEWHA 2010)
- Commonwealth listing and conservation advice (DEWHA 2009a, b)
- The federal Department of Sustainability, Environment, Water, Population and Communities' (SEWPaC; formerly DEWHA) Species Profile and Threats (SPRAT) Database (DSEWPaC 2012a, b, c)
- Scientific literature (Davies 1966; Saunders 1974, 1979a, b, 1980; Saunders et al. 1982; Saunders 1986; Johnstone and Storr 1998; Higgins 1999; Johnstone and Kirkby 1999, 2008)
- Major reports (Johnstone et al. 2011; Kabat et al. 2012).

Much of this information has been compiled by DSEWPaC (2012a, b, c, d). Summarising this work further, there are several salient points for assessing the potential value of the project area for black cockatoos:

#### *Key ecology*

- All species are long-lived with low annual reproduction rates and cannot, therefore, rapidly increase their population size.
- Carnaby's and Baudin's Black Cockatoos undergo regular, seasonal migration between breeding and non-breeding areas.
- Forest Red-tailed Black Cockatoos are currently considered not to undergo regular migration. In recent years there appears to have been a distinct expansion of the range of this species on to the Swan Coastal Plain, including many suburbs within the Perth metropolitan area.
- In recent years there have been considerable shifts in the breeding ecology, distribution and movement patterns of Forest Red-tailed and Carnaby's Black Cockatoos. These may be a response to habitat degradation/clearing and/or climatic factors.

#### *Key habitat requirements*

- All species are reliant on large tree-hollows in eucalypts, in which they breed. Each species has its own preference for nesting tree species and its own geographical breeding range (although these overlap between species). There is a solid understanding of these preferences (see Table ii for summary).

- All species primarily feed on plant seeds and flowers, but also consume wood-boring insect larvae when available. Each species has its own preference for food plant species (with considerable overlap). There is a solid understanding of these preferences (see Table ii for summary).

### **Key threats**

Key threatening processes include illegal shooting, habitat loss, habitat degradation, nest hollow shortage, competition for available nest hollows from other parrots and feral Honeybees (*Apis mellifera*), and illegal trade.

Table ii: Plants known to be used for foraging, roosting and nesting by black cockatoos in south-western Western Australia.

Plant Species	Plant Status	FRTBC	CBC	BBC
<i>Acacia baileyana</i> (Cootamundra Wattle)	AN		F	
<i>Acacia pentadenia</i> (Karri Wattle)			F	
<i>Acacia saligna</i> (Orange Wattle)			F	
<i>Agonis flexuosa</i> (Peppermint Tree)			F	
<i>Allocasuarina fraseriana</i> (Sheoak)		F		F
<i>Anigozanthos flavidus</i> (Tall Kangaroo Paw)				F
<i>Araucaria heterophylla</i> (Norfolk Island Pine)	E		F	
<i>Banksia ashbyi</i> (Ashby's Banksia)			F	
<i>Banksia attenuata</i> (Slender Banksia)			F	
<i>Banksia baxteri</i> (Baxter's Banksia)			F	
<i>Banksia carlinoides</i> (Pink Dryandra)			F	
<i>Banksia coccinea</i> (Scarlet Banksia)			F	
<i>Banksia dallanneyi</i> (Couch Honey-pot Dryandra)			F	
<i>Banksia ericifolia</i> (Heath-leaved Banksia)	AN		F	
<i>Banksia fraseri</i> (Dryandra)			F	
<i>Banksia gardneri</i> (Prostrate Banksia)			F	
<i>Banksia grandis</i> (Bull Banksia)			F	F
<i>Banksia hookeriana</i> (Hooker's Banksia)			F	
<i>Banksia ilicifolia</i> (Holly Banksia)			F	F
<i>Banksia kippistiana</i> (Dryandra)			F	
<i>Banksia leptophylla</i>			F	
<i>Banksia lindleyana</i> (Porcupine Banksia)				F
<i>Banksia littoralis</i> (Swamp Banksia)			F	F
<i>Banksia menziesii</i> (Firewood or Menzie's Banksia)			F	
<i>Banksia mucronulata</i> (Swordfish Dryandra)			F	
<i>Banksia nivea</i> (Honey-pot Dryandra)			F	
<i>Banksia nobilis</i> (Golden Dryandra)			F	
<i>Banksia praemorsa</i> (Cut-leaf Banksia)			F	F
<i>Banksia prionotes</i> (Acorn Banksia)			F	
<i>Banksia quercifolia</i> (Oak-leaved Banksia)			F	F
<i>Banksia sessilis</i> (Parrot Bush)			F	F
<i>Banksia speciosa</i> (Showy Banksia)			F	
<i>Banksia squarrosa</i> (Pingle)			F	F
<i>Banksia tricuspis</i> (Lesueur Banksia or Pine Banksia)			F	

Plant Species	Plant Status	FRTBC	CBC	BBC
<i>Banksia undata</i> (Urchin or Cut-leaf Dryandra)			F	
<i>Banksia verticillata</i> (Granite Banksia)			F	
<i>Brassica campestris</i> (Canola, Rape)	E		F	
<i>Callistemon</i> spp.				F
<i>Callistemon viminalis</i> (Captain Cook Bottlebrush)	AN		F	
<i>Callitris</i> sp.			F	
<i>Carya illinoensis</i> (Pecan)	E		F	F
<i>Casuarina cunninghamiana</i> (River Sheoak)	AN		F	
<i>Citrullus lanatus</i> (Pie or Afghan Melon)	E		F	
<i>Corymbia calophylla</i> (Marri)		F,N	F,n,R	F,n
<i>Corymbia ficifolia</i> (Red Flowering Gum)			F	
<i>Corymbia haematoxylon</i> (Mountain Marri)			F	
<i>Corymbia maculata</i> (Spotted Gum)			R	
<i>Darwinia citriodora</i> (Lemon-scented Darwinia)	AN		F	F
<i>Diospyros</i> sp. (Sweet Persimmon)	E		F	F
<i>Eremophila glabra</i> (Tarbush)			F	
<i>Erodium aureum</i> (Corkscrew Grass or Storksbill)	E		F	
<i>Erodium botrys</i> (Corkscrew Grass or Storksbill)	E		F	F
<i>Eucalyptus caesia</i> (Silver Princess)			F	
<i>Eucalyptus camaldulensis</i> (River Red Gum)	AN		R	
<i>Eucalyptus citriodora</i> (Lemon Scented Gum)	AN	F	F,R	F
<i>Eucalyptus diversicolor</i> (Karri)		n	n	N
<i>Eucalyptus globulus</i> (Tasmanian Blue Gum)	AN		R	
<i>Eucalyptus gomphocephala</i> (Tuart)		n	F,n,R	
<i>Eucalyptus grandis</i> (Flooded Gum, Rose Gum)	AN		R	
<i>Eucalyptus longicornis</i> (Red Morrell)			n	
<i>Eucalyptus loxophleba</i> (York Gum)			F,n	
<i>Eucalyptus marginata</i> (Jarrah)		F,N	F,n,R	F
<i>Eucalyptus megacapa</i> (Bullich)		n		n
<i>Eucalyptus occidentalis</i> (Swamp Yate)			n	
<i>Eucalyptus patens</i> (Blackbutt)		F	F,R	
<i>Eucalyptus pleurocarpa</i> (Tallerack)			F	
<i>Eucalyptus preissiana</i> (Bell-fruited Mallee)			F	
<i>Eucalyptus robusta</i> (Swamp Mahogany)			F,R	
<i>Eucalyptus rudis</i> (Flooded Gum)			R	
<i>Eucalyptus salmonophloia</i> (Salmon Gum)			F,N	
<i>Eucalyptus salubris</i> (Gimlet)			n	
<i>Eucalyptus tottiana</i> (Coastal Blackbutt or Prickley Bark)			F	
<i>Eucalyptus wandoo</i> (Wandoo)			F,N,R	F,n
<i>Ficus</i> sp. (Fig)			F	
<i>Grevillea armigera</i> (Prickly Toothbrushes)			F	
<i>Grevillea bipinnatifida</i> (Fuschia Grevillea)			F	
<i>Grevillea hookeriana</i> (Red Toothbrushes)			F	

Plant Species	Plant Status	FRTBC	CBC	BBC
<i>Grevillea hookeriana</i> subsp. <i>apiculoba</i> (Black Toothbrushes)			F	
<i>Grevillea paniculata</i> (Kerosene Bush)			F	
<i>Grevillea paradoxa</i> (Bottlebrush Grevillea)			F	
<i>Grevillea petrophiloides</i> (Pink Poker)			F	
<i>Grevillea robusta</i> (Silky Oak)			F	
<i>Grevillea wilsonii</i> (Native Fuchsia)				F
<i>Hakea auriculata</i>			F	
<i>Hakea candolleana</i>			F	
<i>Hakea circumalata</i> (Coastal Hakea)			F	
<i>Hakea commutata</i>			F	
<i>Hakea conchifolia</i>			F	
<i>Hakea costata</i> (Ribbed Hakea)			F	
<i>Hakea cristata</i> (Snail Hakea)			F	F
<i>Hakea cucullata</i> (Snail Hakea)			F	
<i>Hakea cyclocarpa</i> (Ramshorn)			F	
<i>Hakea eneabba</i>			F	
<i>Hakea erinacea</i> (Hedgehog Hakea)			F	F
<i>Hakea falcata</i> (Sickle Hakea)			F	
<i>Hakea flabellifolia</i> (Fan-leaved Hakea)			F	
<i>Hakea gilbertii</i>			F	
<i>Hakea incrassata</i> (Golfball or Marble Hakea)			F	
<i>Hakea lasiantha</i> (Woolly Flowered Hakea)			F	
<i>Hakea lasianthoides</i>			F	F
<i>Hakea laurina</i> (Pin-cushion hakea)			F	
<i>Hakea lissocarpa</i> (Honeybush)			F	F
<i>Hakea marginata</i>				F
<i>Hakea megalosperma</i> (Lesueur Hakea)			F	
<i>Hakea multilineata</i> (Grass Leaf Hakea)			F	
<i>Hakea obliqua</i> (Needles and Corks)			F	
<i>Hakea oleifolia</i> (Dungyn or Olive-leaved Hakea)			F	
<i>Hakea pandanica</i> subsp. <i>crassifolia</i> (Thick-leaved Hakea)			F	
<i>Hakea petiolaris</i> (Sea Urchin Hakea)			F	
<i>Hakea polyanthema</i>			F	
<i>Hakea preissii</i> (Needle Tree)			F	
<i>Hakea prostrata</i> (Harsh Hakea)			F	F
<i>Hakea psilorrhyncha</i>			F	
<i>Hakea ruscifolia</i> (Candle Hakea)			F	F
<i>Hakea scoparia</i> (Kangaroo Bush)			F	
<i>Hakea smilacifolia</i>			F	
<i>Hakea spathulata</i>			F	
<i>Hakea stenocarpa</i> (Narrow-fruited Hakea)			F	F
<i>Hakea sulcata</i> (Furrowed Hakea)			F	
<i>Hakea trifurcata</i> (Two-leaved Hakea)			F	F

Plant Species	Plant Status	FRTBC	CBC	BBC
<i>Hakea undulata</i> (Wavy-leaved Hakea)			F	
<i>Hakea varia</i> (Variable-leaved Hakea)			F	F
<i>Helianthus annuus</i> (Sunflower)	E		F	
<i>Hibiscus</i> sp. (Hibiscus)	E		F	
<i>Isopogon scabriusculus</i>			F	
<i>Jacaranda mimosifolia</i> (Jacaranda)	E		F	F
<i>Jacksonia furcellata</i> (Grey Stinkwood)			F	
<i>Kingia australis</i> (Kingia)				F
<i>Lambertia inermis</i> (Chittick)			F	
<i>Lambertia multiflora</i> (Many-flowered Honeysuckle)			F	
<i>Liquidamber styraciflua</i> (Liquid Amber)	E		F	
<i>Lupinus</i> sp. (Lupin)	E		F	
<i>Macadamia integrifolia</i> (Macadamia)	E		F	F
<i>Malus domestica</i> (Apple)	E		F	F
<i>Melaleuca leuropoma</i>			F	
<i>Melia azedarach</i> (Cape Lilac or White Cedar)	E	F	F	
<i>Mesomeleana</i> sp.			F	
<i>Persoonia longifolia</i> (Snottygobble)		F		
<i>Pinus canariensis</i> (Canary Island Pine)	E		F	
<i>Pinus caribea</i> (Caribbean Pine)	E		F	
<i>Pinus pinaster</i> (Pinaster or Maritime Pine)	E		F,R	
<i>Pinus radiata</i> (Radiata Pine)	E		F,R	F
<i>Protea</i> 'Pink Ice'	E		F	
<i>Protea repens</i>	E		F	
<i>Prunus amygdalus</i> (Almond Tree)	E		F	
<i>Pyrus communis</i> (European Pear)	E			F
<i>Quercus</i> spp. (Oak spp.)	E			F
<i>Raphanus raphanistrum</i> (Wild Radish)	E		F	
<i>Reedia spathacea</i>				F
<i>Tipuana tipu</i> (Tipu or Rosewood Tree)	E		F	
<i>Xanthorrhoea preissii</i> (Grass Tree)			F	F

Data compiled from the literature (Davies 1966; Saunders 1974, 1979a, b, 1980; Saunders et al. 1982; Saunders 1986; Johnstone and Storr 1998; Higgins 1999; Johnstone and Kirkby 1999, 2008; Groom 2011; Johnstone et al. 2011; DSEWPac 2012a, b; c, R. Johnstone pers. comm.).

FRTBC = Forest Red-tailed Black cockatoo, CBC = Carnaby's Black cockatoo, BBC = Baudin's Black cockatoo.

Plant status: blank = Western Australian native, AN = Australian native (but not naturally occurring in Western Australia), E = exotic (i.e. not native to Australia).

F = foraging, R = roosting, N or n = nesting (main and less commonly used species, respectively).

### *Nesting tree size and hollow dimensions*

Black cockatoos require tree hollows that have an entrance diameter of more than 100 mm (Whitford 2001). Internal dimensions may be more important than entrance diameter, although these are much more difficult to assess (Whitford 2001; Gibbons and Lindenmayer 2002; Whitford and Williams 2002). For Forest Red-tailed Black cockatoos, the minimum height of a nesting hollow was 4.4 m above the ground (Whitford 2001). The minimum diameter at breast height (DBH) of a nesting tree was 608 mm and the minimum age of an actual nesting tree was 214 years (Whitford 2002). In the study by Whitford and Williams (2002) the youngest tree to bear a hollow that was potentially suited to Forest Red-tailed Black cockatoos was 131 years (although this was not used). In general, hollows of sufficient size to support black cockatoos do not form until trees at least 230 years old, and the majority of nests are found in 300-500 year old trees (Johnstone 2006).

DSEWPac (2010, 2011, 2012a, b, c, d) recommend that surveys for potential hollow-bearing trees should identify trees greater than 500 mm DBH (to include trees that are likely to become hollow-bearing in the next 50 years).

**Appendix 13**  
**Suitable roosting trees for**  
**conservation significant taxa recorded**  
**within the survey area**



Species	DBH	Dead/Alive	Category	UTM Grid	UTM Easting	UTM Northing
<i>Corymbia calophylla</i>	110	alive	5	50H	406884	6485386
<i>Corymbia calophylla</i>	100	alive	5	50H	406827	6485309
<i>Corymbia calophylla</i>	51	alive	5	50H	406826	6485291
<i>Corymbia calophylla</i>	65	alive	5	50H	406832	6485272
<i>Corymbia calophylla</i>	70	alive	5	50H	406826	6485262
<i>Corymbia calophylla</i>	51	alive	5	50H	406827	6485260
<i>Corymbia calophylla</i>	55	alive	5	50H	406832	6485265
<i>Corymbia calophylla</i>	70	alive	5	50H	406837	6485254
<i>Corymbia calophylla</i>	75	alive	5	50H	406835	6485246
<i>Corymbia calophylla</i>	60	alive	5	50H	406833	6485238
<i>Corymbia calophylla</i>	60	alive	5	50H	406987	6484691
<i>Corymbia calophylla</i>	70	alive	5	50H	407063	6485393
<i>Corymbia calophylla</i>	70	alive	5	50H	407123	6485395
<i>Corymbia calophylla</i>	51	alive	5	50H	407129	6485393
<i>Corymbia calophylla</i>	70	alive	5	50H	407187	6485394
<i>Corymbia calophylla</i>	55	alive	5	50H	407208	6485394
<i>Corymbia calophylla</i>	55	alive	5	50H	407254	6485390
<i>Corymbia calophylla</i>	60	alive	5	50H	407357	6485592
<i>Corymbia calophylla</i>	61	alive	5	50H	407355	6485597
<i>Corymbia calophylla</i>	75	alive	5	50H	407046	6486394
<i>Eucalyptus rudis</i>	80	alive	5	50H	406792	6485376
<i>Eucalyptus rudis</i>	65	alive	5	50H	406806	6485369
<i>Eucalyptus rudis</i>	60	alive	5	50H	406814	6485370
<i>Eucalyptus rudis</i>	51	alive	5	50H	406816	6485374
<i>Eucalyptus rudis</i>	60	alive	5	50H	406821	6485380
<i>Eucalyptus rudis</i>	180	alive	5	50H	406838	6485375
<i>Eucalyptus rudis</i>	65	alive	5	50H	406839	6485383
<i>Eucalyptus rudis</i>	90	alive	5	50H	406828	6485353
<i>Eucalyptus rudis</i>	65	alive	5	50H	406837	6485262
<i>Eucalyptus rudis</i>	120	alive	3	50H	406849	6485208
<i>Eucalyptus rudis</i>	20	alive	3	50H	406894	6485181
<i>Eucalyptus rudis</i>	70	alive	5	50H	406948	6485202
<i>Eucalyptus rudis</i>	110	alive	5	50H	406961	6485203
<i>Eucalyptus rudis</i>	100	alive	5	50H	406969	6485214
<i>Eucalyptus rudis</i>	80	alive	4	50H	406978	6485219
<i>Eucalyptus rudis</i>	60	alive	5	50H	406979	6485220
<i>Eucalyptus rudis</i>	80	alive	5	50H	406977	6485226
<i>Eucalyptus rudis</i>	100	alive	4	50H	406986	6485227
<i>Eucalyptus rudis</i>	90	alive	5	50H	406987	6485231
<i>Eucalyptus rudis</i>	90	alive	5	50H	406968	6484816
<i>Eucalyptus rudis</i>	200	alive	5	50H	406982	6484815

Species	DBH	Dead/Alive	Category	UTM Grid	UTM Easting	UTM Northing
<i>Eucalyptus rudis</i>	65	alive	5	50H	406959	6484684
<i>Eucalyptus rudis</i>	75	alive	5	50H	406988	6484690
<i>Eucalyptus rudis</i>	180	alive	5	50H	406990	6484692
<i>Eucalyptus rudis</i>	200	alive	5	50H	407015	6484723
<i>Eucalyptus rudis</i>	100	alive	5	50H	407054	6484565
<i>Eucalyptus rudis</i>	90	alive	5	50H	407085	6484590
<i>Eucalyptus rudis</i>	80	alive	5	50H	407085	6484595
<i>Eucalyptus rudis</i>	95	alive	5	50H	407091	6484603
<i>Eucalyptus rudis</i>	80	alive	5	50H	407088	6484605
<i>Eucalyptus rudis</i>	80	alive	5	50H	407087	6484609
<i>Eucalyptus rudis</i>	110	alive	5	50H	407142	6484309
<i>Eucalyptus rudis</i>	90	alive	5	50H	407046	6484342
<i>Eucalyptus rudis</i>	85	alive	5	50H	407097	6484392
<i>Eucalyptus rudis</i>	51	alive	5	50H	407067	6484441
<i>Eucalyptus rudis</i>	60	alive	5	50H	407070	6484445
<i>Eucalyptus rudis</i>	60	alive	5	50H	407051	6484459
<i>Eucalyptus rudis</i>	95	alive	4	50H	407023	6484457
<i>Eucalyptus rudis</i>	100	alive	5	50H	407017	6484460
<i>Eucalyptus rudis</i>	85	alive	5	50H	406963	6484598
<i>Eucalyptus rudis</i>	75	alive	5	50H	407033	6485403
<i>Eucalyptus rudis</i>	75	alive	5	50H	407005	6485407
<i>Eucalyptus rudis</i>	55	alive	5	50H	407596	6486561
<i>Eucalyptus rudis</i>	70	alive	5	50H	407597	6486568
<i>Eucalyptus rudis</i>	80	alive	5	50H	407568	6486707
<i>Eucalyptus rudis</i>	100	alive	3	50H	406739	6485643
<i>Eucalyptus rudis</i>	110	alive	4	50H	406848	6485817
<i>Eucalyptus rudis</i>	150	alive	5	50H	407054	6486310
<i>Eucalyptus rudis</i>	200	alive	4	50H	406822	6485892
<i>Eucalyptus rudis</i>	55	alive	5	50H	406791	6485622
<i>Eucalyptus rudis</i>	55	alive	5	50H	406934	6486013
<i>Eucalyptus rudis</i>	60	alive	5	50H	406780	6485716
<i>Eucalyptus rudis</i>	60	alive	5	50H	406808	6485758
<i>Eucalyptus rudis</i>	60	alive	5	50H	407035	6486305
<i>Eucalyptus rudis</i>	70	alive	5	50H	406779	6485658
<i>Eucalyptus rudis</i>	70	alive	5	50H	406801	6485687
<i>Eucalyptus rudis</i>	70	alive	5	50H	406940	6486031
<i>Eucalyptus rudis</i>	80	alive	3	50H	406737	6485643
<i>Eucalyptus rudis</i>	85	alive	5	50H	406806	6485690
<i>Eucalyptus rudis</i>	90	alive	5	50H	406788	6485702
<i>Eucalyptus rudis</i>	90	alive	5	50H	406846	6485924
<i>Eucalyptus wandoo</i>	70	alive	5	50H	407191	6484398

Species	DBH	Dead/Alive	Category	UTM Grid	UTM Easting	UTM Northing
<i>Eucalyptus wandoo</i>	60	alive	5	50H	407193	6484397
<i>Eucalyptus wandoo</i>	50	alive	5	50H	407090	6484306
<i>Eucalyptus wandoo</i>	70	alive	5	50H	407074	6484326
<i>Eucalyptus wandoo</i>	65	alive	5	50H	407065	6484356
<i>Eucalyptus wandoo</i>	45	alive	5	50H	407063	6484371
<i>Eucalyptus wandoo</i>	60	alive	5	50H	407072	6484383
<i>Eucalyptus wandoo</i>	35	alive	5	50H	407078	6484389
<i>Eucalyptus wandoo</i>	60	alive	5	50H	407081	6484392
<i>Eucalyptus wandoo</i>	60	alive	5	50H	407084	6484388
<i>Eucalyptus wandoo</i>	65	alive	5	50H	407065	6484404
<i>Eucalyptus wandoo</i>	60	alive	5	50H	407054	6484399
<i>Eucalyptus wandoo</i>	31	alive	5	50H	407039	6484396
<i>Eucalyptus wandoo</i>	40	alive	5	50H	407033	6484386
<i>Eucalyptus wandoo</i>	34	alive	5	50H	407024	6484374
<i>Eucalyptus wandoo</i>	40	alive	5	50H	407025	6484392
<i>Eucalyptus wandoo</i>	70	alive	5	50H	407053	6484432
<i>Eucalyptus wandoo</i>	33	alive	5	50H	407061	6484426
Non-native <i>Eucalyptus</i> sp.	150	alive	5	50H	407621	6486078
Non-native <i>Eucalyptus</i> sp.	70	alive	5	50H	407619	6486086