

LOT 13 HORTON ROAD THE LAKES

FLORA, VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT

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1 INTRODUCTION

1.1 Background

Lot 13 Horton Road, The Lakes is located in the Shire of Northam approximately 50km east-north-east of the Perth Central Business District (Figure 1). The lot contains an area in the south-eastern corner that is proposed to be mined for gravel (Figure 2). The area proposed for mining is hereafter referred to as the site.

PGV Environmental was commissioned by B&J Catalano to undertake a Flora, Vegetation and Black Cockatoo Habitat Assessment of the site.

1.2 Scope of Works

The Flora and Vegetation Survey was a Detailed Flora and Vegetation Survey in accordance with the *EPA Technical Guidance: Flora and Vegetation Surveys* (EPA, 2016). The survey included the following:

- Desktop search and review of the Department of Biodiversity, Conservation and Attractions (DBCA) Naturemap database;
- A search of the Commonwealth Government's Protected Matters Search Tool to identify species potentially occurring within the area that are protected under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999;
- Examination of historic and recent aerial photography and contour and soil maps to provisionally identify vegetation types and condition;
- Field survey using quadrats to record native and introduced species as well as a thorough site walkover of any areas of native vegetation;
- Recording of any significant plant species using a hand-held GPS;
- Description and mapping of vegetation types and vegetation condition; and
- Compilation of a flora list.

The Black Cockatoo Habitat Assessment was undertaken to:

- Describe the Black Cockatoo habitat on the site;
- Determine the impact of potential development on Black Cockatoos if the site was to be cleared; and
- Assess the clearing in the context of the significance of the impact on Black Cockatoos.

2 EXISTING ENVIRONMENT

2.1 Land Use

2.1.1 Historical Land Use

Examination of historical aerial photography shows the site was covered in native vegetation up until the early 1980s after which the site was mostly cleared presumably for grazing purposes. Stands of native trees and individual trees in the cleared paddocks have been retained on the site since the initial clearing (Plate 1).

Plate 1: Aerial Photography from 2019 (Landgate, 2019)



2.1.2 Current Land Use

The site is currently not used for grazing.

2.1.3 Surrounding Land Use

The site is bounded a creek to the north-east and partially cleared rural land to the west and south.

2.2 Topography

The site slopes down from a high point at around 293m AHD in the south-west corner down towards the creekline along the north-east boundary at an elevation of around 274 to 280 mAHD (Figure 2).

2.3 Geology and Soils

2.3.1 Geology

Geologically the western side of the Shire of Northam consists of laterites of the Darling Scarp overlying granites of the Yilgarn Block. The Northam-York District consists of Archaean granites, gneisses and migmites with some meta-sediments and volcanic areas (McArthur, 1991).

2.3.2 Soils

The soil on the site has been mapped and described in the Yalanbee Subsystem (Ya) as 253WnYa which is described as residual plateau at the top of the landscape shallowly dissected by Pindalup valleys. The soil is pisolitic gravelly, yellowish brown soils that vary from loamy sands to clays, with pockets of pale sands and areas of outcropping laterite (DPIRD, 2019).

2.4 Hydrology

Groundwater is at depth and there are no surface expressions of groundwater on the site (DWER, 2019). There are no wetlands or water courses on the site. A creekline runs along the north-eastern part of the site towards a dam immediately north of the lot boundary.

3 FLORA AND VEGETATION

3.1 Methodology

3.1.1 Desktop Searches

Searches of the following databases were undertaken prior to the site survey:

- DBCA Naturemap Database for a radius of 10km; and
- The Commonwealth Government's Protected Matters Search Tool to identify species potentially occurring within the area that are protected under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. A radius of 5km was used for this database.

3.1.2 Site Survey

A flora and vegetation survey of the site was conducted by Dr Paul van der Moezel on 4 September 2019 in accordance with *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016). The survey included a thorough walk over the area.

No quadrats were sampled due to the absence of any intact native vegetation on the site.

3.1.3 Survey Conditions

The conditions that the survey was undertaken in are presented in Table 1 in order to assess the adequacy of the survey. In summary, there were no constraints to the survey.

Table 1: Statement of Botanical Survey Conditions

Issue	Constraints (Y/N)*	Comment
Competency/experience of the consultant conducting the survey	No	Dr Paul van der Moezel has extensive botanical survey experience on the Swan Coastal Plain.
Proportion of the flora identified^	No	The timing of the survey in early September was optimal to record most of the native species.
Sources of information (historic/recent or new data)	No	The flora of the Perth Hills area is fairly well documented.
Proportion of the task achieved and further work that may need to be undertaken	No	No follow-up survey required as no Threatened Flora expected to occur in other seasons.
Timing/weather/season/cycle	No	The spring survey was optimal for most flora species. 2019 was an average year for ephemeral species.
Disturbances (Fire)	No	The fire age of the vegetation was less than 5 years however due to the absence of intact native understorey the fire age was not a constraint to the survey.
Intensity of survey (e.g. In retrospect was the intensity adequate)	No	Approximately 4 hours spent on the site which was longer than needed for the

Issue	Constraints (Y/N)*	Comment
Completeness (e.g. was relevant area fully surveyed)	No	flora survey but included the Black Cockatoo habitat survey as well.
Resources (e.g. degree of expertise available for plant identification)	No	No plant identifications needed
Remoteness and/or access problems	No	Accessible site close to Perth.
Availability of contextual (e.g. bioregional) information for the study area.	No	Beard Vegetation Mapping

*Constraints have been rated as Significant, Moderate or No constraints

^Fungi and nonvascular flora (e.g. algae, mosses and liverworts) were not specifically surveyed for during the survey.

3.2 Desktop Studies

3.2.1 Flora Database Searches

A search of the DBCA Naturemap database (Appendix 1) (DBCA, 2019) indicates that a number of species that are listed as Endangered, Threatened or Priority are identified as being recorded within 10km of the site. The EPBC Act Protected Matters Search Tool (Appendix 2) indicates species that potentially have habitat within 5km of the site. The results from these database searches are shown in Table 2.

Table 2: Conservation Significant Flora Identified in Database Searches

Species	Common Name	Conservation Status in WA	Status Under EPBC Act 1999
<i>Thelymitra dedmaniarum</i>	Cinnamon Sun-orchid	Schedule 1	Endangered
<i>Diplolaena andrewsii</i>	Native Wild Rose	Schedule 2	Endangered
<i>Diuris purdiei</i>	Purdie's Donkey-orchid	Schedule 2	Endangered
<i>Thelymitra stellata</i>	Star Sun-orchid	Schedule 2	Endangered
<i>Acacia aphylla</i>	Leafless Rock Wattle	Schedule 3	Vulnerable
<i>Anthocercis gracilis</i>	Slender Tailflower	Schedule 3	Vulnerable
<i>Diuris micrantha</i>	Dwarf Bee-orchid	Schedule 3	Vulnerable
<i>Senecio gilbertii</i>		Priority 1	
<i>Cyanicula ixioides</i> subsp. <i>candida</i>		Priority 2	
<i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i>		Priority 3	
<i>Meionectes tenuifolia</i>		Priority 3	
<i>Synaphea diabolica</i>		Priority 3	
<i>Tetrateca pilifera</i>		Priority 3	
<i>Thysanotus cymosus</i>		Priority 3	
<i>Cyanicula ixioides</i> subsp. <i>ixioides</i>		Priority 4	
<i>Daviesia oxylobium</i>		Priority 4	
<i>Grevillea pimeleoides</i>		Priority 4	
<i>Hibbertia montana</i>		Priority 4	
<i>Trithuria australis</i>		Priority 4	

Definitions of the Conservation Codes are in Appendix 3.

3.2.2 TEC/PEC Database Searches

A search of DBCA's Threatened (TEC) and Priority Ecological Communities (PEC) database was conducted within a radius of 5km around the site using the National Map database. There were no TECs or PECs mapped within 5km of the site (National Map, 2019).

3.3 Survey Results

3.3.1 Vegetation Condition

The condition of the vegetation was assessed according to the system devised by Keighery and described in Bush Forever (Government of Western Australia, 2000) (Table 3).

Table 3: Vegetation Condition Rating Scale.

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

Source: Government of Western Australia, 2000.

The site contains stands of trees over weeds and does not contain any areas of intact native vegetation. As a result, the native vegetation condition is rated as Completely Degraded over the whole site

The site was severely burnt in May 2019 (Plate 2). The fire has not impacted on the presence or condition of any native understorey vegetation as it was absent before the fire.

Plate 2: Trees burnt by May 2019 fire



3.3.2 Vegetation

Vegetation Complexes

Vegetation Complexes are a broad level of vegetation description which is based on the underlying geomorphology and rainfall. The vegetation on the site is part of the Murray 2 Complex which is on the Darling Plateau (National Map, 2019). The complex is described as:

Open forest of Eucalyptus marginata subsp. thalassica-Corymbia calophylla-Eucalyptus patens and woodland of Eucalyptus wandoo with some Eucalyptus accedens on valley slopes to woodland of Eucalyptus rudis-Melaleuca raphiophylla on the valley floors in semiarid and arid zones (Shepherd et al., 2001).

There is a small area in the southern part of the site that is mapped in the Yalanbee, Y5 complex which is:

Mixture of open forest of Eucalyptus marginata subsp. thalassica-Corymbia calophylla and woodland of Eucalyptus wandoo on lateritic uplands in semiarid to perarid zones (Shepherd et al., 2001).

The vegetation on the site is mapped as Medium Forest Jarrah Marri e2,3Mc (Hedde *et al.* 1980).

The remnant trees on the site are not considered representative of any intact vegetation complexes.

Vegetation Type

No intact native vegetation occurs on the site. The remnant trees on the site are predominantly Marri (*Corymbia calophylla*) and a few scattered Jarrah (*Eucalyptus marginata*) with two Wandoo trees (*Eucalyptus wandoo*) close to the creekline. The only other native species recorded on the site was Harsh Hakea (*Hakea prostrata*).

3.3.3 Flora

Only four native plant species were recorded on the site, Marri (*Corymbia calophylla*), Jarrah (*Eucalyptus marginata*), Wandoo (*Eucalyptus wandoo*) and Harsh Hakea (*Hakea prostrata*).

3.4 Conservation Significance of Flora and Vegetation

3.4.1 Vegetation

The site is completely devoid of intact native vegetation. Therefore, there is no Conservation Significant vegetation on the site such as a Threatened or Priority Ecological Communities or poorly represented Vegetation Complexes.

3.4.2 Flora

No Conservation Significant species in the database searches were recorded on the site or are likely to occur due to the Completely Degraded condition of the site.

4 BLACK COCKATOO HABITAT ASSESSMENT

4.1 Black Cockatoo Species

4.1.1 Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*)

Carnaby's Black Cockatoo is found in the south-west of Australia from Kalbarri through to Ravensthorpe. It has a preference for feeding on the seeds of *Banksia*, *Hakea*, *Eucalyptus*, *Grevillea*, *Pinus* and *Allocasuarina* spp. It is nomadic, often moving toward the coast after breeding. It breeds in tree hollows that are 2.5 – 12m above the ground and have an entrance of 23-30cm with a depth of 1-2.5m. Nesting mostly occurs in smooth-barked trees (e.g. Salmon Gum, Wandoo, Red Morrell). Eggs are laid from July to October, with incubation lasting 29 days (DoE, 2014).

The site is inside the boundary of the modelled distribution for Carnaby's Black Cockatoos (SEWPaC, 2012). The site is shown as being within an unconfirmed breeding area but is not within a confirmed breeding area (National Map, 2019).

4.1.2 Baudin's Black Cockatoo (*Calyptorhynchus baudinii*)

Baudin's Black Cockatoo is most common in the far south-west of Western Australia. It is known to breed from the southern forests north to Collie and east to near Kojonup. Baudin's Black Cockatoo is typically found in vagrant flocks and utilises the taller, more open Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) woodlands where it feeds mainly on Marri seeds and various Proteaceous species (Johnstone, Johnstone and Kirkby, 2011).

The site is inside the modelled 'Known Foraging Area' distribution for Baudin's Black Cockatoos (SEWPaC, 2012).

4.1.3 Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*)

Forest Red-tailed Black Cockatoos are endemic to the humid to sub-humid south-west of Western Australia (SEWPaC, 2012). The range of Forest Red-tailed Black Cockatoos is bound by Gingin in the north to Mt Helena, Christmas Tree Well, West Dale, North Bannister, Mt Saddleback, Kojonup, Rocky Gully, upper King River and Green Range (east of Albany) (SEWPaC, 2012; DoE, 2014). It nests in tree hollows with a depth of 1-5m, that are predominately Marri, Jarrah and Karri (*E. diversicolor*) and it feeds primarily on the seeds of Marri and Jarrah (Johnstone, Johnstone and Kirkby, 2011).

The site is inside the modelled distribution for Forest Red-tailed Black Cockatoos (SEWPaC, 2012).

4.2 Habitat Survey

PGV Environmental undertook a Black Cockatoo habitat assessment on 4 September 2019 in accordance with the *EPBC Act referral guidelines for three threatened Black Cockatoo species: Carnaby's cockatoo (endangered) Calyptorhynchus latirostris Baudin's cockatoo (vulnerable) Calyptorhynchus baudinii Forest red-tailed Black Cockatoo (vulnerable) Calyptorhynchus banksii naso* (SEWPaC, 2012) (Black Cockatoo Referral Guidelines) and the methodology that is outlined in the SPRAT Database for each of the Black Cockatoo species for Black Cockatoo Habitat Assessments.

The site was traversed on foot and information on Black Cockatoo foraging, roosting and breeding habitat was assessed. The extent, type and quality of the vegetation present, including the presence and extent of plants known to be used by Black Cockatoos was investigated.

Breeding habitat was examined and, where possible, parts of trees that resembled possible breeding habitat were photographed from the ground to determine if there was suitable habitat. Potential breeding spouts/hollows that were determined to be hollow or could not be verified either way were recorded.

4.3 Habitat definitions

‘Foraging habitat’ for Black Cockatoos is determined from the plant species that are present on the site and evidence of feeding such as direct observation of birds or by chewed nuts and cones. ‘Roosting habitat’ is usually evident due to the presence of Black Cockatoos on the site in the evening and early morning and of scat under the roosting area. ‘Breeding habitat’ is defined as trees of species known to support breeding within the range of the species which either have a suitable nest hollow OR have a DBH of 500mm or greater.

4.4 Foraging

The site contains four species that are recognised as foraging habitat for Black Cockatoos (Table 4). The total canopy coverage of foraging habitat on the site is estimated to be around 2.6ha.

Table 4: Foraging Species for Carnaby’s Black Cockatoos Recorded on the Site

Species	Common Name	Part eaten	Priority for Foraging ¹
<i>Corymbia calophylla</i>	Marri	Seed, flowers	High
<i>Hakea prostrata</i>	Harsh Hakea	Seed, flowers	Low
<i>Eucalyptus marginata</i>	Jarrah	Seed, flowers	High
<i>Eucalyptus wandoo</i>	White Gum	Seed, flowers	Low

1 - Groom, 2011

There was evidence of foraging on Marri by Carnaby’s Black Cockatoo with the Marri nuts showing narrow scars from the species’ smaller lower mandible (Fleming, 2011) (Plate 3).

Plate 3: Carnaby’s Black Cockatoo Foraging on Marri



4.5 Roosting

Carnaby's Black Cockatoos are known to roost overnight in tall trees including native and introduced eucalypts and pine trees generally in close proximity to a fresh water source. The site does not contain a known roosting site for Carnaby's Black Cockatoos (DoP, 2011; Peck *et al.*, 2018; National Map, 2019). The nearest roosting sites are reported to be around 2.6km to the south-west (National Map, 2019).

No evidence of the trees being utilised for roosting by Black Cockatoos was observed in the assessment.

4.6 Breeding

Black Cockatoos are known to breed in hollows of large eucalypts, including Jarrah, Tuart and Marri trees. The site is not known as a breeding site for Black Cockatoos (DoP, 2011; National Map, 2019).

The Black Cockatoo Referral Guidelines define trees of certain species with a DBH of 300 to 500mm or greater, dependent on the tree species, as breeding habitat regardless of the presence or not of hollows. The theory behind this definition is the concept that while the trees may not currently contain hollows, they are mature enough that in the next 50 years or so a hollow might form and be of use to Black Cockatoos for the purposes of breeding.

Many of the trees on the site are young and often multi-stemmed and do not meet the definition of breeding habitat

A total of 33 trees were recorded on the site that had a dbh large enough to be considered potential breeding habitat (Figure 3; Appendix 6), including 27 Marri (*Corymbia calophylla*) and four Jarrah trees (*Eucalyptus marginata*). There were also two Wandoo trees (*Eucalyptus wandoo*) with a DBH greater than 300mm that were considered to be potential breeding habitat. None of the trees recorded had potential hollows and/or spouts.

Due to the recent fire the past breeding in trees would not have been able to be assessed. However, as none of the trees had hollows or spouts, no past breeding by Black Cockatoos would have been possible.

4.7 Regional Context

To assist in determining the significance of any impact on Black Cockatoo habitat on the site an assessment of Black Cockatoo habitat within the vicinity of the site was undertaken.

There are a large number of areas of reserved bushland including State Forest, Regional Parks and National Parks that occur within 10km of the site (Figure 4). The habitat in reserves exceeds a total area of 10,000ha. All sites contain foraging habitat and large trees that are potential breeding habitat.

4.8 EPBC Act Significant Impact Guidelines 1.1

According to the EPBC Act Significant Impact Guidelines 1.1 (DoE, 2013), the significance of the impact on Black Cockatoos depends on the sensitivity, value and quality of the environment and the intensity, duration, magnitude and geographic extent of the impacts. The category of listing (for example;

Endangered, Vulnerable or Migratory) determines the significant impact criteria for listed flora and fauna species and ecological communities.

This assessment assumes all of the foraging and potential breeding trees on the site would be cleared for future sand mining. Using this assumption, the clearing would result in approximately 2.6ha of foraging habitat for Carnaby's Black Cockatoos, Forest Red-tailed Black Cockatoos and Baudin's Black Cockatoos and 33 potential breeding trees being cleared.

The following assessments are for the Carnaby's Black Cockatoo and Baudin's Black Cockatoo which are listed as Endangered and the Forest Red-tailed Black Cockatoo which is listed as Vulnerable.

Carnaby's and Baudin's Black Cockatoos

The impact on Carnaby's Black Cockatoos and Baudin's Black Cockatoos from clearing the Black Cockatoo habitat on the site has been assessed against the criteria set out in the Significant Impact Guidelines 1.1 for the impact on an Endangered species and is shown below:

- *Lead to a long-term decrease in the size of a population*

There was no evidence that the site supports breeding or roosting of these species of Black Cockatoos. There are large areas (in excess of 10,000ha) of formal reserves within 10km consisting of large areas of foraging and potential breeding habitat. Therefore, clearing of the site will not result in this outcome.

- *Reduce the area of occupancy of the species*

Clearing of the site will not result in a reduction of any known breeding and roosting habitat although it will result in a reduction of approximately 2.6ha of foraging habitat. Within 10km of the site, however, there is more than 10,000ha of foraging habitat located in formal reserves and therefore clearing of the site will not result in this outcome.

- *Fragment an existing population into two or more populations*

Clearing of the site is unlikely to fragment the population of Carnaby's Black Cockatoos in the area into sub-populations due to the State Forest, Regional Parks and National Parks in the area providing linkages consisting of large areas of Black Cockatoo habitat. Carnaby's Black Cockatoos and Baudin's Black Cockatoos can fly large distances between foraging areas. Clearing of the site will therefore not result in this outcome.

- *Adversely affect habitat critical to the survival of a species*

There was no evidence of breeding or roosting by Carnaby's Black Cockatoos or Baudin's Black Cockatoos on the site. The three trees that contained potentially suitable hollows/spouts and the approximately 2.6ha of foraging habitat is not considered to be critical to the survival of the species due to the large amount of foraging and potential breeding habitat within 10km of the site, therefore clearing of the site would not result in this outcome.

- *Disrupt the breeding cycle of a population*

The site contained no evidence of breeding and there were four trees that contained potentially suitable hollows/spouts therefore clearing of the site would not result in this outcome.

- *Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline*

Clearing of the site will not result in this outcome due to the large extent of Black Cockatoo habitat reserved within 10km of the site.

- *Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*

Clearing of the site will not result in the establishment of an invasive species harmful to Carnaby's Black Cockatoos.

- *Introduce disease that may cause the species to decline*

Clearing of the site will not cause disease to be introduced therefore will not result in this outcome.

- *Interfere with the recovery of the species*

The Carnaby's Black Cockatoos that would utilise the site have access to greater than 10,000ha of habitat within 10km in reserves. Therefore, any clearing of habitat on the site would not interfere substantially with the recovery of the species.

The conclusion of this assessment in accordance with the criteria set out in the Significant Impact Guidelines 1.1 is that the proposed clearing will not have a significant impact on Carnaby's Black Cockatoos or Baudin's Black Cockatoos.

Forest Red-tailed Black Cockatoo

The impact on Forest Red-tailed Black Cockatoos from clearing the Black Cockatoo habitat on the site has been assessed against the criteria set out in the Significant Impact Guidelines 1.1 for the impact on a Vulnerable species and is shown below:

- *Lead to a long-term decrease in the size of an important population of a species*

In the Significant Impact Guidelines 1.1 an important population is defined as "a population that is necessary for a species' long-term survival and recovery" and may be "key source populations either for breeding or dispersal, populations that are necessary for maintaining genetic diversity, and/or populations that are near the limit of the species' range".

There was no evidence of breeding occurring on the site and the surrounding area contains greater than 10,000ha of reserves providing large areas of foraging and breeding habitat for Cockatoos that utilise the site. Development of the site would therefore not result in this outcome.

- *Reduce the area of occupancy of an important population*

There was no evidence found of Forest Red-tailed Black Cockatoos breeding or roosting on the site. Clearing of the site will reduce the area of foraging available by 2.6ha of foraging habitat, however there is greater than 10,000ha of foraging habitat within 10km of the site in surrounding reserves therefore clearing of the site would not result in this outcome.

- *Fragment an existing important population into two or more populations*

The large area of reserves containing habitat within 10km of the site that provide foraging and potential breeding habitat. Forest Red-tailed Black Cockatoos can fly large distances between foraging areas. Therefore, clearing of the site would not result in this outcome.

- *Adversely affect habitat critical to the survival of a species*

There was no evidence that Forest Red-tailed Black Cockatoos breed on the site and there are large areas of foraging habitat within 10km of the site, as formal reserves, therefore the site is not considered critical to the survival of these species.

- *Disrupt the breeding cycle of an important population*

There was no evidence that Forest Red-tailed Black Cockatoos breed on the site. No trees on the site contained potentially suitable hollows/spouts, therefore clearing of the site would not result in this outcome.

- *Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline*

The large areas of foraging and breeding habitat located in reserves within 10km of the site would prevent the population from declining as a result of clearing of the site.

- *Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat*

Clearing the site will not result in invasive species being introduced, therefore would not result in this outcome.

- *Introduce disease that may cause the species to decline*

Clearing the site will not result in disease being introduced, therefore would not result in this outcome.

- *Interfere substantially with the recovery of the species*

The Forest Red-tailed Black Cockatoos that would utilise the site have access to an area greater than 10,000ha of Black Cockatoo habitat within 10km in reserves. Therefore, the clearing of 2.6ha of foraging habitat on the site would not interfere substantially with the recovery of these species.

In accordance with the criteria set out in the Significant Impact Guidelines 1.1 the conclusion of this assessment is that clearing the site would not have a significant impact on Forest Red-tailed Black Cockatoos.

4.9 Black Cockatoo Referral Guidelines

The EPBC Act referral guidelines for three threatened Black Cockatoo species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris* Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii* Forest red-tailed Black Cockatoo (vulnerable) *Calyptorhynchus banksii naso* (SEWPaC, 2012) (Black Cockatoo Referral Guidelines) contain several steps to determine whether or not a referral is required. These steps are:

1. The definition of habitat (breeding, roosting and foraging – Table 1 in the Black Cockatoo Referral Guidelines);
2. A description of the type of action that may have a high or low risk of being a significant impact and therefore require referral (Table 3 in the Black Cockatoo Referral Guidelines);
3. Formulation of a mitigation strategy to reduce the scale of impact; and
4. A flowchart to assist in decision making on whether or not an action should be referred.

Step 1 Black Cockatoo Habitat

This assessment assumes all of the foraging and potential breeding trees on the site would be cleared for a development. As outlined previously there is approximately 2.6ha of foraging habitat for Black Cockatoos on the site with evidence of foraging on Marri. There are 33 trees that are considered to be potential breeding trees under the definition provided by the Department of the Environment and Energy. There is however no recorded breeding or roosting on the site or evidence of such.

Step 2 Level of Impact

Foraging

According to Table 3 in the Black Cockatoo Referral Guidelines the clearing of more than 1ha of quality foraging habitat has a high risk of causing a significant impact. Degradation of more than 1ha of quality habitat by things such as altered hydrology or fire regimes has an uncertain risk. The significance of degradation depends on the type of degradation and the quality of the habitat.

The site contains approximately 2.6ha of foraging habitat. Clearing of the whole site will lead to the loss of more than 1ha of quality foraging habitat and therefore result in a high risk of a significant impact.

Roosting

The Black Cockatoo Referral Guidelines consider the clearing of a known roosting site as a high risk of being a significant impact. The site is not mapped as having a known roosting site. There were no roosting sites recorded in the Significant Tree Survey and the risk of a significant impact on a known roosting site is considered to be low.

Breeding

According to Table 3 in the Black Cockatoo Referral Guidelines the clearing of any known nesting tree has a high risk of being a significant impact. A known nesting tree is defined in the Black Cockatoo Referral Guidelines as any existing tree in which breeding has been recorded or suspected. There are

no known nesting trees that occur on the site and therefore there is no risk of a significant impact on known breeding habitat of Black Cockatoos.

The Black Cockatoo Referral Guidelines also consider that the clearing or degradation of any part of a vegetation community known to contain breeding habitat is likely to have a high risk of a significant impact. In Table 1 of the Black Cockatoo Referral Guidelines breeding habitat is defined as woodlands, forests or isolated trees that contain or consist of live or dead trees of certain species with either a DBH of or greater than 500mm or the presence of suitable nest hollows. The site contains 33 trees with a DBH of or greater than 500mm, four of which contained hollows/spouts potentially suitable for Black Cockatoos. According to Table 1 of the Black Cockatoo Referral Guidelines Black Cockatoos have the potential to breed in the Marri, Jarrah and Wandoo trees on the site in the future.

According to the Black Cockatoo Referral Guidelines the risk of a significant impact on breeding habitat of Black Cockatoos is considered to be high as more than one potential breeding habitat tree would be cleared.

Surrounding Habitat

According to the Black Cockatoo Referral Guidelines clearing of vegetation that results in a gap of greater than 4km between patches of Black Cockatoo habitat (foraging, roosting or breeding) has a high risk of having a significant impact. As listed in Table 6 there are greater than 10,000ha of reserves within 10km of the site that provide Black Cockatoo habitat. Therefore, the risk of creating a gap of greater than 4km between areas of Black Cockatoo habitat is considered to be very low.

Step 3 Mitigation

The consideration of a mitigation strategy during the determination of the level of impact and requirement to refer is allowed by the Black Cockatoo Referral Guidelines and setting in place the best practice mitigation strategy may reduce the level of impact and in turn the risk of a significant impact. Mitigation strategies include avoiding impact, managing impact so that there is no net decline in habitat and monitoring the effectiveness of mitigation.

This assessment is based on the entire 2.6ha of foraging habitat and all 33 potential breeding trees being cleared. Putting a mitigation strategy in place during the planning stage may reduce the level of impact on Black Cockatoos from clearing the site. Mitigation of the site could include the planting of Marri and Jarrah trees following mining of the site.

Step 4 Referral Advice

The Decision Making flowchart in Figure 1 of the Black Cockatoo Referral Guidelines was applied to the site without consideration of mitigation strategies and is shown in sequence below:

- 1 Could the impacts of your action occur within the modelled distribution of the black cockatoos? – YES
- 2 Could the impacts of your action affect any black cockatoo habitat or individuals? - YES
- 3 Have you surveyed for black cockatoo habitat using the recommended methods? – YES
- 4 Could your action have an impact on black cockatoos or their habitat? – YES

5 Is your impact mitigation best practice so that it may reduce the significance of your impacts on black cockatoos? Prioritise impact avoidance over impact minimisation - NO
RESULT – Referral Recommended: High risk of resulting in a significant impact if all habitat were to be cleared.

5 SUMMARY AND CONCLUSIONS

5.1 Flora and Vegetation

The Flora and Vegetation survey found the following:

- There is no intact native vegetation on the site;
- The vegetation is rated as Completely Degraded;
- No Threatened (Declared Rare) or Priority Flora species were recorded or are likely to occur on the site;
- No Conservation Significant vegetation on the site such as a Threatened or Priority Ecological Communities or poorly represented Vegetation Complexes occur on the site; and
- No further surveys are considered necessary.

5.2 Black Cockatoo Habitat

The Black Cockatoo Habitat Assessment was undertaken as the site contain habitat for three species of listed black cockatoos including:

- Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) (Endangered);
- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) (Endangered); and
- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*) (Vulnerable).

The Black Cockatoo Habitat Assessment concludes the following:

- The site contains approximately 2.6ha of foraging habitat consisting primarily of Marri and Jarrah trees;
- Evidence of foraging by Carnaby's Black Cockatoos on Marri nuts was recorded in the site survey;
- There was no evidence of recent roosting on the site;
- Breeding by Black Cockatoos has not been recorded on the site;
- There were 33 potential breeding habitat trees consisting of 27 Marri (*Corymbia calophylla*), four Jarrah (*Eucalyptus marginata*) and two Wandoo (*Eucalyptus wandoo*);
- Clearing of the Black Cockatoo habitat is not likely to lead to a significant impact according to the EPBC Act Significant Impact Guidelines 1.1. However, according to the Black Cockatoo Referral Guidelines the clearing of all foraging and potential breeding habitat is likely to require referral under the EPBC Act.

5.3 Conclusion

The Flora, Vegetation and Black Cockatoo Habitat survey of Lot 13 Horton Road, The Lakes concludes that the site is completely devoid of intact native vegetation and therefore mining will not have any impact on significant flora species and vegetation types.

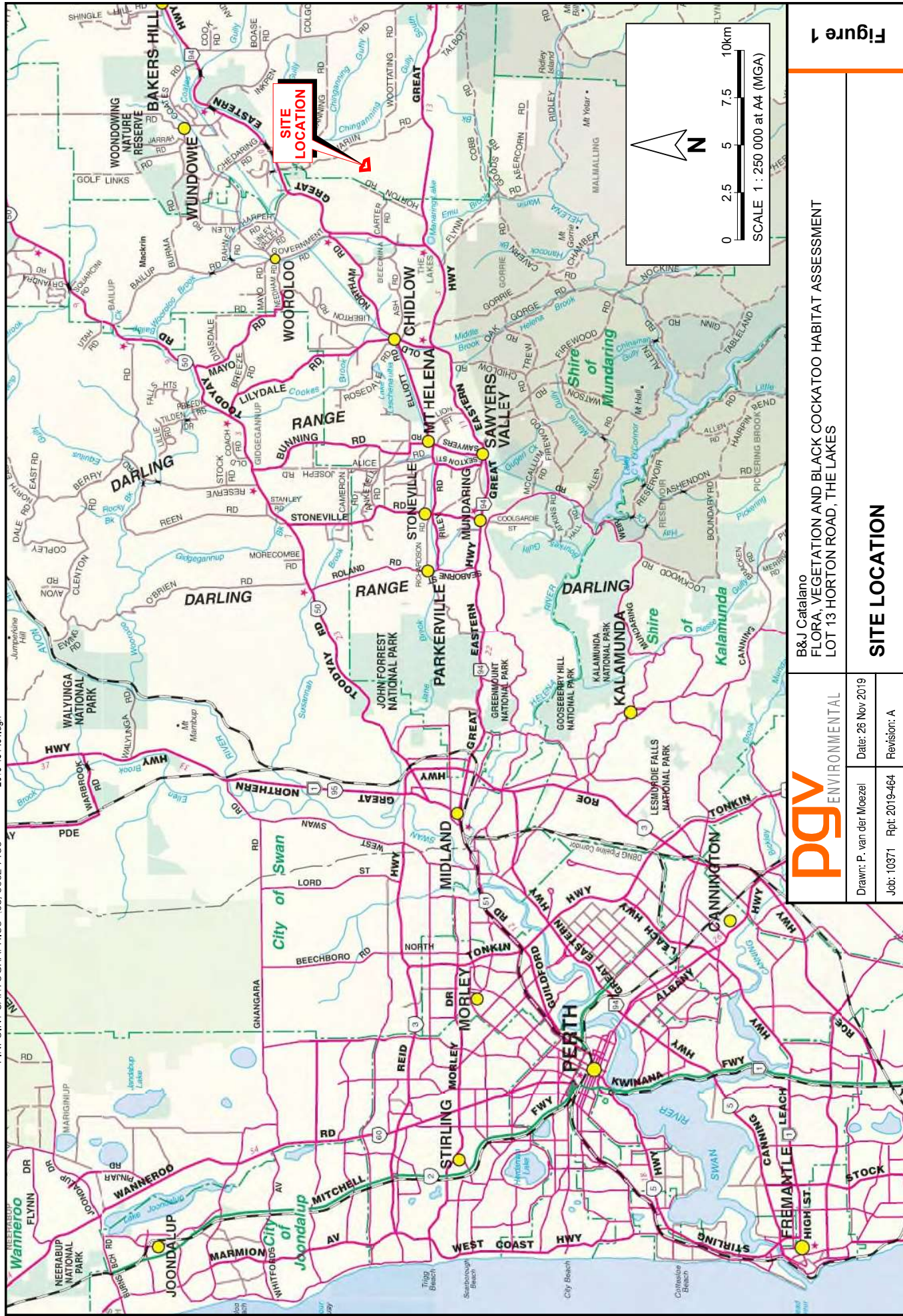
Clearing all the Marri, Jarrah and Wandoo trees on the site will result in the clearing of habitat for Black Cockatoos that is likely to require referral under the EPBC Act.

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FIGURES

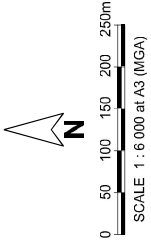


	Drawn: P. van der Meezel Job: 10371 Rpt: 2019-464	Date: 26 Nov 2019 Revision: A
	ENVIRONMENTAL	

B&J Catalano
 FLORA, VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT
 LOT 13 HORTON ROAD, THE LAKES

SITE LOCATION

Figure 1



- Legend**
- Site Boundary
 - Cadastral Boundary
 - Topographic Contour

CONTOUR SOURCE: Dept. of Agriculture 2000,
 CADASTRAL SOURCE: Landgate, October 2019,
 AERIAL PHOTOGRAPH SOURCE: NetMap, 10th September 2015.

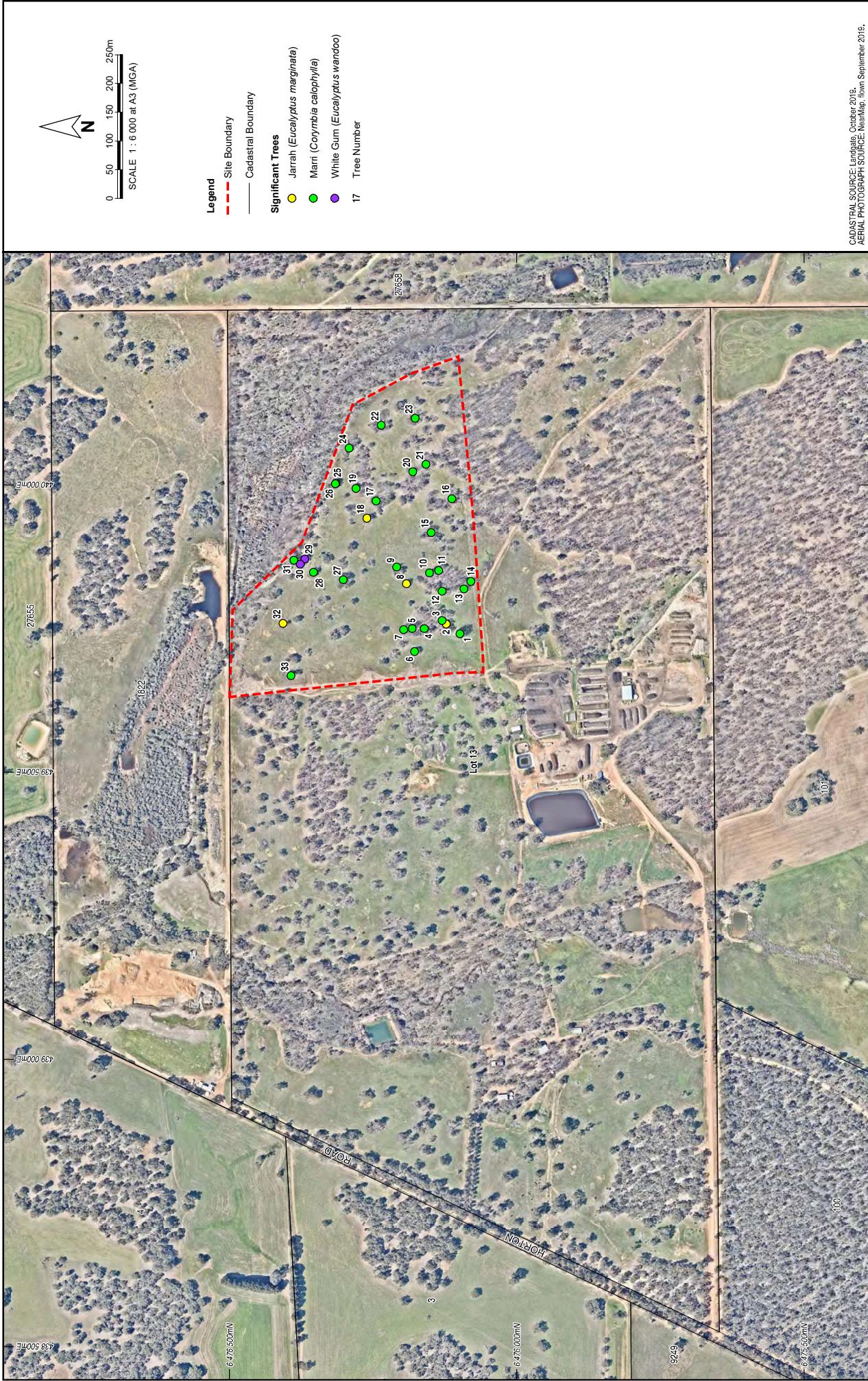
PGV ENVIRONMENTAL

Drawn: P. van der Meeszel Date: 26 Nov 2019
 Job: 10371 Rpt: 2019-464 Revision: A

B&J Catalans
 FLORA VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT
 LOT 13 LORTON ROAD, TILLE LAKES

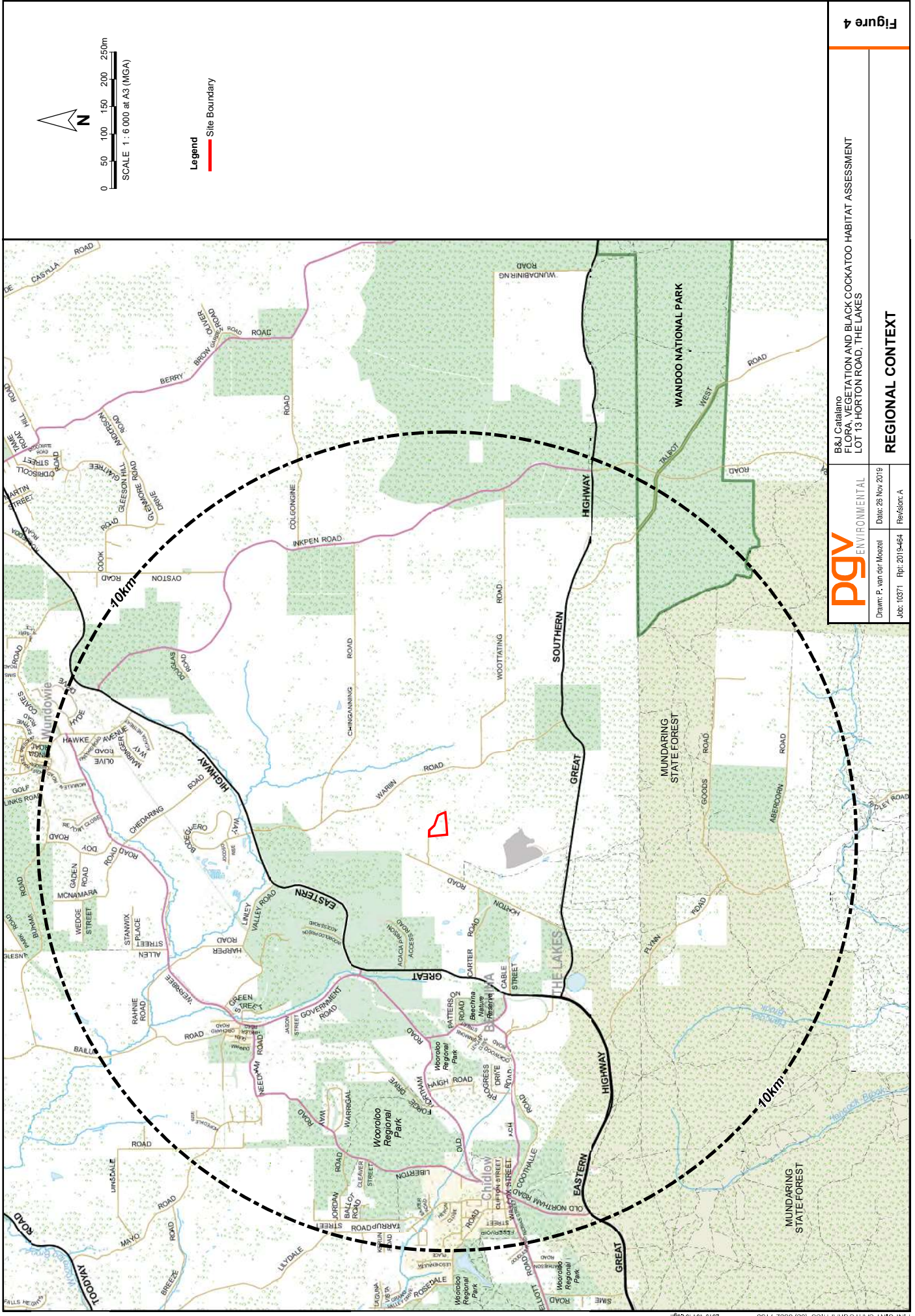
SITE BOUNDARY AND TOPOGRAPHY

Figure 2



CADASTRAL SOURCE: Landgate, October 2016.
 AERIAL PHOTOGRAPH SOURCE: MapMap, 16th September 2016.

		B&J Catalano FLORA VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT LOT 13 HORTON ROAD, THE LAKES	
		SIGNIFICANT TREES	Figure 3
Drawn: P. van der Meerel	Date: 26 Nov 2016	Job: 10371 Rpt: 2016-464	
Rev: 10371 Rpt: 2016-464	Revision: A		



	B&J Caltans FLORA VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT LOT 13 HORTON ROAD, THE LAKES	
	Drawn: P. van der Meulen Job: 10271 Rpt: 2019-464	Date: 28 Nov 2019 Revision: A

REGIONAL CONTEXT

Figure 4

APPENDIX 1

Naturemap Report

NatureMap Species Report

Created By Guest user on 12/09/2019

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 116° 21' 54" E, 31° 50' 54" S
Buffer 10km
Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	681	3989
Other specially protected fauna	2	5
Priority 1	1	2
Priority 2	1	1
Priority 3	5	24
Priority 4	9	32
Rare or likely to become extinct	10	102
TOTAL	709	4155

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Rare or likely to become extinct				
1.	3220 <i>Acacia aphylla</i> (Leafless Rock Wattle)		T	
2.	24162 <i>Betongia penicillata</i> subsp. <i>ogilbyi</i> (Woylie, Brush-tailed Bettong)		T	
3.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
4.	24733 <i>Calyptorhynchus baidinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
5.	24734 <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
6.	48400 <i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T	
7.	24092 <i>Dasyurus geoffroyi</i> (Chuditch, Western Quoll)		T	
8.	24557 <i>Leipoa ocellata</i> (Malleefowl)		T	
9.	24168 <i>Macrotis lagotis</i> (Bilby, Dalgyle, Ninu)		T	
10.	24146 <i>Myrmecobius fasciatus</i> (Numbat, Walpurti)		T	
Other specially protected fauna				
11.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
12.	48070 <i>Phascogale tapoatafa</i> subsp. <i>wambenger</i> (South-western Brush-tailed Phascogale, Wambenger)		S	
Priority 1				
13.	8205 <i>Senecio gilbertii</i>		P1	
Priority 2				
14.	13827 <i>Cyanicula ixioides</i> subsp. <i>candida</i>		P2	
Priority 3				
15.	11336 <i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i>		P3	
16.	33638 <i>Mefonectes tenuifolia</i>		P3	
17.	31765 <i>Synaphea diabolica</i>		P3	
18.	4540 <i>Tetralochea pilifera</i>		P3	
19.	1327 <i>Ihysanotus cymosus</i>		P3	
Priority 4				
20.	13826 <i>Cyanicula ixioides</i> subsp. <i>ixioides</i>		P4	
21.	14755 <i>Daviesia oxylobium</i>		P4	
22.	24189 <i>Falsistrellus mackenziei</i> (Western False Pipistrelle, Western Falsistrelle)		P4	
23.	13086 <i>Grevillea pimeleoides</i>		P4	
24.	5146 <i>Hibbertia montana</i>		P4	
25.	24215 <i>Hydromys chrysogaster</i> (Water-rat, Rakali)		P4	
26.	48588 <i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
27.	48022 <i>Notamacropus irma</i> (Western Brush Wallaby)		P4	
28.	33019 <i>Trithuria australis</i>		P4	
Non-conservation taxon				
29.	15466 <i>Acacia applanata</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
30.	18285 <i>Acacia baileyana</i>	Y		
31.	15469 <i>Acacia barbinervis</i> subsp. <i>barbinervis</i>			
32.	3254 <i>Acacia celastrifolia</i> (Glowing Wattle)			
33.	11661 <i>Acacia drummondii</i> subsp. <i>drummondii</i>			
34.	11192 <i>Acacia drummondii</i> subsp. <i>elegans</i>			
35.	3320 <i>Acacia ephedroides</i>			
36.	3374 <i>Acacia huegelii</i>			
37.	11519 <i>Acacia lasiocarpa</i> var. <i>bracteolata</i>			
38.	15721 <i>Acacia lasiocarpa</i> var. <i>sedifolia</i>			
39.	15476 <i>Acacia latipes</i> subsp. <i>latipes</i>			
40.	3442 <i>Acacia microbotrya</i> (Manna Wattle, Kalyang)			
41.	3454 <i>Acacia nervosa</i> (Rib Wattle)			
42.	3496 <i>Acacia preissiana</i>			
43.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
44.	15483 <i>Acacia pulchella</i> var. <i>pulchella</i>			
45.	15480 <i>Acacia pulchella</i> var. <i>reflexa</i>			
46.	3515 <i>Acacia restiacea</i>			
47.	30033 <i>Acacia saligna</i> subsp. <i>lindleyi</i>			
48.	<i>Acacia</i> sp.			
49.	3557 <i>Acacia stenoptera</i> (Narrow Winged Wattle)			
50.	3574 <i>Acacia teretifolia</i>			
51.	3602 <i>Acacia willdenowiana</i> (Grass Wattle)			
52.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
53.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
54.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
55.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
56.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
57.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
58.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
59.	7817 <i>Actinobole uliginosum</i> (Flannel Cudweed)			
60.	6205 <i>Actinotus leucocephalus</i> (Flannel Flower)			
61.	14970 <i>Adenanthos barbiger</i>			
62.	1775 <i>Adenanthos cygnorum</i> (Common Woollybush)			
63.	25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar)			
64.	24301 <i>Aegotheles cristatus</i> subsp. <i>cristatus</i> (Australian Owlet-nightjar)			
65.	23474 <i>Agrostocrinum hirsutum</i>			
66.	185 <i>Aira cupaniana</i> (Silvery Hairgrass)	Y		
67.	1721 <i>Allocasuarina campestris</i>			
68.	1728 <i>Allocasuarina fraseriana</i> (Sheoak, Kondil)			
69.	20755 <i>Alstroemeria psittacina</i>	Y		
70.	2652 <i>Alternanthera nodiflora</i> (Common Joyweed)			
71.	<i>Ambicodamus kochi</i>			
72.	<i>Amblyomma triguttatum</i>			
73.	194 <i>Amphipogon amphipogonoides</i>			
74.	20197 <i>Amphipogon laguroides</i> subsp. <i>havelii</i>			
75.	<i>Aname mainae</i>			
76.	24312 <i>Anas gracilis</i> (Grey Teal)			
77.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
78.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
79.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
80.	11470 <i>Anigozanthos bicolor</i> subsp. <i>bicolor</i>			
81.	1409 <i>Anigozanthos humilis</i> (Catspaw)			
82.	11434 <i>Anigozanthos humilis</i> subsp. <i>humilis</i>			
83.	11261 <i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>			
84.	24087 <i>Antechinomys laniger</i> (Kultarr)			
85.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
86.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
87.	<i>Antichtopauropus brevitarus</i>			Y
88.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
89.	<i>Arachnura higginsii</i>			
90.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
91.	1264 <i>Arnocrinum preissii</i>			
92.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
93.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
94.	24356 <i>Artamus personatus</i> (Masked Woodswallow)			
95.	<i>Asadipus kunderang</i>			
96.	6323 <i>Astroloma ciliatum</i> (Candle Cranberry)			
97.	6324 <i>Astroloma compactum</i>			
98.	6334 <i>Astroloma pallidum</i> (Kick Bush)			
99.	<i>Austracantha minax</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
100.	17237 <i>Austrostipa elegantissima</i>			
101.	17240 <i>Austrostipa flavescens</i>			
102.	17254 <i>Austrostipa tenuifolia</i>			
103.	17257 <i>Austrostipa variabilis</i>			
104.	18279 <i>Babiana angustifolia</i>	Y		
105.	36441 <i>Babingtonia camphorosmae</i> (Camphor Myrtle)			
106.	<i>Badumna insignis</i>			
107.	<i>Baiami volucripes</i>			
108.	32682 <i>Banksia armata</i> var. <i>armata</i>			
109.	32677 <i>Banksia bipinnatifida</i>			
110.	32678 <i>Banksia bipinnatifida</i> subsp. <i>bipinnatifida</i>			
111.	32580 <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>dallanneyi</i>			
112.	32577 <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>mellicula</i>			
113.	32616 <i>Banksia dallanneyi</i> subsp. <i>sylvestris</i>			
114.	32560 <i>Banksia drummondii</i> subsp. <i>hiemalis</i>			
115.	32523 <i>Banksia fraseri</i> var. <i>fraseri</i>			
116.	1819 <i>Banksia grandis</i> (Bull Banksia, Pulgarla)			
117.	32080 <i>Banksia sessilis</i> var. <i>sessilis</i>			
118.	12111 <i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i> (Fox Banksia)			
119.	32044 <i>Banksia squarrosa</i> (Pingle)			
120.	32045 <i>Banksia squarrosa</i> subsp. <i>squarrosa</i>			
121.	<i>Barnardius zonarius</i>			
122.	740 <i>Baumea arthropophylla</i>			
123.	747 <i>Baumea rubiginosa</i>			
124.	25788 <i>Billardiera fraseri</i> (Elegant Pronaya)			
125.	25798 <i>Billardiera fusiformis</i> (Australian Bluebell)			
126.	24319 <i>Biziura lobata</i> (Musk Duck)			
127.	7856 <i>Blennospora drummondii</i>			
128.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
129.	4441 <i>Boronia spathulata</i> (Boronia)			
130.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
131.	3714 <i>Bossiaea ornata</i> (Broad Leaved Brown Pea)			
132.	3717 <i>Bossiaea pulchella</i>			
133.	7875 <i>Brachyscome glandulosa</i>			
134.	7878 <i>Brachyscome iberidifolia</i>			
135.	42381 <i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)			
136.	2995 <i>Brassica x napus</i>	Y		
137.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
138.	250 <i>Bromus hordeaceus</i> (Soft Brome)	Y		
139.	24359 <i>Burhinus grallarius</i> (Bush Stone-curlew)			
140.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
141.	25715 <i>Cacatua roseicapilla</i> (Galah)			
142.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
143.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
144.	24427 <i>Cacomantis flabelliformis</i> subsp. <i>flabelliformis</i> (Fan-tailed Cuckoo)			
145.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
146.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
147.	44905 <i>Caladenia fluvialis</i>			
148.	1603 <i>Caladenia longiclavata</i> (Clubbed Spider Orchid)			
149.	15371 <i>Caladenia nana</i> subsp. <i>nana</i>			
150.	15377 <i>Caladenia reptans</i> subsp. <i>reptans</i>			
151.	19309 <i>Calectasia narragara</i>			
152.	35816 <i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i>			
153.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
154.	5450 <i>Calytrix depressa</i>			
155.	5461 <i>Calytrix glutinosa</i>			
156.	5485 <i>Calytrix variabilis</i>			
157.	32338 <i>Campylopus introflexus</i>	Y		
158.	27645 <i>Candelariella xanthostigmoides</i>			
159.	2957 <i>Cassylha racemosa</i> (Dodder Laurel)			
160.	760 <i>Caustis dioica</i>			
161.	7916 <i>Centaurea melitensis</i> (Maltese Cockspur, Malta Thistle)	Y		
162.	6542 <i>Centaureum tenuiflorum</i>	Y		
163.	2889 <i>Cerastium glomeratum</i> (Mouse Ear Chickweed)	Y		
164.	24086 <i>Cercartetus concinnus</i> (Western Pygmy-possum, Mundarda)			
165.	<i>Cercophonius squama</i>			
166.	24186 <i>Chalinolobus gouldii</i> (Gould's Wattled Bat)			
167.	1280 <i>Chamaescilla corymbosa</i> (Blue Squill)			
168.	3169 <i>Cheiranthra preissiana</i>			
169.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			

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170.	47909 <i>Cheramoeca leucosterna</i> (White-backed Swallow)			
171.	271 <i>Chloris truncata</i> (Windmill Grass)			
172.	763 <i>Chorizandra enodis</i> (Black Bristlerush)			
173.	13111 <i>Chorizema aciculare</i> subsp. <i>laxum</i>			
174.	48838 <i>Citrullus amarus</i>	Y		
175.	27673 <i>Cladonia capitellata</i>			
176.	27692 <i>Cladonia rigida</i>			
177.	2929 <i>Clematis pubescens</i> (Common Clematis)			
178.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
179.	24613 <i>Colluricincla harmonica</i> subsp. <i>rufiventris</i> (Grey Shrike-thrush)			
180.	4550 <i>Comesperma calymega</i> (Blue-spike Milkwort)			
181.	4551 <i>Comesperma ciliatum</i>			
182.	14876 <i>Conospermum densiflorum</i> subsp. <i>densiflorum</i>			
183.	15611 <i>Conospermum stoechadis</i> subsp. <i>stoechadis</i> (Common Smokebush)			
184.	1418 <i>Conostylis aculeata</i> (Prickly Conostylis)			
185.	11552 <i>Conostylis aculeata</i> subsp. <i>bromelioides</i>			
186.	12035 <i>Conostylis caricina</i> subsp. <i>caricina</i>			
187.	1453 <i>Conostylis serrulata</i>			
188.	1454 <i>Conostylis setigera</i> (Bristly Cottonhead)			
189.	11597 <i>Conostylis setigera</i> subsp. <i>setigera</i>			
190.	1455 <i>Conostylis setosa</i> (White Cottonhead)			
191.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
192.	<i>Cormocephalus aurantiipes</i>			
193.	25592 <i>Corvus coronoides</i> (Australian Raven)			
194.	17104 <i>Corymbia calophylla</i> (Marri)			
195.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)			
196.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
197.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
198.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
199.	13354 <i>Craspedia variabilis</i>			
200.	3136 <i>Crassula alata</i>	Y		
201.	17701 <i>Crassula closiana</i>			
202.	24918 <i>Crenadactylus ocellatus</i> subsp. <i>ocellatus</i> (Clawless Gecko)			
203.	29054 <i>Crepis foetida</i> subsp. <i>foetida</i> (Stinking Hawksbeard)	Y		
204.	25398 <i>Crinia georgiana</i> (Quacking Frog)			
205.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
206.	25401 <i>Crinia pseudinsignifera</i> (Bleating Froglet)			
207.	13470 <i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i>			
208.	4804 <i>Cryptandra nutans</i>			
209.	30893 <i>Cryptoblepharus buchananii</i>			
210.	24883 <i>Ctenophorus ornatus</i> (Ornate Crevice-Drone)			
211.	48865 <i>Cucumis myriocarpus</i> subsp. <i>myriocarpus</i>	Y		
212.	1487 <i>Cyanella hyacinthoides</i>	Y		
213.	15114 <i>Cyanicula gemmata</i>			
214.	768 <i>Cyathochaeta avenacea</i>			
215.	815 <i>Cyperus tenellus</i> (Tiny Flatsedge)	Y		
216.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
217.	30902 <i>Dacelo novaeguineae</i> subsp. <i>novaeguineae</i> (Laughing Kookaburra)	Y		
218.	7420 <i>Dampiera alata</i> (Winged-stem Dampiera)			
219.	7451 <i>Dampiera lavandulacea</i>			
220.	7454 <i>Dampiera lineans</i> (Common Dampiera)			
221.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
222.	24606 <i>Daphoenositta chrysoptera</i> subsp. <i>pileata</i> (Varied Sittella, Black-capped Sittella)			
223.	6960 <i>Datura ferox</i> (Fierce Thornapple)	Y		
224.	3799 <i>Daviesia cordata</i> (Bookleaf)			
225.	19747 <i>Daviesia decurrens</i> subsp. <i>decurrens</i>			
226.	11879 <i>Daviesia hakeoides</i> subsp. <i>hakeoides</i>			
227.	12326 <i>Daviesia hakeoides</i> subsp. <i>subnuda</i>			
228.	3815 <i>Daviesia horrida</i> (Prickly Bitter-pea)			
229.	3819 <i>Daviesia longifolia</i>			
230.	3832 <i>Daviesia physodes</i>			
231.	3835 <i>Daviesia preissii</i>			
232.	3839 <i>Daviesia rhombifolia</i>			
233.	25766 <i>Delma fraseri</i> (Fraser's Legless Lizard)			
234.	17691 <i>Desmocladius fasciculatus</i>			
235.	1259 <i>Dianella revoluta</i> (Blueberry Lily)			
236.	11636 <i>Dianella revoluta</i> var. <i>divaricata</i>			
237.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
238.	306 <i>Dichelachne crinita</i> (Longhair Plumegrass)			
239.	1287 <i>Dichopogon capillipes</i>			

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240.	20367 <i>Dillwynia laxiflora</i>			
241.	24929 <i>Diplodactylus granariensis</i> subsp. <i>granariensis</i>			
242.	4746 <i>Diplopeltis huegelii</i>			
243.	18589 <i>Diplopeltis huegelii</i> subsp. <i>lehmannii</i>			
244.	3011 <i>Diplotaxis muralis</i> (Wall Rocket)	Y		
245.	10791 <i>Diuris carinata</i> (Bee Orchid)			
246.	11049 <i>Diuris corymbosa</i>			
247.	1635 <i>Diuris longifolia</i> (Common Donkey Orchid)			
248.	15436 <i>Diuris porrifolia</i>			
249.	11247 <i>Dodonaea viscosa</i> subsp. <i>angustissima</i>			
250.	15406 <i>Drakaea gracilis</i>			
251.	24470 <i>Dromaius novaehollandiae</i> (Emu)			
252.	3092 <i>Drosera bulbosa</i> (Red-leaved Sundew)			
253.	13204 <i>Drosera callistos</i>			
254.	48724 <i>Drosera collina</i>			
255.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
256.	3097 <i>Drosera gigantea</i> (Giant Sundew)			
257.	3098 <i>Drosera glanduligera</i> (Pimpemel Sundew)			
258.	3106 <i>Drosera macrantha</i> (Bridal Rainbow)			
259.	3109 <i>Drosera menziesii</i> (Pink Rainbow)			
260.	3131 <i>Drosera stolonifera</i> (Leafy Sundew)			
261.	<i>Egretta novaehollandiae</i>			
262.	349 <i>Ehrharta longiflora</i> (Annual Veldt Grass)	Y		
263.	<i>Elanus axillaris</i>			
264.	47937 <i>Eiseyornis melanops</i> (Black-fronted Dotterel)			
265.	1644 <i>Elythranthera emarginata</i> (Pink Enamel Orchid)			
266.	<i>Eolophus roseicapillus</i>			
267.	24652 <i>Eopsaltria georgiana</i> (White-breasted Robin)			
268.	24567 <i>Epthianura albifrons</i> (White-fronted Chat)			
269.	24258 <i>Equus caballus</i> (Horse)	Y		
270.	376 <i>Eragrostis curvula</i> (African Lovegrass)	Y		
271.	379 <i>Eragrostis elongata</i> (Clustered Lovegrass)			
272.	25109 <i>Eremiascincus richardsonii</i> (Broad-banded Sand Swimmer)			
273.	45244 <i>Ericomyrtus serpyllifolia</i>			
274.	4332 <i>Erodium botrys</i> (Long Storksbill)	Y		
275.	<i>Ethmostigmus rubripes</i>			
276.	5545 <i>Eucalyptus accedens</i> (Powderbark Wandoo)			
277.	13547 <i>Eucalyptus marginata</i> subsp. <i>marginata</i> (Jarrah)			
278.	13548 <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> (Blue-leaved Jarrah)			
279.	5739 <i>Eucalyptus patens</i> (Swan River Blackbutt, Dwuda)			
280.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
281.	12906 <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>			
282.	<i>Eucyrtops latior</i>			
283.	25621 <i>Falco berigora</i> (Brown Falcon)			
284.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
285.	25623 <i>Falco longipennis</i> (Australian Hobby)			
286.	25677 <i>Falcunculus frontatus</i> (Crested Shrike-tit)			
287.	24616 <i>Falcunculus frontatus</i> subsp. <i>leucogaster</i> (Western Shrike-tit, Crested Shrike-tit)			
288.	24041 <i>Felis catus</i> (Cat)	Y		
289.	25727 <i>Fulica atra</i> (Eurasian Coot)			
290.	8365 <i>Fumaria bastardii</i>	Y		
291.	2969 <i>Fumaria capreolata</i> (Whiteflower Fumitory)	Y		
292.	7321 <i>Galium divaricatum</i>	Y		
293.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
294.	<i>Gallus gallus</i>			
295.	20475 <i>Gastrolobium capitatum</i>			
296.	20513 <i>Gastrolobium dilatatum</i>			
297.	3905 <i>Gastrolobium hookeri</i>			
298.	19733 <i>Gastrolobium retusum</i>			
299.	3924 <i>Gastrolobium spinosum</i> (Prickly Poison)			
300.	3933 <i>Gastrolobium villosum</i> (Crinkle-leaved Poison)			
301.	42314 <i>Gavicalis virescens</i> (Singing Honeyeater)			
302.	<i>Geocrinia</i> sp.			
303.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
304.	1520 <i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)	Y		
305.	33620 <i>Glischrocaryon angustifolium</i>			
306.	47962 <i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
307.	8002 <i>Gnephosis tenuissima</i>			
308.	19216 <i>Gompholobium cyaninum</i>			
309.	3950 <i>Gompholobium knightianum</i>			

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310.	3951 <i>Gompholobium marginatum</i>			
311.	3954 <i>Gompholobium polymorphum</i>			
312.	3955 <i>Gompholobium preissii</i>			
313.	3956 <i>Gompholobium shuttleworthii</i>			
314.	3957 <i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
315.	6149 <i>Gonocarpus cordiger</i>			
316.	6161 <i>Gonocarpus pithyoides</i>			
317.	29362 <i>Goodenia coerulea</i>			
318.	12520 <i>Goodenia fasciculata</i>			
319.	12551 <i>Goodenia micrantha</i>			
320.	7538 <i>Goodenia pulchella</i>			
321.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
322.	14282 <i>Gratiola pubescens</i>			
323.	19628 <i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i>			
324.	1997 <i>Grevillea endlicheriana</i> (Spindly Grevillea)			
325.	13450 <i>Grevillea manglesii</i> subsp. <i>manglesii</i>			
326.	2066 <i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)			
327.	2080 <i>Grevillea quercifolia</i> (Oak-leaf Grevillea)			
328.	14421 <i>Grevillea synapheae</i> subsp. <i>synapheae</i>			
329.	2122 <i>Grevillea wilsonii</i> (Native Fuchsia)			
330.	1465 <i>Haemodorum discolor</i>			
331.	1468 <i>Haemodorum laxum</i>			
332.	1470 <i>Haemodorum paniculatum</i> (Mardja)			
333.	1472 <i>Haemodorum simplex</i>			
334.	2149 <i>Hakea cristata</i> (Snail Hakea)			
335.	2166 <i>Hakea incrassata</i> (Marble Hakea)			
336.	2175 <i>Hakea lissocarpa</i> (Honey Bush)			
337.	45333 <i>Hakea neospathulata</i>			
338.	2197 <i>Hakea prostrata</i> (Harsh Hakea)			
339.	2203 <i>Hakea ruscifolia</i> (Candle Hakea)			
340.	2206 <i>Hakea stenocarpa</i> (Narrow-fruited Hakea)			
341.	2215 <i>Hakea undulata</i> (Wavy-leaved Hakea)			
342.	2216 <i>Hakea varia</i> (Variable-leaved Hakea)			
343.	17485 <i>Halgania anagalloides</i>			
344.	25408 <i>Heleioporus albopunctatus</i> (Western Spotted Frog)			
345.	25409 <i>Heleioporus barycragus</i> (Hooting Frog)			
346.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
347.	25411 <i>Heleioporus inornatus</i> (Whooping Frog)			
348.	25412 <i>Heleioporus psammophilus</i> (Sand Frog)			
349.	6710 <i>Heliotropium europaeum</i> (Common Heliotrope)	Y		
350.	6839 <i>Hemiantra pungens</i> (Snakebush)			
351.	6842 <i>Hemigenia barbata</i>			
352.	6856 <i>Hemigenia incana</i> (Silky Hemigenia)			
353.	29632 <i>Hemigenia parviflora</i>			
354.	1526 <i>Hesperantha falcata</i>	Y		
355.	5109 <i>Hibbertia amplexicaulis</i>			
356.	5114 <i>Hibbertia commutata</i>			
357.	5134 <i>Hibbertia huegelii</i>			
358.	45534 <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>			
359.	5139 <i>Hibbertia lasiopus</i> (Large Hibbertia)			
360.	5172 <i>Hibbertia stellaris</i> (Orange Stars)			
361.	47965 <i>Hieraetus morphnoides</i> (Little Eagle)			
362.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
363.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
364.	<i>Holconia westralia</i>			
365.	445 <i>Holcus setiger</i> (Annual Fog)	Y		
366.	6222 <i>Homalosciadium homalocarpum</i>			
367.	3964 <i>Hovea chorizemifolia</i> (Holly-leaved Hovea)			
368.	3968 <i>Hovea trisperma</i> (Common Hovea)			
369.	12741 <i>Hyalosperma cotula</i>			
370.	16759 <i>Hyalosperma simplex</i> subsp. <i>simplex</i>			
371.	12007 <i>Hybanthus floribundus</i> subsp. <i>floribundus</i>			
372.	6226 <i>Hydrocotyle callicarpa</i> (Small Pennywort)			
373.	8086 <i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
374.	<i>Idiommatia blackwalli</i>			
375.	912 <i>Isolepis cyperoides</i>			
376.	917 <i>Isolepis marginata</i> (Coarse Club-rush)			
377.	<i>Isopeda leishmanni</i>			
378.	<i>Isopedella cana</i>			
379.	2229 <i>Isopogon dubius</i> (Pincushion Coneflower)			

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380.	19996 <i>Isopogon</i> sp. Darling Range (F. Hort 1662)			
381.	7396 <i>Isotoma hypocrateriformis</i> (Woodbridge Poison)			
382.	7399 <i>Isotoma scapigera</i> (Long-scaped Isotome)			
383.	19700 <i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>			
384.	1532 <i>Ixia maculata</i> (Yellow Ixia)	Y		
385.	14739 <i>Jacksonia epiphyllum</i>			
386.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
387.	4025 <i>Jacksonia restioides</i>			
388.	1178 <i>Juncus bufonius</i> (Toad Rush)	Y		
389.	1195 <i>Juncus subsecundus</i> (Finger Rush)			
390.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
391.	4044 <i>Kennedia prostrata</i> (Scarlet Runner)			
392.	4045 <i>Kennedia stirlingii</i> (Bushy Kennedia)			
393.	12008 <i>Kickxia elatine</i> subsp. <i>cnrita</i>	Y		
394.	1221 <i>Kingia australis</i> (Kingia, Pulongok)			
395.	11289 <i>Labichea lanceolata</i> subsp. <i>lanceolata</i>			
396.	3669 <i>Labichea punctata</i> (Lance-leaved Cassia)			
397.	18585 <i>Lagenophora huegelii</i>			
398.	24367 <i>Lalage tricolor</i> (White-winged Triller)			
399.	14083 <i>Lambertia multiflora</i> var. <i>darlingensis</i>			
400.	<i>Lampona cylindrata</i>			
401.	45082 <i>Lasiopetalum glutinosum</i> subsp. <i>latifolium</i>			
402.	<i>Latrodectus hasseltii</i>			
403.	11815 <i>Laxmannia grandiflora</i> subsp. <i>grandiflora</i>			
404.	11911 <i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
405.	11464 <i>Laxmannia sessiliflora</i> subsp. <i>australis</i>			
406.	1309 <i>Laxmannia squarrosa</i>			
407.	7568 <i>Lechenaultia biloba</i> (Blue Leschenaultia)			
408.	7572 <i>Lechenaultia expansa</i>			
409.	936 <i>Lepidosperma leptostachyum</i>			
410.	937 <i>Lepidosperma longitudinale</i> (Pithy Sword-sedge)			
411.	14642 <i>Lepidosperma obtusum</i>			
412.	944 <i>Lepidosperma scabrum</i>			
413.	<i>Lepidosperma</i> sp.			
414.	945 <i>Lepidosperma squamatum</i>			
415.	1078 <i>Leptocarpus coangustatus</i>			
416.	46375 <i>Leptocarpus decipiens</i>			
417.	19833 <i>Leptocarpus laxus</i>			
418.	15418 <i>Leptoceras menziesii</i>			
419.	2342 <i>Leptomeria cunninghamii</i>			
420.	5847 <i>Leptospermum erubescens</i> (Roadside Teatree)			
421.	6367 <i>Leucopogon capitellatus</i>			
422.	6416 <i>Leucopogon nutans</i> (Drooping Leucopogon)			
423.	6436 <i>Leucopogon propinquus</i>			
424.	6439 <i>Leucopogon pulchellus</i> (Beard-heath)			
425.	6444 <i>Leucopogon sprengelioides</i>			
426.	7676 <i>Levenhookia pusilla</i> (Midget Stylewort)			
427.	7677 <i>Levenhookia stipitata</i> (Common Stylewort)			
428.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
429.	24582 <i>Lichmera indistincta</i> subsp. <i>indistincta</i> (Brown Honeyeater)			
430.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
431.	<i>Ljunghia pulleinei</i> subsp. <i>aname</i>			
432.	9289 <i>Lobelia anceps</i> (Angled Lobelia)			
433.	1223 <i>Lomandra caespitosa</i> (Tufted Mat Rush)			
434.	1228 <i>Lomandra hermaphrodita</i>			
435.	14542 <i>Lomandra micrantha</i> subsp. <i>micrantha</i>			
436.	1236 <i>Lomandra odora</i> (Tiered Matrush)			
437.	<i>Lomandra</i> sp.			
438.	1245 <i>Lomandra spartea</i>			
439.	1198 <i>Luzula meridionalis</i> (Field Woodrush)			
440.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
441.	18119 <i>Macrozamia fraseri</i>			
442.	85 <i>Macrozamia riedlei</i> (Zamia, Djiridji)			
443.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
444.	24583 <i>Manorina flavigula</i> (Yellow-throated Miner)			
445.	19421 <i>Marianthus bicolor</i> (Painted Marianthus)			
446.	17637 <i>Marianthus candidus</i> (White Marianthus)			
447.	17636 <i>Marianthus coeruleopunctatus</i> (Blue-spotted Marianthus)			
448.	<i>Masasteron maini</i>			
449.	5876 <i>Melaleuca aspalathoides</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
450.	5926 <i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
451.	5959 <i>Melaleuca raphiophylla</i> (Swamp Paperbark)			
452.	5980 <i>Melaleuca thymoides</i>			
453.	13280 <i>Melaleuca viminea</i> subsp. <i>viminea</i>			
454.	47997 <i>Melanodryas cucullata</i> (Hooded Robin)			
455.	4085 <i>Melilotus indicus</i>	Y		
456.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
457.	24587 <i>Melithreptus chloropsis</i> (Western White-naped Honeyeater)			
458.	24736 <i>Melopsittacus undulatus</i> (Budgerigar)			
459.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
460.	957 <i>Mesomelaena tetragona</i> (Semaphore Sedge)			
461.	25693 <i>Microeca fascians</i> (Jacky Winter)			
462.	8106 <i>Millotia tenuifolia</i> (Soft Millotia)			
463.	14344 <i>Millotia tenuifolia</i> var. <i>tenuifolia</i> (Soft Millotia)			
464.	25542 <i>Milvus migrans</i> (Black Kite)			
465.	<i>Missulena granulosa</i>			
466.	<i>Missulena hoggi</i>			
467.	<i>Missulena occatoria</i>			
468.	37440 <i>Monopsis debilis</i> var. <i>depressa</i>	Y		
469.	25240 <i>Morelia spilota</i> subsp. <i>imbricata</i> (Carpet Python)			
470.	25192 <i>Morethia obscura</i>			
471.	25610 <i>Myiagra inquieta</i> (Restless Flycatcher)			
472.	6199 <i>Myriophyllum tillaeoides</i>			
473.	11019 <i>Narcissus papyraceus</i>	Y		
474.	44496 <i>Narcissus tazetta</i> subsp. <i>italicus</i>	Y		
475.	25248 <i>Neelaps bimaculatus</i> (Black-naped Snake)			
476.	25426 <i>Neobatrachus pelobatooides</i> (Humming Frog)			
477.	24738 <i>Neophema elegans</i> (Elegant Parrot)			
478.	492 <i>Neurachne alopecuroidea</i> (Foxtail Mulga Grass)			
479.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
480.	2365 <i>Olax benthamiana</i>			
481.	8127 <i>Olearia axillaris</i> (Coastal Daisybush)			
482.	8143 <i>Olearia paucidentata</i> (Autumn Scrub Daisy)			
483.	<i>Ommatolulus moreleti</i>			
484.	7346 <i>Opercularia echinocephala</i> (Bristly Headed Stink Weed)			
485.	18255 <i>Opercularia vaginata</i> (Dog Weed)			
486.	36177 <i>Ornduffia albiflora</i>			
487.	11442 <i>Orthrosanthus laxus</i> var. <i>gramineus</i> (Grass-leaved Orthrosanthus)			
488.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	Y		
489.	4358 <i>Oxalis purpurea</i> (Largeflower Wood Sorrel)	Y		
490.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
491.	2965 <i>Papaver rhoeas</i> (Field Poppy)	Y		
492.	25253 <i>Parasuta gouldii</i>			
493.	25255 <i>Parasuta nigriceps</i>			
494.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
495.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
496.	1542 <i>Patersonia babianoides</i>			
497.	1546 <i>Patersonia juncea</i> (Rush Leaved Patersonia)			
498.	1552 <i>Patersonia rudis</i> (Hairy Flag)			
499.	14433 <i>Patersonia rudis</i> subsp. <i>rudis</i>			
500.	6245 <i>Pentapeltis peltigera</i>			
501.	11052 <i>Persicaria prostrata</i>			
502.	2255 <i>Persoonia angustiflora</i>			
503.	2262 <i>Persoonia elliptica</i> (Spreading Snottygobble)			
504.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
505.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
506.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
507.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
508.	2309 <i>Petrophile serruriae</i>			
509.	2312 <i>Petrophile striata</i>			
510.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
511.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
512.	20460 <i>Pheladenia deformis</i>			
513.	18529 <i>Philothea spicata</i> (Pepper and Salt)			
514.	1172 <i>Philydrella drummondii</i>			
515.	1173 <i>Philydrella pygmaea</i> (Butterfly Flowers)			
516.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
517.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
518.	16825 <i>Phyllangium divergens</i>			
519.	16177 <i>Phyllangium paradoxum</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
520.	4675 <i>Phyllanthus calycinus</i> (False Boronia)			
521.	<i>Phytophthora cinnamomi</i>			
522.	2408 <i>Ptilostyles hamiltonii</i>			
523.	5231 <i>Pimelea angustifolia</i> (Narrow-leaved Pimelea)			
524.	5232 <i>Pimelea argentea</i> (Silvery Leaved Pimelea)			
525.	11928 <i>Pimelea ciliata</i> subsp. <i>ciliata</i>			
526.	11402 <i>Pimelea imbricata</i> var. <i>piliigera</i>			
527.	5259 <i>Pimelea preissii</i>			
528.	12041 <i>Pimelea suaveolens</i> subsp. <i>suaveolens</i>			
529.	18353 <i>Pithocarpa pulchella</i> var. <i>pulchella</i>			
530.	25720 <i>Platycercus icterotis</i> (Western Rosella)			
531.	24747 <i>Platycercus spurius</i> (Red-capped Parrot)			
532.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
533.	24751 <i>Platycercus zonarius</i> subsp. <i>zonarius</i> (Port Lincoln Parrot)			
534.	6260 <i>Platysace teres</i>			
535.	573 <i>Poa drummondiana</i> (Knotted Poa)			
536.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
537.	45237 <i>Podolepis aristata</i> subsp. <i>aristata</i>			
538.	8175 <i>Podolepis gracilis</i> (Slender Podolepis)			
539.	8179 <i>Podolepis nutans</i> (Nodding Podolepis)			
540.	<i>Podykipus leptoiuloides</i>			
541.	8188 <i>Pogonolepis stricta</i>			
542.	24681 <i>Poliiocephalus poliocephalus</i> (Hoary-headed Grebe)			
543.	<i>Poltys laciniosus</i>			
544.	2905 <i>Polycarpon tetraphyllum</i> (Fourleaf Allseed)	Y		
545.	24683 <i>Pomastotomus superciliosus</i> (White-browed Babbler)			
546.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
547.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
548.	111 <i>Potamogeton ochreatus</i> (Blunt Pondweed)			
549.	1671 <i>Prasophyllum elatum</i> (Tall Leek Orchid)			
550.	16688 <i>Prasophyllum gracile</i>			
551.	1676 <i>Prasophyllum hians</i> (Yawning Leek Orchid)			
552.	<i>Proshermacha subarmata</i>			Y
553.	25511 <i>Pseudonaja affinis</i> (Dugite)			
554.	25259 <i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)			
555.	42416 <i>Pseudonaja mengdeni</i> (Western Brown Snake)			
556.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
557.	13255 <i>Pterochaeta paniculata</i>			
558.	1693 <i>Pterostylis recurva</i> (Jug Orchid)			
559.	12217 <i>Pterostylis sanguinea</i>			
560.	2716 <i>Ptilotus declinatus</i> (Curved Mulla Mulla)			
561.	2718 <i>Ptilotus drummondii</i> (Narrowleaf Mulla Mulla)			
562.	11260 <i>Ptilotus drummondii</i> var. <i>drummondii</i> (Pussytail)			
563.	2742 <i>Ptilotus manglesii</i> (Pom Poms, Mulamula)			
564.	32417 <i>Ptychostomum angustifolium</i>			
565.	<i>Puccinia dampierae</i>			
566.	<i>Purpureicephalus spurius</i>			
567.	16367 <i>Pyrorchis nigricans</i> (Red beaks, Elephants ears)			
568.	24245 <i>Rattus rattus</i> (Black Rat)	Y		
569.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
570.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
571.	13300 <i>Rhodanthe citrina</i>			
572.	15035 <i>Rhodanthe corymbosa</i>			
573.	19942 <i>Ricinocarpus undulatus</i>			
574.	1556 <i>Romulea rosea</i> (Guildford Grass)	Y		
575.	40425 <i>Rytidosperma caespitosum</i>			
576.	40426 <i>Rytidosperma occidentale</i>			
577.	6929 <i>Salvia verbenaca</i> (Wild Sage)	Y		
578.	7368 <i>Scabiosa atropurpurea</i> (Purple Pincushion)	Y		
579.	7602 <i>Scaevola calliptera</i>			
580.	7613 <i>Scaevola glandulifera</i> (Viscid Hand-flower)			
581.	7619 <i>Scaevola lanceolata</i> (Long-leaved Scaevola)			
582.	7635 <i>Scaevola pilosa</i> (Hairy Fan-flower)			
583.	7636 <i>Scaevola platyphylla</i> (Broad-leaved Fanflower)			
584.	13182 <i>Scaevola repens</i> var. <i>repens</i>			
585.	<i>Schizophyllum commune</i>			
586.	975 <i>Schoenus bifidus</i>			
587.	984 <i>Schoenus curvifolius</i>			
588.	1002 <i>Schoenus nanus</i> (Tiny Bog Rush)			
589.	1018 <i>Schoenus subfascicularis</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
590.	17409 <i>Schoenus variicellae</i>			
591.	<i>Scolopendra morsitans</i>			
592.	6 <i>Selaginella gracillima</i> (Tiny Clubmoss)			
593.	20663 <i>Senecio multicaulis</i> subsp. <i>multicaulis</i>			
594.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
595.	8224 <i>Siloxerus filifolius</i>			
596.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
597.	14583 <i>Siloxerus multiflorus</i>			
598.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
599.	30948 <i>Smicromis brevirostris</i> (Weebill)			
600.	24109 <i>Sminthopsis dolichura</i> (Little long-tailed Dunnart)			
601.	24111 <i>Sminthopsis gilberti</i> (Gilbert's Dunnart)			
602.	7013 <i>Solanum hoplopetalum</i> (Thorny Solanum)			
603.	35236 <i>Sorghum x drummondii</i> (Sudan Grass)	Y		
604.	2912 <i>Spergula arvensis</i> (Corn Spurry)	Y		
605.	4207 <i>Sphaerolobium medium</i>			
606.	4211 <i>Sphaerolobium vimineum</i> (Leafless Globe Pea)			
607.	<i>Sphaerotrachelos ramosus</i>			
608.	6930 <i>Stachys arvensis</i> (Staggerweed)	Y		
609.	9070 <i>Stackhousia pubescens</i> (Downy Stackhousia)			
610.	13473 <i>Stenanthemum coronatum</i>			
611.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
612.	7684 <i>Stylidium amoenum</i> (Lovely Triggerplant)			
613.	30278 <i>Stylidium androsaceum</i>			
614.	7702 <i>Stylidium ciliatum</i> (Golden Triggerplant)			
615.	7708 <i>Stylidium crassifolium</i> (Thick-leaved Triggerplant)			
616.	7713 <i>Stylidium dichotomum</i> (Pins-and-needles)			
617.	7716 <i>Stylidium diuroides</i> (Donkey Triggerplant)			
618.	19251 <i>Stylidium eriopodum</i>			
619.	7736 <i>Stylidium hispidum</i> (White Butterfly Triggerplant)			
620.	7742 <i>Stylidium inundatum</i> (Hundreds and Thousands)			
621.	7749 <i>Stylidium leptophyllum</i> (Needle-leaved Triggerplant)			
622.	7773 <i>Stylidium petiolare</i> (Horn Triggerplant)			
623.	7774 <i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
624.	7781 <i>Stylidium pubigerum</i> (Yellow Butterfly Triggerplant)			
625.	7783 <i>Stylidium pycnostachyum</i> (Downy Triggerplant)			
626.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
627.	7787 <i>Stylidium rynchocarpum</i> (Black-beaked Triggerplant)			
628.	7790 <i>Stylidium roseoalatum</i> (Pink-wing Triggerplant)			
629.	25806 <i>Stylidium scariosum</i>			
630.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
631.	<i>Stylidium</i> sp.			
632.	25845 <i>Stylidium tenue</i>			
633.	45594 <i>Stylidium tenue</i> subsp. <i>majusculum</i> (Showy Fountain Triggerplant)			
634.	45593 <i>Stylidium tenue</i> subsp. <i>tenue</i> (Little Fountain Triggerplant)			
635.	23511 <i>Stylidium thesioides</i> (Delicate Triggerplant)			
636.	7806 <i>Stylidium utricularioides</i> (Pink Fan Triggerplant)			
637.	<i>Stylopauropoides lapicidarius</i>			Y
638.	6476 <i>Styphelia tenuiflora</i> (Common Pinheath)			
639.	<i>Supunna picta</i>			
640.	12914 <i>Synaphea decorticans</i>			
641.	2323 <i>Synaphea gracillima</i>			
642.	25705 <i>Iachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
643.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
644.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
645.	4251 <i>Templetonia drummondii</i>			
646.	46437 <i>Tetrapora preissiana</i>			
647.	1036 <i>Tetralia octandra</i>			
648.	4528 <i>Tetralia confertifolia</i>			
649.	4535 <i>Tetralia hirsuta</i> (Black Eyed Susan)			
650.	48342 <i>Tetralia hirsuta</i> subsp. <i>hirsuta</i>			
651.	48341 <i>Tetralia hirsuta</i> subsp. <i>viminea</i>			
652.	4537 <i>Tetralia nuda</i>			
653.	11143 <i>Thelymitra graminea</i>			
654.	673 <i>Themeda triandra</i>			
655.	5080 <i>Thomasia foliosa</i>			
656.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
657.	1339 <i>Thysanotus multiflorus</i> (Many-flowered Fringe Lily)			
658.	1343 <i>Thysanotus patersonii</i>			
659.	1351 <i>Thysanotus spartea</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
660.	1357 <i>Thysanotus thyrsoides</i>			
661.	1358 <i>Thysanotus triandrus</i>			
662.	25519 <i>Tiliqua rugosa</i>			
663.	25207 <i>Tiliqua rugosa subsp. rugosa</i>			
664.	<i>Tinytrema yarra</i>			
665.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
666.	6268 <i>Trachymene cyanopetala</i>			
667.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
668.	1483 <i>Tribonanthes longipetala</i> (Branching Tiurndin)			
669.	39094 <i>Trichia affinis</i>			
670.	8251 <i>Trichocline spathulata</i> (Native Gerbera)			
671.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
672.	1361 <i>Tricoryne elatior</i> (Yellow Autumn Lily)			
673.	1362 <i>Tricoryne humilis</i>			
674.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
675.	1139 <i>Trithuria bibracteata</i>			
676.	4839 <i>Trymalium angustifolium</i>			
677.	13479 <i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>			
678.	33418 <i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>			
679.	48147 <i>Turnix varius</i> (Painted Button-quail)			
680.	24851 <i>Turnix velox</i> (Little Button-quail)			
681.	99 <i>Typha orientalis</i> (Bulrush, Cumbungi)			
682.	24983 <i>Underwoodisaurus millii</i> (Barking Gecko)			
683.	<i>Urodacus novaehollandiae</i>			
684.	38388 <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Y		
685.	7148 <i>Utricularia multifida</i>			
686.	7158 <i>Utricularia volubilis</i> (Twining Bladderwort)			
687.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
688.	7665 <i>Velleia trinervis</i>			
689.	8257 <i>Vellereophyton dealbatum</i> (White Cudweed)	Y		
690.	6082 <i>Verticordia grandiflora</i> (Claw Featherflower)			
691.	15433 <i>Verticordia huegelii</i> var. <i>huegelii</i>			
692.	15434 <i>Verticordia insignis</i> subsp. <i>insignis</i>			
693.	6107 <i>Verticordia pennigera</i>			
694.	6109 <i>Verticordia picta</i> (Painted Featherflower)			
695.	15618 <i>Verticordia plumosa</i> var. <i>plumosa</i>			
696.	24206 <i>Vespadelus regulus</i> (Southern Forest Bat)			
697.	4325 <i>Viminaria juncea</i> (Swishbush, Koweda)			
698.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
699.	7386 <i>Wahlenbergia gracilentia</i> (Annual Bluebell)			
700.	8281 <i>Waitzia podolepis</i>			
701.	12072 <i>Wurmbea dioica</i> subsp. <i>alba</i>			
702.	1253 <i>Xanthorrhoea gracilis</i> (Graceful Grass Tree, Mimidi)			
703.	1256 <i>Xanthorrhoea preissii</i> (Grass tree, Palga)			
704.	6283 <i>Xanthosia atkinsoniana</i>			
705.	6284 <i>Xanthosia candida</i>			
706.	6285 <i>Xanthosia ciliata</i>			
707.	6289 <i>Xanthosia huegelii</i>			
708.	6293 <i>Xanthosia singuliflora</i>			
709.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereve)			

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

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

APPENDIX 2

Protected Matters Search Tool Report



EPBC Act Protected Matters Report

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

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

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

Report created: 12/09/19 13:21:30

[Summary](#)

[Details](#)

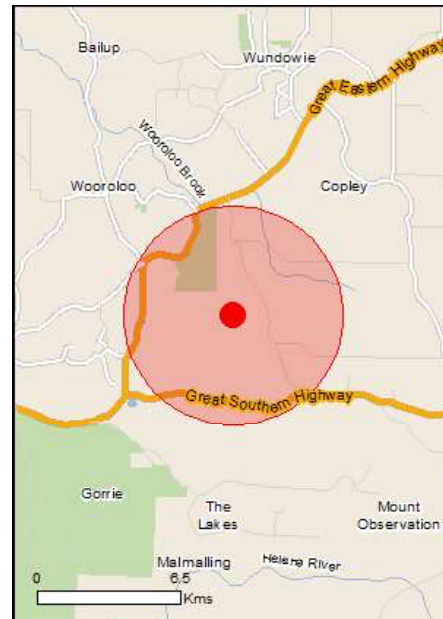
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

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Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	18
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	14
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	2
Regional Forest Agreements:	1
Invasive Species:	28
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Calyptorhynchus baudinii Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Roosting known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Mammals		
Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat may occur within area
Dasyurus geoffroi Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Phascogale calura Red-tailed Phascogale, Red-tailed Wambenger, Kenngoor [316]	Vulnerable	Species or species habitat likely to occur within area
Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat may occur within area
Other		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat may occur within area
Plants		

Name	Status	Type of Presence
Anthocercis gracilis Slender Tailflower [11103]	Vulnerable	Species or species habitat may occur within area
Diplolaena andrewsii [6601]	Endangered	Species or species habitat may occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat may occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
Thelymitra dedmaniarum Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area
Thelymitra stellata Star Sun-orchid [7060]	Endangered	Species or species habitat likely to occur within area

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

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

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

Name	State
Beechina	WA
Keaginine	WA

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

Note that all areas with completed RFAs have been included.

Name	State
South West WA RFA	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
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area

Mammals

Name	Status	Type of Presence
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within

Name	Status	Type of Presence
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		area 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

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-31.84761 116.36472

Acknowledgements

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

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

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

Please feel free to provide feedback via the [Contact Us](#) page.

APPENDIX 3
Conservation Codes

Conservation Codes for Western Australian Flora and Fauna

Specially protected fauna or flora are species* which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such.

Categories of specially protected fauna and flora are:

T Threatened species – Schedules 1-4

Published as Specially Protected under the *Wildlife Conservation Act 1950*, and listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

- **Threatened fauna** is that subset of ‘Specially Protected Fauna’ declared to be ‘likely to become extinct’ pursuant to section 14(4) of the Wildlife Conservation Act.
- **Threatened flora** is flora that has been declared to be ‘likely to become extinct or is rare, or otherwise in need of special protection’, pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species – Schedule 1

Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EN Endangered species – Schedule 2

Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

VU Vulnerable species - Schedule 3

Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EX Presumed extinct species - Schedule 4

Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.

IA Migratory birds protected under an international agreement - Schedule 5

Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.

CD Conservation dependent fauna - Schedule 6

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.

OS Other specially protected fauna - Schedule 7

Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950*, in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P Priority species

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation 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 species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1 Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

2 Priority 2: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

3 Priority 3: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

4 Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) Rare: Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened: Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

*Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

A list of the current rankings can be downloaded from the Parks and Wildlife Threatened Species and Communities webpage at <http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities>

Commonwealth of Australia Conservation Codes

Threatened fauna and flora may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in any one of the following six categories:

Extinct

A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.

Extinct in the wild

A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time:

- a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
- b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

Critically endangered

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered

A taxon is Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable

A taxon is Vulnerable when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a high risk of extinction in the wild.

Conservation dependent

A native species is eligible to be included in the conservation dependent category at a particular time if, at that time:

- a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
- b) the following subparagraphs are satisfied:
 - i. the species is a species of fish;

- ii. the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
- iii. the plan of management is in force under a law of the Commonwealth or of a State or Territory;
- iv. cessation of the plan of management would adversely affect the conservation status of the species.

The EPBC Act does not provide for listing in a data deficient category. Where sufficient data (evidence) is unavailable to allow assessment by the Threatened Species Scientific Committee against the criteria for listing, the species are found to be ineligible. A recommendation is made to the Minister to not include the species in any category under the EPBC Act. For reasons of transparency and to inform future research, the Threatened Species Scientific Committee publishes the names of those species found to be data deficient. As data deficient is not a listing category under the EPBC Act, this has no statutory implications and the species is not considered to be listed under the EPBC Act.

APPENDIX 4
Significant Tree Data

Lot 13 Horton Road, The Lakes Potential Black Cockatoo Breeding Tree Data

Tree Number	Species	Easting MGA zn50	Northing MGA zn50	Height (m)	Diameter (mm)				Notes (hollows, bees etc.)
					DBH1	DBH2	DBH3	DBH4	
1	Miari (Corymbia calophylla)	439741	6476099	11	1140				Burnt in May 2019, healthy, no hollows or spouts
2	Jarra (Eucalyptus marginata)	439258	6476123	10	860				Burnt in May 2019, healthy, no hollows or spouts
3	Miari (Corymbia calophylla)	439764	6476130	10	570				Burnt in May 2019, healthy, no hollows or spouts
4	Miari (Corymbia calophylla)	439750	6476161	10	700	220			Burnt in May 2019, healthy, no hollows or spouts, crows(?) nest
5	Miari (Corymbia calophylla)	439750	6476182	11	1050				Burnt in May 2019, healthy, no hollows or spouts
6	Miari (Corymbia calophylla)	439710	6476178	9	660				Burnt in May 2019, healthy, no hollows or spouts
7	Miari (Corymbia calophylla)	439748	6476197	9	1100				Burnt in May 2019, healthy, no hollows or spouts
8	Jarra (Eucalyptus marginata)	439828	6476192	8	720				Healthy, no hollows or spouts
9	Miari (Corymbia calophylla)	439857	6476209	8	1010				Burnt in May 2019, very unhealthy, lots of dead branches, no hollows or spouts
10	Miari (Corymbia calophylla)	439847	6476152	9	590				Burnt in May 2019, healthy, no hollows or spouts
11	Miari (Corymbia calophylla)	439851	6476136	9	940				Burnt in May 2019, healthy, no hollows or spouts
12	Miari (Corymbia calophylla)	439815	6476130	10	630				Burnt in May 2019, healthy, no hollows or spouts
13	Miari (Corymbia calophylla)	439819	6476092	9	1110				Burnt in May 2019, healthy, no hollows or spouts
14	Miari (Corymbia calophylla)	439832	6476080	8	770	470	230		Burnt in May 2019, very unhealthy, lots of dead branches, no hollows or spouts
15	Miari (Corymbia calophylla)	439917	6476149	8	990	870	780		Burnt in May 2019, healthy, no hollows or spouts
16	Miari (Corymbia calophylla)	439976	6476113	9	510	500	310	270	Burnt in May 2019, unhealthy, lots dead branches, no hollows or spouts
17	Miari (Corymbia calophylla)	439972	6476245	10	760				Burnt in May 2019, healthy, no hollows or spouts
18	Jarra (Eucalyptus marginata)	439942	6476261	10	1140				Healthy, no hollows or spouts
19	Miari (Corymbia calophylla)	439994	6476280	10	710				Burnt in May 2019, healthy, no hollows or spouts, foraging evidence
20	Miari (Corymbia calophylla)	440023	6476181	7	560				Burnt in May 2019, unhealthy, no hollows or spouts
21	Miari (Corymbia calophylla)	440036	6476158	9	570				Burnt in May 2019, fairly healthy, some dead branches, no hollows or spouts
22	Miari (Corymbia calophylla)	440104	6476236	10	780				Burnt in May 2019, fairly healthy, some dead branches, leaning, no hollows or spouts
23	Miari (Corymbia calophylla)	440116	6476177	10	530				Burnt in May 2019, unhealthy, no hollows or spouts
24	Miari (Corymbia calophylla)	440064	6476292	11	590				Burnt in May 2019, healthy, no hollows or spouts
25	Miari (Corymbia calophylla)	440003	6476315	10	640				Burnt in May 2019, healthy, no hollows or spouts, some foraging evidence FRBC
26	Miari (Corymbia calophylla)	440002	6476316	10	610				Burnt in May 2019, healthy, no hollows or spouts
27	Miari (Corymbia calophylla)	439835	6476302	10	720				Burnt in May 2019, healthy, no hollows or spouts
28	Miari (Corymbia calophylla)	439848	6476354	9	1060	990	320		Burnt in May 2019 - lower half only, healthy, no hollows or spouts, foraging evidence
29	White Gum (Eucalyptus wandoo)	439871	6476369	7	470	350			Healthy, no hollows or spouts
30	White Gum (Eucalyptus wandoo)	439862	6476377	7	440	260			Burnt in May 2019 - lower half only, healthy, no hollows or spouts
31	Miari (Corymbia calophylla)	439869	6476388	12	930				Burnt in May 2019 - lower half only, healthy, no hollows or spouts, foraging evidence
32	Jarra (Eucalyptus marginata)	439759	6476407	7	540	460			Healthy, no hollows or spouts

Lot 13 Horton Road, The Lakes

Tree 1



Tree 2



Tree 3



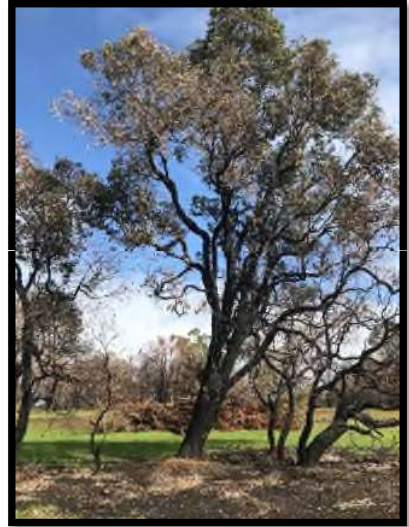
Tree 4



Tree 5



Tree 6



Tree 7



Tree 8



Tree 9



Lot 13 Horton Road, The Lakes

Tree 10



Tree 11



Tree 12



Tree 13



Tree 14



Tree 15



Tree 16



Tree 17



Tree 18

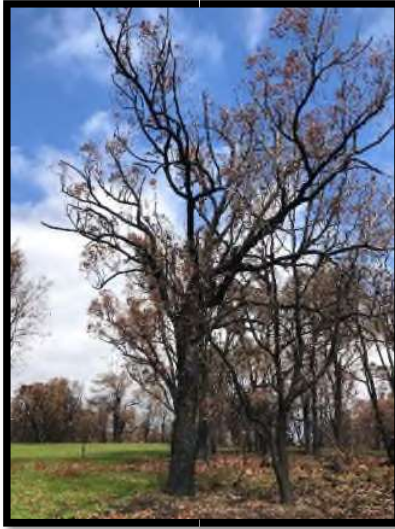


Lot 13 Horton Road, The Lakes

Tree 19



Tree 20



Tree 21



Tree 22



Tree 23



Tree 24



Tree 25



Tree 26



Tree 27



Lot 13 Horton Road, The Lakes

Tree 28



Tree 29



Tree 30



Tree 31



Tree 32



Tree 33

