Shire of Dardanup

Detailed Flora and Basic Fauna Survey
SLK 4.54 – 16.94 Pile Road, Ferguson

05 November 2020

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Executive Summary

Natural Area Consulting Management Services (Natural Area) was contracted by the Shire of Dardanup to undertake a detailed flora and vegetation survey and a basic fauna survey between SLK 4.54 and 16.94 Pile Road in Ferguson. Outcomes of the survey activities will support a clearing permit application associated with proposed widening of the road.

Survey outcomes confirmed:

- a total of 115 flora species present from 36 families
- a total of 99 native flora species and 16 non-native species (weeds)
- no conservation significant flora species were recorded
- one vegetation type occurred within the forested area of the survey site, namely a Jarrah-Marri Woodland; the remainder of the site was largely cleared
- vegetation condition across the site ranged from Degraded to Excellent, with the area in Excellent condition coinciding with the Wellington Forest
- no threatened or priority listed ecological communities were present
- opportunistic sighting of 14 birds, one mammal, one amphibian, and one reptile
- fauna evidence included two conservation significant species, namely the Carnaby's Cockatoo (*Calyptorhynchus latirostris*) and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*), with no evidence of any other conservation significant species recorded
- five trees within the survey area contained hollows of a size that could be used by endangered black cockatoos, with no evidence of use by these species apparent; note that some trees with hollows are also habitat trees
- evidence of feeding by black cockatoos was apparent at five locations along the 12.4 km survey site
- 47 trees were assessed as being habitat trees, of which four will be lost from the northern section of the proposed clearing area, 13 from the southern, and 30 are located within the broader road reserve but outside of the proposed clearing area.

Given the size of the area to be cleared, an offset site to compensate for the loss of black cockatoo habitat is likely. A dual approvals process may be required to enable consideration of the loss of habitat from a Department of Agriculture, Water and the Environment (Cwlth) perspective as well as a Department of Water and Environmental Protection (WA) perspective.

Contents

1.0 Introduction

Natural Area Consulting Management Services (Natural Area) was commissioned by the Shire of Dardanup to undertake a detailed flora and vegetation survey and a basic fauna assessment of the road reserve between SLK 4.54 and 16.94 Pile Road in Ferguson. Outcomes of the survey process provide a summary of the flora, vegetation and fauna values present within the proposed road widening area that will inform a clearing permit application under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

1.1 Location

Pile Road is situated in the locality of Ferguson within the Shire of Dardanup, approximately 8.5 km east of Dardanup. It extends approximately 17 km from Ferguson Road in the west to where it intersects King Tree and Mungalup Roads in the east. The 12.4 km survey area commences approximately 400 m east of the Pile Road – Henty Brook Road intersection and extends length of the road. The first kilometre of the road traverses farming areas, with remainder of the site passing through Wellington Forest (Figure 1).

1.2 Scope

Activities undertaken by Natural Area included:

- desktop database searches to identify potential conservation significant flora and fauna species, along with any ecological communities occurring within the proposed clearing area
- a detailed flora and vegetation assessment to determine vegetation type and condition, flora species present, including the presence of threatened and priority species
- a basic fauna survey to record opportunistic sightings of species and/or evidence of their presence including scats, tracks, calls, and diggings
- reporting outcomes of the assessment activities.

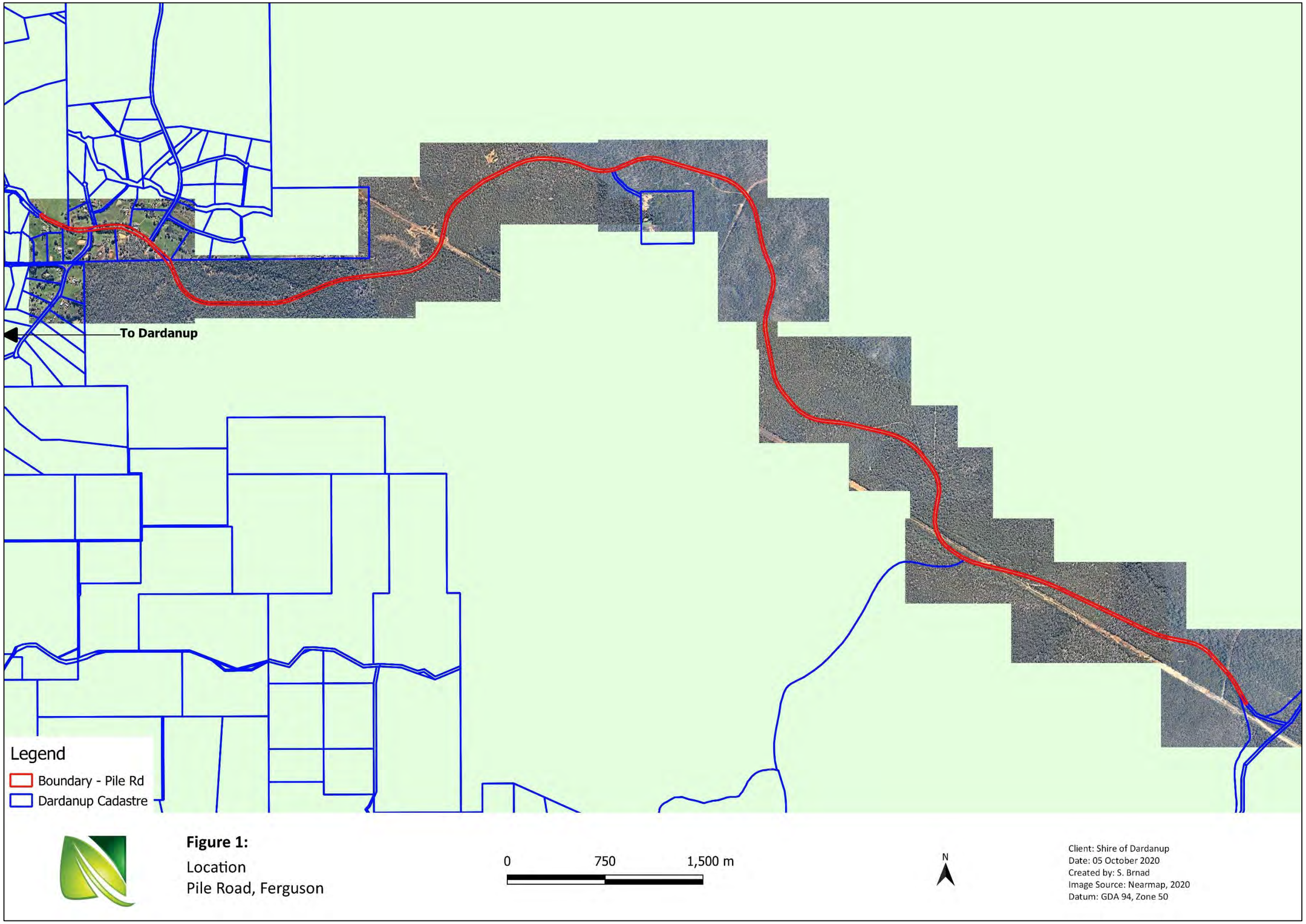

Figure 1:
Location
Pile Road, Ferguson

2.0 Site Characteristics

The characteristics of a site have a strong bearing on the flora, vegetation, fauna, and ecological communities present. Key characteristics of Pile Road are outlined in this section.

2.1 Regional Context

Pile Road is in the Jarrah Forest 2 (JF2 - Southern Jarrah Forest Sub Region) of Western Australia. According to Hearn, Williams, Comer, and Beecham (2002), it is characterised as having:

- a Jarrah-Marri forest on laterite gravels associated with a duricrusted plateau of the Yilgarn Craton
- Wandoo – Marri woodlands occur on clayey soils in the east
- Agonis shrublands present on eluvial and alluvial sands
- patches of Jarrah forest with species-rich shrublands.

2.2 Climate

The climate experienced in the area is Mediterranean, with dry, hot summers and cool, wet winters. According to the Bureau of Meteorology (Bunbury, Station ID 009965, 2020):

- average rainfall is 718.4 mm per annum, with the majority falling between May and September
- average maximum temperatures range from 17.3 ^{o}C in winter to 30.0 ^{o}C in summer, with the highest recorded maximum being 40.8 ^{o}C
- average minimum temperatures range from 7.1 ^{o}C in winter to 15.9 ^{o}C in summer, with the lowest recorded minimum being -3.0 ^{o}C
- winds commonly range from 12 km/h – 22.6 km/h, with higher wind speeds known during storm events
- wind direction is generally from the east and south east in the morning and westerly in the afternoon during summer.

2.3 Topography and soils

Topography across Pile Road is varied due to its construction in a hilly area, with heights ranging from 200 – 210 m AHD in pastoral areas to the west, rising to a maximum of 334 m AHD in Wellington Forest around 12 km from the Ferguson Road intersection before decreasing again to around 240 m AHD in the vicinity of the intersection of Pile, King Tree and Mungalup Roads.

According to the Best Available Soils Dataset obtained from DataWA (DPIRD, 2020), there are five soil types present within the assessment area; these are summarised in Table 1 and shown in Figure 2.

Table 1: Soil types

Symbol	Name	Description
255LvGR	Grimwade Subsystem	Moderately deep valleys (30-70 m) in granite. Soils are loamy earths and loamy gravels.
255DpHRi	Hester ironstone gravel ridges Phase	Soil parent material is laterite. Soils are gravels with some sands and loams.

Symbol	Name	Description
255DpMH	Mornington Hill Subsystem	Low hills on laterite overlying granite, relief 40-80 m, slope5-20%. Soils are sandy and loamy gravels with some deep sands and loamy earths.
255DpYGd	Yarragil downstream valleys Phase	Shallow, narrow valleys. Relief 20-40 m, slopes 3-10%. Valley floor is narrower than upstream phase. Soil parent materials are laterite, granite, and gneiss. Soils are loamy gravels, loamy earths, and deep sandy gravels.
255DpYGu	Yarragil upstream valleys Phase	Relief 5-20 m, slopes 3-10%. Valley floor is broader than downstream phase. Soil parent material is mainly laterite. Soils are gravels and sands.

Source: Department of Primary Industries and Regional Development, 2020

2.4 Vegetation Complex

Three vegetation complexes as described by Heddle, Loneragan, and Havel (1980) and updated by the then Department of Parks and Wildlife (2016) (WALGA, 2020) occur within the assessment area (Table 2, Figure 3).

Table 2: Vegetation Complexes

Name	Description
Darling Scarp	Mosaic of open forest of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla*, with some admixtures with *Eucalyptus laeliae* in the north (subhumid zone), with occasional *Eucalyptus marginata* subsp. *elegantella* (mainly in subhumid zone) and *Corymbia haematoxylon* in the south (humid zone) on deeper soils adjacent to outcrops, woodland of *Eucalyptus wandoo* (subhumid and semiarid zones), low woodland of *Allocasuarina huegeliana* on shallow soils over granite outcrops, closed heath of Myrtaceae-Proteaceae species and lithic complex on or near granite outcrops in all climate zones.
Hester	Tall open forest to open forest of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla* on lateritic uplands in perhumid and humid zones.
Yarragil 1 Complex	Open forest of *Eucalyptus marginata* subsp. *marginata-Corymbia calophylla* on slopes with mixtures of *Eucalyptus patens* and *Eucalyptus megacarpa* on the valley floors in humid and subhumid zones.

Source: WALGA, 2020

2.5 Hydrology

No wetlands as defined by the Geomorphic Wetlands of the Swan Coastal Plain Dataset available via DataWA are recorded within the Pile Road survey site.

2.6 Cockatoo Habitat

According to the WALGA *LG Map* (2020), the Wellington Forest area that includes Pile Road is a potential Carnaby's Cockatoo (*Calyptorhynchus latirostris*) feeding area.

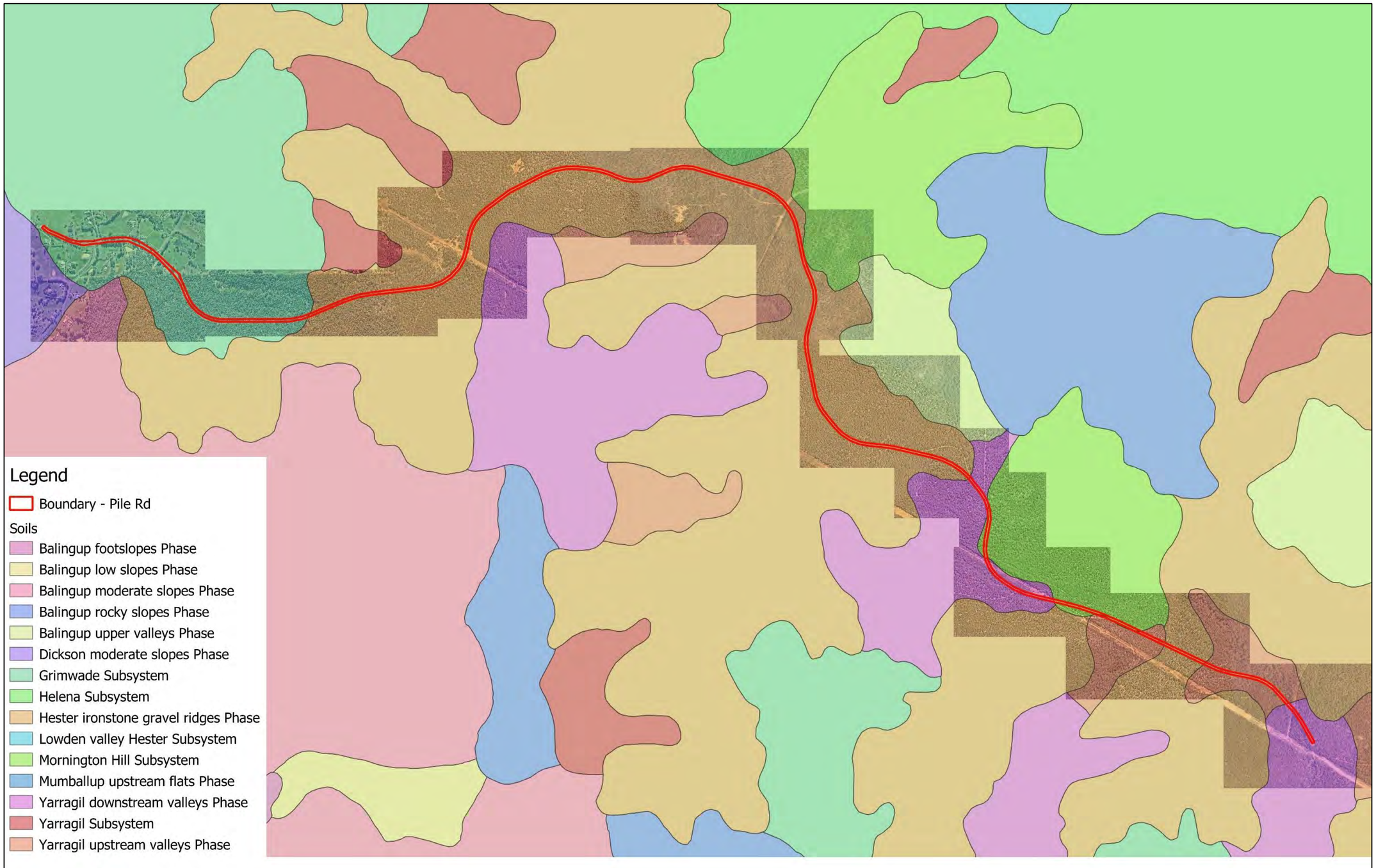

Figure 2:
Soils
Pile Road, Ferguson

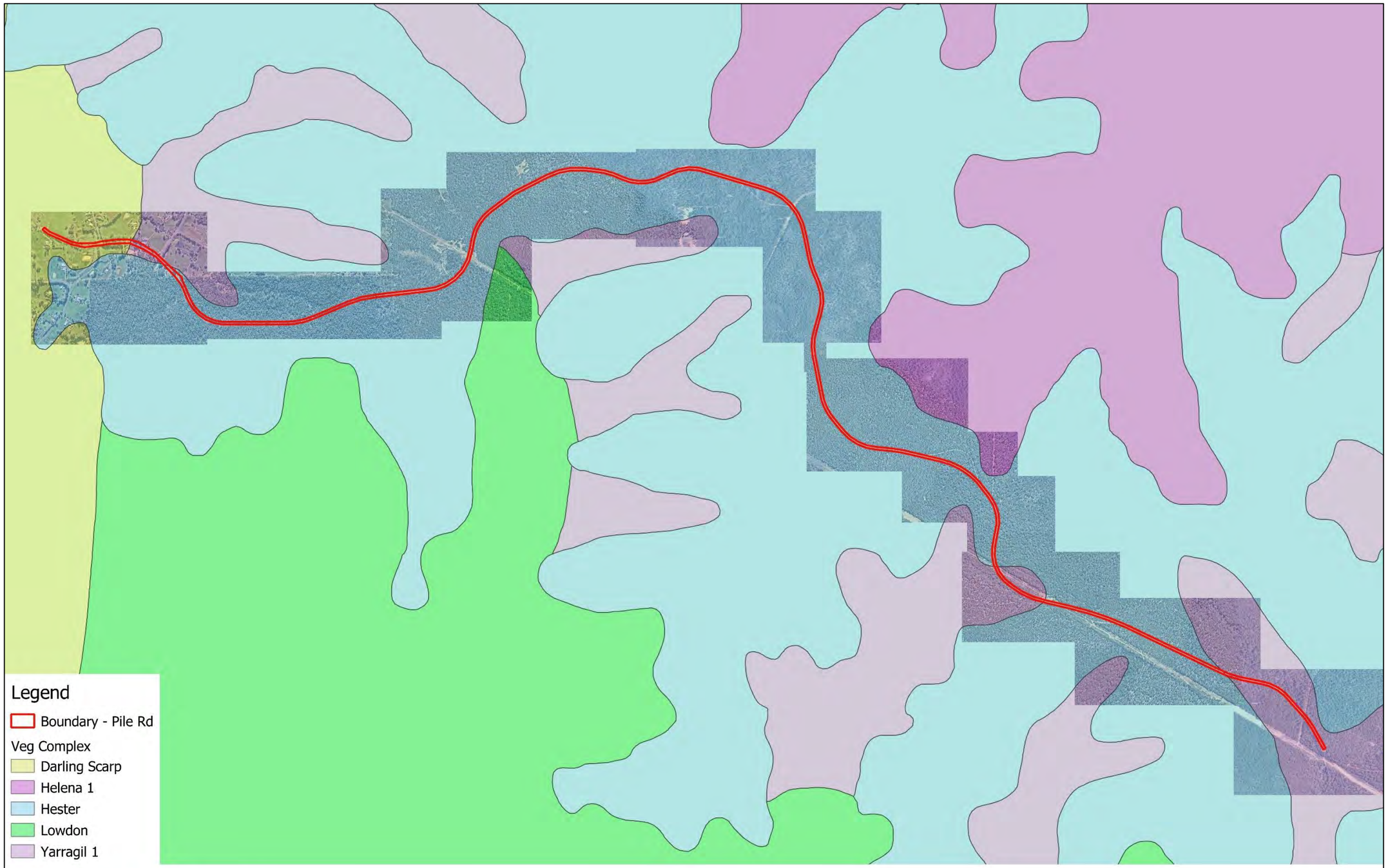

Figure 3:
Vegetation Complexes
Pile Road, Ferguson

3.0 Methodology

The detailed flora and basic fauna survey methodologies undertaken by Natural Area is described in this section.

3.1 Objective

The objective of the survey was to collect sufficient data to adequately inform a clearing permit application to be submitted to the Department of Water and Environmental Regulation under the Environmental Protection (Native Vegetation) Regulations 2004 ahead of the widening of Pile Road. Outcomes may also contribute to assessing any offset requirement that may be specified as a clearing permit approval condition.

3.2 Desktop and Literature Review

The desktop flora and vegetation survey assessment activities were undertaken to determine the:

- likely native and non-native flora and fauna species present
- current extent of native vegetation
- general floristic community types
- likely presence of threatened or priority flora and fauna species
- likely presence of any threatened or priority ecological communities.

The following databases were accessed to obtain relevant information and guide on-ground survey activities:

- NatureMap (Department of Biodiversity, Conservation and Attractions, 2020b) (Appendix 1)
- Protected Matters Search Tool (Department of Agriculture, Water, and the Environment (DAWE), 2020a) (Cwlth) (Appendix 2)
- FloraBase (Department of Biodiversity, Conservation and Attractions, 2020a)
- Threatened and priority flora and ecological community database searches (Department of Biodiversity, Conservation and Attractions, 2020c).

A 10 km search buffer was used for these reports due to the long, narrow nature of the survey site.

Summary sheets of threatened flora potentially occurring in the area were prepared to enable ready reference in the field and are provided in Appendix 3; conservation code definitions for the State and Commonwealth are provided in Appendix 4.

3.3 On-ground Flora Methodology

Natural Area Botanists Sharon Hynes and Kylie Sadgrove traversed the site over two days on the 08 and 09 September 2020, with key data recorded using Mappt software on a handheld Samsung tablet. Field activities included:

- identification of flora species present by walking the site, including targeting declared rare and priority species indicated as potentially present during desktop assessments
- four 50 m x 2 m transects were installed at various locations along the arbitrarily designated southern side of Pile Road due to the consistency of the vegetation type and the width of accessible road reserve (Figure 7)
- assessing vegetation type and condition across the site
- using a GPS to map significant species and boundaries of differing vegetation types and condition

- determining the presence of any further threatened or priority listed flora species and/or ecological communities listed under the *Biodiversity and Conservation Act 2016* (WA) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth).

The flora and vegetation survey was conducted in accordance with *Technical Guidance- Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority, 2016). Samples were collected or photographs taken of unfamiliar species to enable later identification.

3.3.1 Vegetation Type

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

Table 3: Vegetation structural classes

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

(Source: Government of Western Australia, 2000)

3.3.2 Vegetation Condition

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

Table 4: Vegetation condition ratings

Category		Description
1	Pristine	Pristine or nearly so, no obvious signs of disturbance.
2	Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
3	Very Good	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging, and grazing.

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

(Source: Government of Western Australia, 2000)

3.4 Fauna On-Ground Methodology

A basic fauna survey was undertaken in conjunction with other survey activities. The fauna survey included recording opportunistic sightings of fauna species, along with evidence of their presence in the form of:

- scats
- tracks
- diggings
- burrows, dens, and warrens
- runnels (vegetative tunnels)
- calls.

3.5 Limitations

The survey was carried out in spring the optimal time to survey native vegetation in the Swan Coastal Plain Region. However, certain limitations for the survey works still exist, including:

- database searches only provide an indication of what flora species may be present, with on ground surveys required to confirm those present
- the differing databases are reliant on information submitted via various reporting mechanisms, so all records of a flora species or ecological community in a specified area may not be complete
- on-ground surveys indicate species present at the time of the assessment, with species flowering at different times not always able to be identified
- not all species flower every year.

Despite these limitations, Natural Area believes 80 – 90% of flora species were identified.

4.0 Flora Survey Results

Survey works for the Pile Road site in the Shire of Dardanup included desktop and field activities, outcomes for both are provided in this section.

4.1 Desktop Survey

4.1.1 Flora Species

A review of the NatureMap report (Department of Biodiversity, Conservation and Attractions, 2020b) indicated the potential for 421 flora species within a 10 km radius of the Pile Road site, comprising:

- 289 dicotyledons
- 128 monocotyledons
- two gymnosperms
- two ferns.

4.1.2 Significant Flora

Of the species identified, NatureMap indicated the potential for 18 conservation significant flora species listed under the *Biodiversity Conservation Act 2016* (WA) within 10 km of the site (Department of Biodiversity Conservation and Attractions, 2020b). A review of the Protected Matters Search Tool (PMST) (Department of Agriculture, Water and the Environment, 2020) indicated the potential for 13 flora species listed as matters of national environmental significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*) (Cwlth) within a 10 km radius of the site.

A review of the DBCA's threatened and priority flora database and the WA Herbarium lists indicated 31 threatened or priority species that have been previously recorded within a 20 km buffer of the survey site. Of those identified, five have been recorded within 5 km of Pile Road (Table 5).

Table 5 provides a list of conservation significant species with the potential to be present, along with the conservation code and the information source. Of the 30 conservation significant species potentially found in the area, Natural Area considers the habitat to be suitable for nine species based on soil type, drainage, and location; these are highlighted green in Table 5 and Appendix 3; those species with no descriptions but have been recorded within the Shire of Dardanup have included potentially being present at the site.

Table 5: Potential threatened and priority species

Species	Common Name	Cons. Code	NM	PMST	DBCA
Acacia oncinophylla subsp. *oncinophylla*		P3	X		X
Acacia semitrullata		P4	X		X
Banksia nivea subsp. *uliginosa*	Swamp Honeypot	T, En		X	
Banksia squarrosa subsp. argillacea	Whicher Range Dryandra	T, Vu		X	
Boronia tenuis	Blue Boronia	P4	X		
Brachyscias verecundus	Ironstone Brachyscias	T, CR		X	
Chamelaucium erythrochlorum		P4	X		X

Species	Common Name	Cons. Code	NM	PMST	DBCA
Chamelaucium roycei	Royce's Waxflower	T, Vu		X	
Diuris drummondii	Tall Donkey Orchid	T, Vu		X	
Diuris micrantha	Dwarf Bee-orchid	T, Vu		X	
Diuris purdiei	Purdie's Donkey Orchid	T, En		X	
Drakaea micrantha	Dwarf Hammer-orchid	T, Vu		X	
Eleocharis keigheryi	Keighery's Eleocharis	Vu		X	
Gastrolobium sp. Yoongarillup		P1	X		X
Gastrolobium whicherense		P2	X		
Grevillea rosieri		P2	X		
Lambertia echinata subsp. *occidentalis*	Western Prickly Honeysuckle	T, En		X	
Lasiopetalum laxiflorum		P3	X		
Lomandra whicherensis		P3	X		
Orianthera wendyae		P1	X		
Pithocarpa corymbulosa	Corymbose Pithocarpa	P3	X		
Senecio leucoglossus		P4	X		
Stylidium acuminatum subsp. acuminatum		P2	X		
Stylidium paludicola		P3	X		
Stylidium perplexum		P1	X		
Synaphea hians		P3	X		
Synaphea polypodioides		P3	X		
Synaphea sp. Fairbridge Farm		T, CR	X	X	X
Synaphea sp. Serpentine		T, CR		X	
Synaphea stenoloba	Dwellingup Synaphea	T, En		X	

4.1.3 Threatened Ecological Communities

A review of the PMST report (Department of the Environment and Energy, 2020) indicated the potential presence of two threatened ecological communities within 10 km of Pile Road that are listed under the EPBC Act 1999 (Cwlth), namely:

- Banksia Woodlands of the Swan Coastal Plain (Endangered) is likely to occur within the area
- Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plan ecological community (Critically Endangered) may occur within the area.

The NatureMap report (DBCA, 2020b) did not list key species associated with each of these ecological communities, suggesting they are not present. Similarly, the DBCA threatened ecological community's database search indicated that neither of these communities occur within the site (DBCA, 2020c).

4.2 On-ground Flora Survey

4.2.1 Flora

The survey confirmed the presence of 115 species from 36 families. Of these:

- 40 were monocotyledons
- 73 were dicotyledons
- one was a fern
- one was a cycad
- 99 were native species
- 16 were non-native species
- no conservation significant flora species were recorded during the survey.

Examples of those native and non-native species are provided in Figures 4 and 5.

Pterostylis turfosa Bird Orchid | *Hakea amplexicaulis* Prickly Hakea | *Drosera glanduligera* Pimpernel Sundew

Bossiaea aquifolium subsp. aquifolium | *Caladenia macrostylis* Leaping Spider Orchid | *Acacia lateriticola*

Figure 4: Examples of native flora species recorded

Flatweed *Hypochaeris glabra* | Pimpernel *Lysimachia arvensis* | *Oxalis glabra*

Figure 5: Examples of weed species recorded

4.2.2 Vegetation Type

A single vegetation type was recorded within the survey site, namely Jarrah-Marri Woodland, with *Corymbia calophylla* and *Eucalyptus marginata* over a middle storey of *Bossiaea aquifolium* subsp. *aquifolium* and an understorey of *Patersonia umbrosa*, *Acacia lateriticola*, *Conostylis serrulata* and *Lepidosperma pubisquameum* (Figure 6).

Figure 6: Jarrah-Marri Woodland, Pile Road

4.2.3 Vegetation Condition

Vegetation condition ranged from Excellent to Degraded, with majority of the site in Excellent condition. (Figure 7).

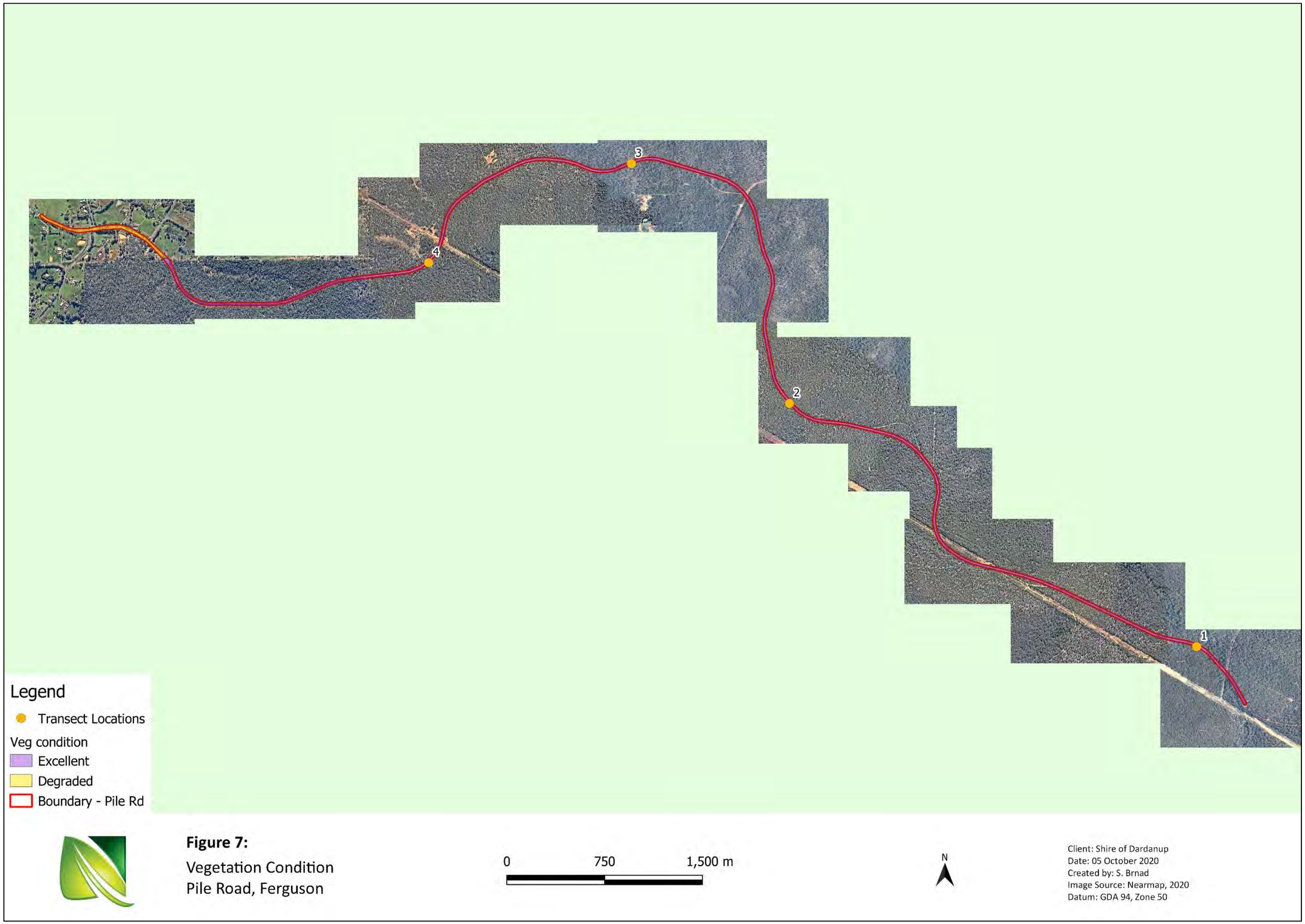

Figure 7:
Vegetation Condition
Pile Road, Ferguson

5.0 Fauna Survey Results

The basic fauna survey activities included desktop and field activities; both are reported in this section.

5.1 Desktop Fauna Results

The NatureMap Report available through the DBCA (2020b) indicated the potential presence 217 fauna species within a 10 km radius of Pile Road, namely:

- eight amphibians
- 97 birds
- three fish
- 58 invertebrates
- 29 mammals
- 22 reptiles.

5.1.1 Conservation Significant Fauna

A review of the conservation status of species listed on the NatureMap Report (2020b) and the PMST Report (DAWE, 2020) indicated the potential for 21 conservation significant species within the survey area (Table 6). Those species with suitable habitat present within the Pile Road survey area are highlighted green. Note that marine bird species listed on the PMST report have not been included as they are unlikely to occur within the survey area.

Table 6: Conservation significant fauna

Species	Common Name	Cons. Code	NM	PMST	Comment
Bertmainius opimus	Western Pygmy Trapdoor Spider	P3	X		Not likely, restricted to Walpole and Augusta
Bettongia penicillata subsp. ogilbyi	Woylie, Brush-tailed Bettong	T, En	X	X	Habitat suitable
Calyptorhynchus banksii naso	Forest Red-tailed Black Cockatoo	T, Vu	X	X	Habitat suitable
Calyptorhynchus baudinii	Baudin's Cockatoo	T, En	X	X	Not likely, tends to occur further south
Calyptorhynchus latirostris	Carnaby's Cockatoo	T, En	X	X	Habitat suitable
Cherax tenuimanus	Margaret River Marron	T	X		Habitat not suitable
Dasyurus geoffroii	Western Quoll, Chuditch	T, Vu	X	X	Habitat suitable
Falco hypoleucos	Grey Falcon	T, Vu		X	Habitat suitable
Falco peregrinus	Peregrine Falcon	S	X		Unlikely, prefers timbered lowland plains
Falsistrellus mackenziei	Western False Pipistrelle	P4	X		Habitat suitable
Geotria australis	Pouched Lamprey	P3	X		Habitat not suitable
Hydromys chrysogaster	Water Rat, Rakali	P4	X		Habitat not suitable

Species	Common Name	Cons. Code	NM	PMST	Comment
Isoodon fusciventer	Southern Brown Bandicoot, Quenda	P4	X		Habitat not suitable
Leipoa ocellata	Mallee Fowl	T, Vu		X	Habitat not suitable
Nannatherina balstoni	Balston's Pygmy Perch	T, Vu		X	Habitat not suitable
Notamacropus irma	Western Brush Wallaby	P4	X		Habitat suitable
Phascogale tapoatafa subsp. wambenger	South-western Brush-tailed Phascogale	S	X		Habitat suitable
Plegadis falcinellus	Glossy Ibis	IA	X		Habitat not suitable
Pseudocheirus occidentalis	Western Ringtail Possum	CE		X	Habitat not suitable
Setonix brachyurus	Quokka	T, Vu	X	X	Habitat suitable
Westralunio carteri	Carter's Freshwater Mussel	T, Vu	X	X	Habitat not suitable

5.2 Fauna Recorded

Opportunistic sightings of fauna were recorded, either directly or indications of their presence, on the days the flora survey activities were carried out. A total of 17 fauna species were recorded, including 14 birds, one reptile, one amphibian, and one mammal in the form of scats (Table 7); examples of species observed are provided in Figure 8.

Table 7: Fauna species recorded

Family	Scientific Name	Common Name	Form
Acanthizidae	*Acanthiza apicalis*	Inland Thornbill	Bird
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	Bird
Accipitridae	*Aquila audax*	Wedge-tailed Eagle	Bird
Cacatuidae	*Calyptorhynchus banksii naso*	Forest Red-tailed Black Cockatoo	Bird
Cacatuidae	*Calyptorhynchus latirostris*	Carnaby's Cockatoo	Bird
Anatidae	*Chenonetta jubata*	Australian Wood Duck	Bird
Corvidae	*Corvus coronoides*	Australian Raven	Bird
Cracticidae	*Cracticus tibicen*	Australia Magpie	Bird
Myobatrachidae	*Crinia* sp.		Amphibian
Alcedinidae	*Dacelo novaeguineae**	Laughing Kookaburra	Bird
Gekkonidae	*Gecko* sp.		Reptile
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater	Bird
Macropodidae	*Macropus fuliginosus melanops*	Western-Grey Kangaroo	Mammal
Maluridae	*Malurus lamberti*	Variegated Fairywren	Bird
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler	Bird
Psittacidae	*Platycercus zonarius semitorquatus*	Twenty-eight Parrot	Bird
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	Bird

Acanthiza apicalis
Inland Thornbill

Acanthiza chrysorrhoa
Yellow-rumped Thornbill

Platycercus zonarius semitorquatus
Twenty-eight Parrot

Chenonetta jubata
Australian Wood Duck

Figure 8: Species observed during the survey

5.2.1 Conservation Significant Fauna

Of the 21 conservation significant fauna species highlighted in the NatureMap report, the Protected Matters Search Tool Report and outcomes of the Department of Biodiversity, Conservation and Attractions threatened fauna database search, the only species sighted were the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and the Carnaby's Cockatoo (*Calyptorhynchus latirostris*). Evidence of black cockatoo usage was noted in the form of chewed Marri nuts beneath five trees along the length of the survey site (Figures 9 and 10 with detailed maps provided in Appendix 7). Five trees had hollows that were of a suitable size for use black cockatoos (Figure 10), however, there were no indications of use in the form of scratching around the edge of the hollow and no reaction when the trees were tapped. Note that some trees with hollows are also habitat trees.

Figure 10: Evidence of recent black cockatoo foraging, Forest Red-tailed Black Cockatoo

Habitat trees were assessed based on their diameter at breast height being a minimum of 500 mm (50 cm), as per the *EPBC Act Referral Guidelines for Three Threatened Black Cockatoo Species* (Department of Sustainability, Environment, Water, Population and Communities, 2012). A total of 47 trees were recorded, of which two were *Allocasuarina fraseriana* (Sheoak), 13 were *Eucalyptus marginata* (Jarrah, one dead), one was *Eucalyptus diversicolor* (Karri), and 31 were *Corymbia calophylla* (Marri, one dead) (Figure 10).

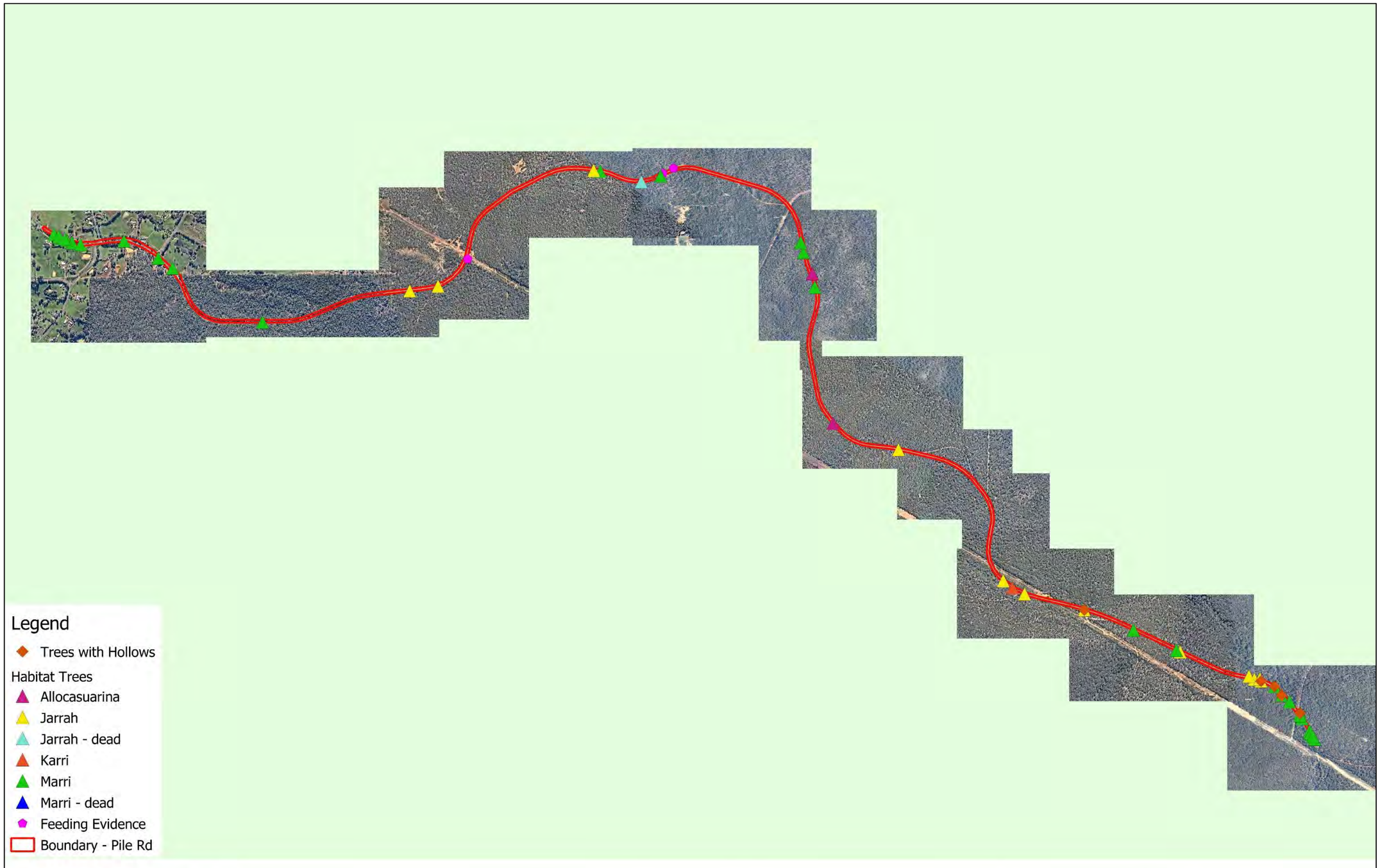

Figure 10:
Potential Cockatoo Habitat and Evidence
Pile Road, Ferguson

Figure 11:
Indicative Clearing Areas
Pile Road, Ferguson

6.0 Implications of Results

6.1 Clearing Area

The area to be cleared has been estimated based on the road design provided by the Shire of Dardanup, using the projected edge of the widened road verge through to the batter line as the area to be cleared and excluding tracks and roads that have already been cleared (Figure 11), and which were arbitrarily assigned as 'north' and 'south'. The overall area within these lines was calculated as being 26.78 ha in 'northern' portion and 29.19 ha in the 'southern' portion. Calculations and modelling carried out by the Shire of Dardanup have inferred the clearing area to be 6.7 ha, of which 3.3 ha will be cleared in the northern section and 3.4 ha in the southern section; a provision area will be included in the clearing permit application to allow for inherent errors with the digitising process from CAD designs, conversion of the road design CAD files to a georeferenced version that could overlain over the available aerial imagery, along with the angle of capture and resulting shadows within the imagery.

6.2 Flora and Vegetation

The outcomes of the flora and vegetation survey confirmed the presence of 115 species from 36 families. Species are typical of those found in Jarrah-Marri Woodland. No conservation significant flora species listed under the *Biodiversity Conservation Act* 2016 (WA) and/or the EPBC Act 1999 (Cwlth) were recorded.

The P3 listed *Pithocarpa corymbulosa* (*Corymbose Pithocarpa*) was identified as being a species that could be found within the survey area. As this plant is a perennial species with distinctive white/grey foliage, its presence should have been readily detected during the survey if it was present despite it being outside its known flowering time of January – April.

6.3 Threatened Ecological Communities

No threatened or priority listed ecological communities were recorded during the survey.

6.4 Basic Fauna Survey

The basic fauna survey confirmed the presence of 17 species, including the Endangered Carnaby's Cockatoo (*Calyptorhynchus latirostris*) and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*). No endangered or priority listed mammal species were observed nor secondary signs of their presence noted.

6.4.1 Black Cockatoos

Much of the survey site was in the Wellington Forest area, with a dense Jarrah-Marri Woodland either side of Pile Road. While the trees had reached a mature height, they were still 'young' in comparison to other trees, as evidenced by their comparatively smaller trunk diameter to 'older' trees in the area. Similarly, these trees had few nuts present, thus while they provided a food source for the black cockatoos, it is not a prolific source in comparison to other locations; this is reflected with the evidence of feeding being limited to five trees along the length of the survey site (Figure 10).

Of the 47 habitat trees recorded, four are located within the proposed 'northern' area where clearing will occur, 13 are located in the 'southern' area where clearing will occur, and 30 are located within the survey

boundary but outside the proposed road widening area (Figure 10). As indicated in Section 5.2.1, five of the habitat trees had hollows of sufficient size that they could be utilised by black cockatoos, however, there was no evidence of any use by these or other species during the September 2020 site assessment activities.

Considering the limited evidence of use and number of habitat trees along with usage by the black cockatoos not being extensive, impacts to their continued presence is unlikely to be significant. However, with a clearing footprint of around 6.7 ha, the majority of which is in Excellent condition, it is greater than the trigger value for significance listed in the *EPBC Act Referral Guidelines for Three Threatened Black Cockatoo Species* (Department of Sustainability, Environment, Water, Population and Communities, 2012) (Table 8). It is likely that the Commonwealth assessment process can be combined with the State approval process associated with the clearing permit application.

6.5 Assessment Against Clearing Principles

The flora and vegetation survey was carried out within the broader road reserve, with the expected clearing area to be a maximum of 55.97 ha. An assessment against the Western Australian clearing principles was carried out (Table 9), with the proposed clearing potentially being at variance with one of the ten clearing principles.

Table 8: Referral guidelines for the three threatened Black Cockatoo species

Guideline		Comment	
High risk of significant impacts: referral recommended	▪ Clearing of any known nesting tree ▪ Clearing or degradation of any part of a vegetation community known to contain breeding habitat ▪ Clearing of more than 1 ha of quality foraging habitat. ▪ Clearing or degradation (including pruning the top canopy) of a known night roosting site ▪ Creating a gap of greater than 4 km between patches of black cockatoo habitat (breeding, foraging or roosting).	▪ Pile Road is not located within a confirmed roosting or breeding area for Carnaby's Black Cockatoo (DataWA, 2020). ▪ No signs of nesting or roosting were observed during the September 2020 survey by Natural Area botanists/zoologists. ▪ Evidence of feeding was recorded in the form of chewed Marri nuts beneath five trees along the 12.4 km survey area. ▪ While numerous Marri trees were present, there were few nuts present on the trees, suggesting its value as a food source was limited. ▪ An assessment of potential habitat trees with a DBH > 500 mm was made, with 47 trees within the survey area recorded; of these, 30 are located outside the proposed road widening area, meaning 17 will need to be cleared. ▪ Five habitat trees had hollows that were of sufficient size to be used by black cockatoos.
Uncertainty: referral recommended or contact the department	▪ Degradation (such as through altered hydrology or fire regimes) of more than 1 ha of foraging habitat. Significance will depend on the level and extent of degradation and the quality of the habitat. ▪ Clearing or disturbance in areas surrounding black cockatoo breeding, foraging or night roosting habitat that has the potential to degrade habitat through introduction of invasive species, edge effects, hydrological changes, increased human visitation or fire.	▪ The Pile Road site is an existing road and road reserve with agricultural land and patches of remnant trees in the western portion of the site that is in a Degraded condition, with most of the site located within the Wellington Forest area that is Excellent condition. ▪ The site represents the edge of existing vegetation, with the additional clearing meaning the edge will move approximately 5 m; accordingly, edge effects and the introduction of invasive species is not likely to be significantly greater than they already are.	

Guideline		Comment	
	▪ Actions that do not directly affect the listed species but that have the potential for indirect impacts such as increasing competitors for nest hollows. ▪ Actions with the potential to introduce known plant diseases such as Phytophthora spp. to an area where the pathogen was not previously known.	▪ The survey area extended beyond the expected clearing area of 6.4 ha along the 'southern' side of the road and 6.3 ha along the 'northern' side. ▪ The vegetation condition across the site is classified as either Degraded or Excellent, with most being in Excellent condition as it is a component of the Wellington Forest.
Low risk of significant impacts: referral may not be required	▪ Actions that do not affect black cockatoo habitat or individuals. ▪ Actions whose impacts occur outside the modelled distribution of the three black cockatoos.	▪ The evidence of feeding being limited to five trees along with the low number of habitat trees within the survey site suggest the site is not a preferred feeding location. ▪ The extent of the nearby forest suggests there are better quality locations within the vicinity.

Table 9: Assessment against clearing principles

Clearing Principle		Comment
A	Native vegetation should not be cleared if it comprises a high level of biological diversity.	The area to be cleared is unlikely to be at variance with this principle: ▪ A total of 115 flora species from 36 families, of which 99 were native species and 16 non-native species ▪ The proposed clearing site is an existing road reserve with the majority being in Excellent condition ▪ No flora species listed as Threatened or Priority were recorded by Natural Area botanists during the September 2020 survey.
B	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	The area to be cleared may be at variance with this principle: ▪ A review of the information available via DataWA (2020) indicated that the site is not located in a known black cockatoo breeding, or roosting location ▪ NatureMap and PMST reports indicated the potential presence of the threatened Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*), the Carnaby's Cockatoo (Calyptorhynchus latirostris) and Baudin's Cockatoo (*Calyptorhynchus baudinii*), Red-tailed Black-Cockatoo (*Calyptorhynchus banksii*) ▪ No evidence of roosting or nesting by black cockatoos was noted during the survey ▪ Evidence of feeding was limited to five locations along the 12.4 km survey area ▪ Marri trees had few nuts, and with the limited evidence of feeding, the area is unlikely to be a major feeding source ▪ No evidence of the presence in the form of sightings or observations of secondary presence in the form of scats, dreys, dens, calls, and similar was noted within the survey site.
C	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	The area to be cleared is not likely to be at variance with this principle: ▪ During the September 2020 survey by Natural Area botanists, no conservation significant flora was identified within the proposed clearing area ▪ Natural Area believes that the January-April flowering *Pithocarpa corymbulosa* (Corymbose Pithocarpa) is unlikely to be present due to it be a perennial species with distinctive grey/white foliage.
D	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the	The area to be cleared is not likely to be at variance with this principle: ▪ No threatened or priority ecological communities were recorded by Natural Area botanists during the September 2020 survey ▪ None were indicated in the DBCA threatened and priority ecological community database search outcomes.

Clearing Principle		Comment
	maintenance of a threatened ecological community.	
E	Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	The area to be cleared is not likely to be at variance with this principle: ▪ The site follows an existing alignment of the road and road reserve ▪ Portions of the area surrounding the site has been previously cleared for agricultural use and is not associated with any areas of remnant vegetation ▪ The remainder of the site is a component of the Wellington Forest, and which will be retained in the longer term.
F	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	The area to be cleared is not likely to be at variance with this principle as the site is no association with a watercourse or wetland.
G	Native Vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The area to be cleared is not likely to be at variance with this principle as it is not expected to cause further land degradation and the area to be cleared is proposed to follow the existing alignment of the road.
H	Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	The area to be cleared is not likely to be at variance with this principle as the land surrounding the proposed clearing area is agricultural land and the Wellington Forest.

Clearing Principle		Comment
I	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	The area to be cleared is not likely to be at variance with this principle as no surface water courses were identified during the September 2020 survey by Natural Area botanists.
J	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.	The area to be cleared is not likely to be at variance with this principle: ▪ The area proposed to be cleared is located within a currently designated road reserve and is not expected to change or exacerbate the incidence of flooding ▪ Road design will consider stormwater movement in proximity to the road ▪ The presence of trees within the remainder of the road reserve and the Wellington Forest will mitigate against flooding.

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Appendix 1: NatureMap Report

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 17/07/2020

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	115° 53' 09" E,33° 24' 00" S
Buffer	10km
Group By	Species Group

Species Group	Species	Records
Amphibian	8	37
Bird	97	1555
Bryopsid (Moss)	4	6
Dicotyledon	289	478
Fish	3	15
Fungus	3	43
Gymnosperm	2	2
Invertebrate	58	185
Lichen	4	4
Mammal	29	1174
Monocotyledon	128	195
Pteridophyte (Fern)	2	2
Reptile	22	120
TOTAL	**649**	**3816**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Amphibian					
1.	25398	*Crinia georgiana (Quacking Frog)*			
2.	25399	*Crinia glauerti (Clicking Frog)*			
3.	25400	*Crinia insignifera (Squelching Froglet)*			
4.	25401	*Crinia pseudinsignifera (Bleating Froglet)*			
5.	25410	*Heleioporus eyrei (Moaning Frog)*			
6.	25411	*Heleioporus inornatus (Whooping Frog)*			
7.	25378	*Litoria adelaidensis (Slender Tree Frog)*			
8.	25388	*Litoria moorei (Motorbike Frog)*			
Bird					
9.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
10.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
11.	24262	*Acanthiza inornata (Western Thornbill)*			
12.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
13.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
14.	25536	*Accipiter fasciatus (Brown Goshawk)*			
15.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
16.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
17.	24310	*Anas castanea (Chestnut Teal)*			
18.	24312	*Anas gracilis (Grey Teal)*			
19.	24316	*Anas superciliosa (Pacific Black Duck)*			
20.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
21.	24561	*Anthochaera carunculata (Red Wattlebird)*			
22.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
23.	24285	*Aquila audax (Wedge-tailed Eagle)*			
24.	41324	*Ardea modesta (great egret, white egret)*			
25.	24341	*Ardea pacifica (White-necked Heron)*			
26.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
27.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
28.	24318	*Aythya australis (Hardhead)*			
29.		*Barnardius zonarius*			
30.	24319	*Biziura lobata (Musk Duck)*			
31.	25714	*Cacatua pastinator (Western Long-billed Corella)*			
32.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
33.	25717	*Calyptorhynchus banksii (Red-tailed Black-Cockatoo)*			
34.	24731	*Calyptorhynchus banksii subsp. naso (Forest Red-tailed Black Cockatoo)*		T	
35.	24733	*Calyptorhynchus baudinii (Baudin's Cockatoo, White-tailed Long-billed Black*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
		Cockatoo)		T	
36.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
37.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
38.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
39.	24432	*Chrysococcyx lucidus subsp. plagosus (Shining Bronze Cuckoo)*			
40.	24288	*Circus approximans (Swamp Harrier)*			
41.	47915	*Climacteris rufus (Black-tailed Treecreeper)*			
42.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
43.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
44.	25592	*Corvus coronoides (Australian Raven)*			
45.	24671	*Coturnix pectoralis (Stubble Quail)*			
46.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
47.	25595	*Cracticus tibicen (Australian Magpie)*			
48.	25596	*Cracticus torquatus (Grey Butcherbird)*			
49.	24322	*Cygnus atratus (Black Swan)*			
50.	30901	*Dacelo novaeguineae (Laughing Kookaburra)*	Y		
51.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
52.	24470	*Dromaius novaehollandiae (Emu)*			
53.		*Egretta novaehollandiae*			
54.		*Elanus axillaris*			
55.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
56.		*Eolophus roseicapillus*			
57.	24652	*Eopsaltria georgiana (White-breasted Robin)*			
58.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
59.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
60.	25727	*Fulica atra (Eurasian Coot)*			
61.	25530	*Gerygone fusca (Western Gerygone)*			
62.	24443	*Grallina cyanoleuca (Magpie-lark)*			
63.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
64.	24295	*Haliastur sphenurus (Whistling Kite)*			
65.	47965	*Hieraaetus morphnoides (Little Eagle)*			
66.	24491	*Hirundo neoxena (Welcome Swallow)*			
67.	25661	*Lichmera indistincta (Brown Honeyeater)*			
68.	25650	*Malurus elegans (Red-winged Fairy-wren)*			
69.	25654	*Malurus splendens (Splendid Fairy-wren)*			
70.	24598	*Merops ornatus (Rainbow Bee-eater)*			
71.		*Microcarbo melanoleucos*			
72.	25610	*Myiagra inquieta (Restless Flycatcher)*			
73.	24738	*Neophema elegans (Elegant Parrot)*			
74.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
75.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
76.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
77.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
78.	25682	*Pardalotus striatus (Striated Pardalote)*			
79.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
80.	48061	*Petrochelidon nigricans (Tree Martin)*			
81.	48066	*Petroica boodang (Scarlet Robin)*			
82.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
83.	25699	*Phalacrocorax varius (Pied Cormorant)*			
84.	24409	*Phaps chalcoptera (Common Bronzewing)*			
85.	25587	*Phaps elegans (Brush Bronzewing)*			
86.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
87.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
88.	25720	*Platycercus icterotis (Western Rosella)*			
89.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
90.	25703	*Podargus strigoides (Tawny Frogmouth)*			
91.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
92.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
93.		*Purpureicephalus spurius*			
94.	48096	*Rhipidura albiscapa (Grey Fantail)*			
95.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
96.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
97.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
98.	25597	*Strepera versicolor (Grey Currawong)*			
99.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		
100.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
101.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
102.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
103.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
104.	48147	*Turnix varius (Painted Button-quail)*			
105.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			
Bryopsid (Moss)					
106.	32480	*Racopilum cuspidigerum var. convolutaceum*			
107.	44608	*Rosulabryum billarderii*			
108.	32439	*Syntrichia papillosa*			
109.	32457	*Zygodon intermedius*			
Dicotyledon					
110.	15429	*Acacia alata var. alata*			
111.	15466	*Acacia applanata*			
112.	16975	*Acacia decurrens*	Y		
113.	3307	*Acacia divergens*			
114.	3331	*Acacia extensa (Wiry Wattle)*			
115.	3387	*Acacia insolita*			
116.	3410	*Acacia lateriticola*			
117.	3448	*Acacia mooreana*			
118.	3454	*Acacia nervosa (Rib Wattle)*			
119.	3464	*Acacia obovata*			
120.	14129	*Acacia oncinophylla subsp. oncinophylla*		P3	
121.	3496	*Acacia preissiana*			
122.	3502	*Acacia pulchella (Prickly Moses)*			
123.	15483	*Acacia pulchella var. pulchella*			
124.	3537	*Acacia semitrullata*		P4	
125.	3574	*Acacia teretifolia*			
126.	15487	*Acacia varia var. varia*			
127.	3184	*Acaena echinata (Sheep's Burr)*			
128.	6203	*Actinotus glomeratus*			
129.	1790	*Adenanthos meisneri*			
130.	1791	*Adenanthos obovatus (Basket Flower)*			
131.	1739	*Allocasuarina thuyoides (Horned Sheoak)*			
132.	4585	*Amperea ericoides*			
133.	13101	*Amperea simulans*			
134.	6306	*Andersonia caerulea (Foxtails)*			
135.	6311	*Andersonia heterophylla*			
136.	6312	*Andersonia involucrata*			
137.	6314	*Andersonia lehmanniana*			
138.	6580	*Asclepias curassavica (Redhead Cottonbush)*	Y		
139.	1800	*Banksia attenuata (Slender Banksia, Piara)*			
140.	32580	*Banksia dallanneyi subsp. dallanneyi var. dallanneyi*			
141.	32616	*Banksia dallanneyi subsp. sylvestris*			
142.	1819	*Banksia grandis (Bull Banksia, Pulgarla)*			
143.	1830	*Banksia littoralis (Swamp Banksia, Pungura)*			
144.	3165	*Billardiera variifolia*			
145.	4413	*Boronia crenulata (Aniseed Boronia)*			
146.	17653	*Boronia crenulata subsp. pubescens*			
147.	4415	*Boronia defoliata*			
148.	4420	*Boronia fastigiata (Bushy Boronia)*			
149.	4438	*Boronia ramosa*			
150.	4440	*Boronia scabra (Rough Boronia)*			
151.	4441	*Boronia spathulata (Boronia)*			
152.	4444	*Boronia tenuis (Blue Boronia)*		P4	
153.	48782	*Bossiaea angustifolia*			
154.	14396	*Bossiaea aquifolium subsp. aquifolium*			
155.	3710	*Bossiaea eriocarpa (Common Brown Pea)*			
156.	3718	*Bossiaea rufa*			
157.	7878	*Brachyscome iberidifolia*			
158.	2846	*Calandrinia calyptrata (Pink Purslane)*			
159.	2854	*Calandrinia granulifera (Pygmy Purslane)*			
160.	5429	*Calothamnus sanguineus (Silky-leaved Blood flower, Pindak)*			
161.	5430	*Calothamnus schaueri*			
162.	5458	*Calytrix flavescens (Summer Starflower)*			
163.	5465	*Calytrix leschenaultii*			
164.	2956	*Cassytha pomiformis (Dodder Laurel)*			
165.	2957	*Cassytha racemosa (Dodder Laurel)*			
166.	11799	*Cassytha racemosa forma racemosa*			
167.	6539	*Centaurium erythraea (Common Centaury)*	Y		
168.	18156	*Chamaecytisus palmensis (Tagasaste)*	Y		
169.	35657	*Chamelaucium sp. Yoongarillup (G.J. Keighery 3635)*		P4	
170.	28290	*Cheiranthera parviflora*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
171.	3169	*Cheiranthera preissiana*			
172.	8971	*Chorizema cordatum*			
173.	3757	*Chorizema glycinifolium*			
174.	3761	*Chorizema rhombeum*			
175.	2929	*Clematis pubescens (Common Clematis)*			
176.	4564	*Comesperma virgatum (Milkwort)*			
177.	4566	*Comesperma volubile (Love Creeper)*			
178.	1875	*Conospermum huegelii (Slender Smokebush)*			
179.	6348	*Conostephium pendulum (Pearl Flower)*			
180.	17105	*Corymbia haematoxylon (Mountain Marri)*			
181.	7943	*Cotula australis (Common Cotula)*			
182.	13354	*Craspedia variabilis*			
183.	3137	*Crassula colorata (Dense Stonecrop)*			
184.	13484	*Cryptandra arbutiflora var. tubulosa*			
185.	7420	*Dampiera alata (Winged-stem Dampiera)*			
186.	7454	*Dampiera linearis (Common Dampiera)*			
187.	5508	*Darwinia citriodora (Lemon-scented Darwinia)*			
188.	5533	*Darwinia vestita (Pom-pom Darwinia)*			
189.	3793	*Daviesia angulata*			
190.	3799	*Daviesia cordata (Bookleaf)*			
191.	3815	*Daviesia horrida (Prickly Bitter-pea)*			
192.	3832	*Daviesia physodes*			
193.	9027	*Diplolaena drummondii*			
194.	3867	*Dipogon lignosus (Dolichos Pea)*	Y		
195.	7961	*Dittrichia graveolens (Stinkwort)*	Y		
196.	4757	*Dodonaea ceratocarpa*			
197.	11247	*Dodonaea viscosa subsp. angustissima*			
198.	48769	*Drosera indumenta*			
199.	3108	*Drosera marchantii*			
200.	3109	*Drosera menziesii (Pink Rainbow)*			
201.	48710	*Drosera micrantha*			
202.	3123	*Drosera platystigma (Black-eyed Sundew)*			
203.	3131	*Drosera stolonifera (Leafy Sundew)*			
204.	5628	*Eucalyptus drummondii (Drummond's Gum)*			
205.	5708	*Eucalyptus marginata (Jarrah, Djara)*			
206.	18602	*Eucalyptus microcorys*	Y		
207.	4648	*Euphorbia terracina (Geraldton Carnation Weed)*	Y		
208.	20473	*Gastrolobium ebracteolatum*			
209.	30453	*Gastrolobium sp. Yoongarillup (S.Dilkes s.n. 1/9/1969)*		P1	
210.	3924	*Gastrolobium spinosum (Prickly Poison)*			
211.	20474	*Gastrolobium whicherense*		P2	
212.	6587	*Gomphocarpus fruticosus (Narrowleaf Cottonbush)*	Y		
213.	3948	*Gompholobium capitatum*			
214.	3950	*Gompholobium knightianum*			
215.	3951	*Gompholobium marginatum*			
216.	3954	*Gompholobium polymorphum*			
217.	3956	*Gompholobium shuttleworthii*			
218.	3957	*Gompholobium tomentosum (Hairy Yellow Pea)*			
219.	19628	*Grevillea bipinnatifida subsp. bipinnatifida*			
220.	2066	*Grevillea pilulifera (Woolly-flowered Grevillea)*			
221.	15990	*Grevillea pulchella subsp. ascendens*			
222.	2080	*Grevillea quercifolia (Oak-leaf Grevillea)*			
223.	2084	*Grevillea rosieri*		P2	
224.	2112	*Grevillea trifida*			
225.	2128	*Hakea amplexicaulis (Prickly Hakea)*			
226.	2137	*Hakea ceratophylla (Horned Leaf Hakea)*			
227.	2152	*Hakea cyclocarpa (Ramshorn)*			
228.	2175	*Hakea lissocarpha (Honey Bush)*			
229.	2206	*Hakea stenocarpa (Narrow-fruited Hakea)*			
230.	6839	*Hemiandra pungens (Snakebush)*			
231.	6855	*Hemigenia humilis*			
232.	6856	*Hemigenia incana (Silky Hemigenia)*			
233.	6866	*Hemigenia pritzelii*			
234.	6871	*Hemigenia sericea (Silky Hemigenia)*			
235.	5108	*Hibbertia acerosa (Needle Leaved Guinea Flower)*			
236.	5109	*Hibbertia amplexicaulis*			
237.	5114	*Hibbertia commutata*			
238.	20051	*Hibbertia diamesogenos*			
239.	5134	*Hibbertia huegelii*			
240.	5135	*Hibbertia hypericoides (Yellow Buttercups)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
241.	45534	*Hibbertia hypericoides subsp. hypericoides*			
242.	5154	*Hibbertia perfoliata*			
243.	5155	*Hibbertia pilosa (Hairy Guinea Flower)*			
244.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
245.	5169	*Hibbertia serrata (Serrate Leaved Guinea Flower)*			
246.	5170	*Hibbertia silvestris*			
247.	5176	*Hibbertia vaginata*			
248.	3964	*Hovea chorizemifolia (Holly-leaved Hovea)*			
249.	3968	*Hovea trisperma (Common Hovea)*			
250.	12907	*Hovea trisperma var. grandiflora*			
251.	12859	*Hovea trisperma var. trisperma*			
252.	12741	*Hyalosperma cotula*			
253.	12742	*Hyalosperma demissum*			
254.	5218	*Hybanthus debilissimus*			
255.	12007	*Hybanthus floribundus subsp. floribundus*			
256.	5817	*Hypocalymma angustifolium (White Myrtle, Kudjid)*			
257.	5825	*Hypocalymma robustum (Swan River Myrtle)*			
258.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
259.	2237	*Isopogon sphaerocephalus (Drumstick Isopogon)*			
260.	4018	*Jacksonia lehmannii*			
261.	4037	*Kennedia coccinea (Coral Vine)*			
262.	5841	*Kunzea recurva*			
263.	14776	*Kunzea rostrata*			
264.	3669	*Labichea punctata (Lance-leaved Cassia)*			
265.	18585	*Lagenophora huegelii*			
266.	2249	*Lambertia multiflora (Many-flowered Honeysuckle)*			
267.	45084	*Lasiopetalum laxiflorum*		P3	
268.	17040	*Lathyrus latifolius (Perennial Pea)*	Y		
269.	4052	*Latrobea tenella*			
270.	6878	*Lavandula dentata (French Lavender)*	Y		Y
271.	38323	*Lavandula stoechas subsp. stoechas*	Y		
272.	7568	*Lechenaultia biloba (Blue Leschenaultia)*			
273.	3021	*Lepidium bonariense (Peppercress)*	Y		
274.	2342	*Leptomeria cunninghamii*			
275.	6367	*Leucopogon capitellatus*			
276.	6374	*Leucopogon conostephioides*			
277.	6396	*Leucopogon glabellus*			
278.	6436	*Leucopogon propinquus*			
279.	6439	*Leucopogon pulchellus (Beard-heath)*			
280.	6454	*Leucopogon verticillatus (Tassel Flower)*			
281.	7676	*Levenhookia pusilla (Midget Stylewort)*			
282.	49103	*Levenhookia sp. Whicher Range (J.A. Wege 2090)*			
283.	7677	*Levenhookia stipitata (Common Stylewort)*			
284.	7405	*Lobelia rarifolia*			
285.	7406	*Lobelia rhombifolia (Tufted Lobelia)*			
286.	7365	*Lonicera japonica (Japanese Honeysuckle)*	Y		
287.	4059	*Lotus angustissimus (Narrowleaf Trefoil)*	Y		
288.	36375	*Lysimachia arvensis (Pimpernel)*	Y		
289.	6456	*Lysinema ciliatum (Curry Flower)*			
290.	17635	*Marianthus drummondianus*			
291.	17630	*Marianthus tenuis*			
292.	19721	*Melaleuca armillaris*	Y		
293.	13273	*Melaleuca incana subsp. incana*			
294.	5926	*Melaleuca lateritia (Robin Redbreast Bush)*			
295.	18394	*Melaleuca parviceps*			
296.	5959	*Melaleuca rhaphiophylla (Swamp Paperbark)*			
297.	5980	*Melaleuca thymoides*			
298.	8106	*Millotia tenuifolia (Soft Millotia)*			
299.	4090	*Mirbelia dilatata (Holly-leaved Mirbelia)*			
300.	4666	*Monotaxis occidentalis*			
301.	2365	*Olax benthamiana*			
302.	46315	*Orianthera serpyllifolia subsp. serpyllifolia*			
303.	46256	*Orianthera wendyae*		P1	
304.	36177	*Ornduffia albiflora*			
305.	36181	*Ornduffia parnassifolia*			
306.	4115	*Ornithopus sativus (French Serradella)*	Y		
307.	4354	*Oxalis incarnata*	Y		
308.	20101	*Paragonis grandiflora*			
309.	3618	*Paraserianthes lophantha (Albizia)*			
310.	17114	*Paraserianthes lophantha subsp. lophantha*			

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311.	11139	*Pelargonium x domesticum*	Y		
312.	6006	*Pericalymma ellipticum (Swamp Teatree)*			
313.	15501	*Pericalymma spongiocaule*			
314.	11052	*Persicaria prostrata*			
315.	2267	*Persoonia longifolia (Snottygobble)*			
316.	2273	*Persoonia saccata (Snottygobble)*			
317.	2299	*Petrophile linearis (Pixie Mops)*			
318.	2312	*Petrophile striata*			
319.	18529	*Philotheca spicata (Pepper and Salt)*			
320.	2793	*Phytolacca octandra (Red Ink Plant)*	Y		
321.	5251	*Pimelea imbricata*			
322.	11402	*Pimelea imbricata var. piligera*			
323.	5259	*Pimelea preissii*			
324.	12041	*Pimelea suaveolens subsp. suaveolens*			
325.	5268	*Pimelea sulphurea (Yellow Banjine)*			
326.	8163	*Pithocarpa corymbulosa (Corymbose Pithocarpa)*		P3	
327.	18352	*Pithocarpa pulchella var. melanostigma*			
328.	42260	*Pithocarpa ramosa*			
329.	6259	*Platysace tenuissima*			
330.	4524	*Platytheca galioides*			
331.	8177	*Podolepis lessonii*			
332.	4690	*Poranthera huegelii*			
333.	17211	*Prunus cerasifera*	Y		
334.	8189	*Pseudognaphalium luteoalbum (Jersey Cudweed)*			
335.	4180	*Pultenaea radiata*			
336.	8195	*Quinetia urvillei*			
337.	2932	*Ranunculus colonorum (Common Buttercup)*			
338.	2429	*Rumex acetosella (Sorrel)*	Y		
339.	7602	*Scaevola calliptera*			
340.	6263	*Schoenolaena juncea*			
341.	6033	*Scholtzia involucrata (Spiked Scholtzia)*			
342.	8203	*Senecio diaschides*			
343.	8212	*Senecio leucoglossus*		P4	
344.	20663	*Senecio multicaulis subsp. multicaulis*			
345.	8223	*Sigesbeckia orientalis (Indian Weed)*	Y		
346.	8224	*Siloxerus filifolius*			
347.	8227	*Silybum marianum (Variegated Thistle)*	Y		
348.	7020	*Solanum linnaeanum (Apple of Sodom)*	Y		
349.	2912	*Spergula arvensis (Corn Spurry)*	Y		
350.	4207	*Sphaerolobium medium*			
351.	31931	*Sphenotoma capitata*			
352.	4716	*Stachystemon vermicularis*			
353.	2316	*Stirlingia latifolia (Blueboy)*			
354.	40480	*Stylidium acuminatum subsp. acuminatum*		P2	
355.	7678	*Stylidium adnatum (Common Beaked Triggerplant)*			
356.	7684	*Stylidium amoenum (Lovely Triggerplant)*			
357.	30278	*Stylidium androsaceum*			
358.	7693	*Stylidium brunonianum (Pink Fountain Triggerplant)*			
359.	7695	*Stylidium caespitosum (Fly-away Triggerplant)*			
360.	7699	*Stylidium carnosum (Fleshy-leaved Triggerplant)*			
361.	7708	*Stylidium crassifolium (Thick-leaved Triggerplant)*			
362.	7745	*Stylidium junceum (Reed Triggerplant)*			
363.	25829	*Stylidium neurophyllum (Coastal Plain Triggerplant)*			
364.	25800	*Stylidium paludicola*		P3	
365.	33381	*Stylidium perplexum*		P1	Y
366.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
367.	7785	*Stylidium repens (Matted Triggerplant)*			
368.	45594	*Stylidium tenue subsp. majusculum (Showy Fountain Triggerplant)*			
369.	15529	*Synaphea floribunda*			
370.	2323	*Synaphea gracillima*			
371.	16769	*Synaphea hians*		P3	
372.	2324	*Synaphea petiolaris (Synaphea)*			
373.	31767	*Synaphea polypodioides*		P3	
374.	18590	*Synaphea sp. Fairbridge Farm (D. Papenfus 696)*		T	
375.	20135	*Taxandria linearifolia*			
376.	4535	*Tetratheca hirsuta (Black Eyed Susan)*			
377.	48341	*Tetratheca hirsuta subsp. viminea*			
378.	5084	*Thomasia grandiflora (Large Flowered Thomasia)*			
379.	5087	*Thomasia macrocarpa (Large Fruited Thomasia)*			
380.	17391	*Thomasia sp. Big Brook (M. Koch 2373)*			

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381.	6280	*Trachymene pilosa (Native Parsnip)*			
382.	4548	*Tremandra stelligera*			
383.	4295	*Trifolium dubium (Suckling Clover)*	Y		
384.	4302	*Trifolium ligusticum (Ligurian Clover)*	Y		
385.	4737	*Tripterococcus brunonis (Winged Stackhousia)*			
386.	1139	*Trithuria bibracteata*			
387.	33418	*Trymalium odoratissimum subsp. odoratissimum*			
388.	33438	*Trymalium odoratissimum subsp. trifidum*			
389.	8255	*Ursinia anthemoides (Ursinia)*	Y		
390.	15618	*Verticordia plumosa var. plumosa*			
391.	6575	*Vinca major (Blue Periwinkle)*	Y		
392.	7384	*Wahlenbergia capensis (Cape Bluebell)*	Y		
393.	7389	*Wahlenbergia preissii*			
394.	6283	*Xanthosia atkinsoniana*			
395.	6284	*Xanthosia candida*			
396.	6289	*Xanthosia huegelii*			
397.	19330	*Xanthosia tasmanica*			
398.	2331	*Xylomelum occidentale (Woody Pear, Djandin)*			
Fish					
399.	34028	*Galaxias occidentalis (Western Minnow)*			
400.	34030	*Geotria australis (Pouched Lamprey)*		P3	
401.		*Nannoperca vittata*			
Fungus					
402.	48547	*Inocybe serrata*			
403.	48556	*Inocybe xanthocystis*			
404.		*Phytophthora cinnamomi*			
Gymnosperm					
405.	36520	*Callitris acuminata (Dwarf Cypress)*			
406.	85	*Macrozamia riedlei (Zamia, Djiridji)*			
Invertebrate					
407.		*Acariformes sp.*			
408.		*Aeshnidae sp.*			
409.		*Antichiropus nanus*			
410.		*Athericidae sp.*			
411.		*Austracantha minax*			
412.		*Baetidae sp.*			
413.		*Baiami tegenarioides*			
414.		*Ballarra longipalpus*			
415.	47873	*Bertmainius opimus (western pygmy trapdoor spider)*		P3	
416.		*Brentidae sp.*			
417.		*Caenidae sp.*			
418.		*Ceinidae sp.*			
419.		*Ceratopogonidae sp.*			
420.	33939	*Cherax cainii (Marron)*			
421.		*Cherax quinquecarinatus*			
422.	33940	*Cherax tenuimanus (Margaret River hairy marron, Margaret River Marron)*		T	
423.		*Chironominae sp.*			
424.		*Corduliidae sp.*			
425.		*Corixidae sp.*			
426.		*Culicidae sp.*			
427.		*Dytiscidae sp.*			
428.		*Ecnomidae sp.*			
429.		*Empididae sp.*			
430.		*Eriophora biapicata*			
431.		*Ethmostigmus rubripes*			
432.		*Gomphidae sp.*			
433.		*Gripopterygidae sp.*			
434.		*Gyrinidae sp.*			
435.		*Hydrobiosidae sp.*			
436.		*Hydropsychidae sp.*			
437.		*Isopeda leishmanni*			
438.		*Lagynochthonius australicus*			
439.		*Lampona brevipes*			
440.		*Leptoceridae sp.*			
441.		*Leptophlebiidae sp.*			
442.		*Missulena granulosa*			
443.		*Neoniphargidae sp.*			
444.		*Nunciella aspera*			

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445.		*Oligochaeta sp.*			
446.		*Ommatoiulus moreletii*			
447.		*Oniscidae sp.*			
448.		*Orthocladiinae sp.*			
449.		*Paramelitidae sp.*			
450.		*Parastacidae sp.*			
451.		*Perthiidae sp.*			
452.		*Philopotamidae sp.*			
453.		*Raveniella peckorum*			
454.		*Scirtidae sp.*			
455.		*Scutigerella indecisa*			
456.		*Simuliidae sp.*			
457.		*Staphylinidae sp.*			
458.		*Tanypodinae sp.*			
459.		*Tasmanicosa leuckartii*			
460.		*Telephlebiidae sp.*			
461.		*Tipulidae sp.*			
462.		*Veliidae sp.*			
463.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
464.		*Zephyrarchaea janineae*			
Lichen					
465.	27663	*Cladia aggregata*			
466.	28208	*Cladonia cervicornis subsp. verticillata*			
467.	27691	*Cladonia ramulosa*			
468.	27892	*Pannoparmelia wilsonii*			
Mammal					
469.	25449	*Antechinus flavipes (Yellow-footed Antechinus)*			
470.	24088	*Antechinus flavipes subsp. leucogaster (Yellow-footed Antechinus, Mardo)*			
471.	24162	*Bettongia penicillata subsp. ogilbyi (Woylie, Brush-tailed Bettong)*		T	
472.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
473.	24186	*Chalinolobus gouldii (Gould's Wattled Bat)*			
474.	24187	*Chalinolobus morio (Chocolate Wattled Bat)*			
475.	24092	*Dasyurus geoffroii (Chuditch, Western Quoll)*		T	
476.	24189	*Falsistrellus mackenziei (Western False Pipistrelle, Western Falsistrelle)*		P4	
477.	24041	*Felis catus (Cat)*	Y		
478.	24215	*Hydromys chrysogaster (Water-rat, Rakali)*		P4	
479.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
480.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
481.	48005	*Mormopterus kitcheneri (South-western Free-tailed Bat)*			
482.	24223	*Mus musculus (House Mouse)*	Y		
483.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
484.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
485.	48070	*Phascogale tapoatafa subsp. wambenger (South-western Brush-tailed Phascogale, Wambenger)*		S	
486.	24166	*Pseudocheirus occidentalis (Western Ringtail Possum, ngwayir)*		T	
487.	24243	*Rattus fuscipes (Western Bush Rat)*			
488.	24244	*Rattus norvegicus (Brown Rat)*	Y		
489.	24245	*Rattus rattus (Black Rat)*	Y		
490.	24145	*Setonix brachyurus (Quokka)*		T	
491.	24259	*Sus scrofa (Pig)*	Y		
492.	24207	*Tachyglossus aculeatus (Short-beaked Echidna)*			
493.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
494.	25521	*Trichosurus vulpecula (Common Brushtail Possum)*			
495.	24158	*Trichosurus vulpecula subsp. vulpecula (Common Brushtail Possum)*			
496.	24206	*Vespadelus regulus (Southern Forest Bat)*			
497.	24040	*Vulpes vulpes (Red Fox)*	Y		
Monocotyledon					
498.	23474	*Agrostocrinum hirsutum*			
499.	1261	*Agrostocrinum scabrum (Blue Grass Lily)*			
500.	1378	*Allium triquetrum (Three-cornered Garlic)*	Y		
501.	194	*Amphipogon amphipogonoides*			
502.	20184	*Amphipogon laguroides subsp. laguroides*			
503.	200	*Amphipogon turbinatus*			
504.	1060	*Anarthria laevis*			
505.	1062	*Anarthria prolifera*			
506.	1063	*Anarthria scabra*			
507.	1409	*Anigozanthos humilis (Catspaw)*			
508.	1411	*Anigozanthos manglesii (Mangles Kangaroo Paw, Kurulbrang)*			
509.	202	*Anthoxanthum odoratum (Sweet Vernal Grass)*			

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			Y		
510.	8779	*Asparagus asparagoides (Bridal Creeper)*	Y		
511.	17234	*Austrostipa compressa*			
512.	17253	*Austrostipa semibarbata*			
513.	233	*Avena barbata (Bearded Oat)*	Y		
514.	747	*Baumea rubiginosa*			
515.	244	*Briza maxima (Blowfly Grass)*	Y		
516.	245	*Briza minor (Shivery Grass)*	Y		
517.	250	*Bromus hordeaceus (Soft Brome)*	Y		
518.	12770	*Burchardia congesta*			
519.	1276	*Caesia micrantha (Pale Grass Lily)*			
520.	15332	*Caladenia attingens subsp. attingens*			
521.	1592	*Caladenia flava (Cowslip Orchid)*			
522.	15348	*Caladenia flava subsp. flava*			
523.	15365	*Caladenia longicauda subsp. longicauda*			
524.	15371	*Caladenia nana subsp. nana*			
525.	15377	*Caladenia reptans subsp. reptans*			
526.	19309	*Calectasia narragara*			
527.	753	*Carex appressa (Tall Sedge)*			
528.	1125	*Centrolepis drummondiana*			
529.	1280	*Chamaescilla corymbosa (Blue Squill)*			
530.	1418	*Conostylis aculeata (Prickly Conostylis)*			
531.	1454	*Conostylis setigera (Bristly Cottonhead)*			
532.	15404	*Cyanicula sericea*			
533.	768	*Cyathochaeta avenacea*			
534.	285	*Cynosurus echinatus (Rough Dogstail)*	Y		
535.	816	*Cyperus tenuiflorus (Scaly Sedge)*	Y		
536.	1218	*Dasypogon bromeliifolius (Pineapple Bush)*			
537.	16595	*Desmocladus flexuosus*			
538.	299	*Deyeuxia quadriseta (Reed Bentgrass)*			
539.	48253	*Diuris porphyrochila*			
540.	11156	*Drakaea livida*			
541.	376	*Eragrostis curvula (African Lovegrass)*	Y		
542.	379	*Eragrostis elongata (Clustered Lovegrass)*			
543.	1646	*Eriochilus dilatatus (White Bunny Orchid)*			
544.	15410	*Eriochilus dilatatus subsp. dilatatus*			
545.	18392	*Freesia alba x leichtlinii*	Y		
546.	902	*Gahnia decomposita*			
547.	1468	*Haemodorum laxum*			
548.	1472	*Haemodorum simplex*			
549.	1070	*Hypolaena exsulca*			
550.	917	*Isolepis marginata (Coarse Club-rush)*			
551.	10831	*Isolepis prolifera (Budding Club-rush)*	Y		
552.	1295	*Johnsonia acaulis*			
553.	1297	*Johnsonia lupulina (Hooded Lily)*			
554.	1189	*Juncus pauciflorus (Loose Flower Rush)*			
555.	1195	*Juncus subsecundus (Finger Rush)*			
556.	1221	*Kingia australis (Kingia, Pulonok)*			
557.	11464	*Laxmannia sessiliflora subsp. australis*			
558.	925	*Lepidosperma angustatum*			
559.	936	*Lepidosperma leptostachyum*			
560.	940	*Lepidosperma pubisquameum*			
561.		*Lepidosperma sp.*			
562.	945	*Lepidosperma squamatum*			
563.	1653	*Leporella fimbriata (Hare Orchid)*			
564.	1085	*Lepyrodia glauca*			
565.	1087	*Lepyrodia hermaphrodita*			
566.	1088	*Lepyrodia macra (Large Scale Rush)*			
567.	1090	*Lepyrodia muirii*			
568.	1222	*Lomandra brittanii*			
569.	1223	*Lomandra caespitosa (Tufted Mat Rush)*			
570.	1228	*Lomandra hermaphrodita*			
571.	1234	*Lomandra nigricans*			
572.	1235	*Lomandra nutans*			
573.	1238	*Lomandra pauciflora*			
574.	1239	*Lomandra preissii*			
575.	1243	*Lomandra sericea (Silky Mat Rush)*			
576.	1245	*Lomandra spartea*			
577.	33298	*Lomandra whicherensis*		P3	
578.	1097	*Lyginia barbata*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
579.	18049	*Lyginia imberbis*			
580.	953	*Mesomelaena graciliceps*			
581.	957	*Mesomelaena tetragona (Semaphore Sedge)*			
582.	15419	*Microtis media subsp. media*			
583.	1537	*Orthrosanthus laxus (Morning Iris)*			
584.	527	*Paspalum dilatatum*	Y		
585.	1542	*Patersonia babianoides*			
586.	1546	*Patersonia juncea (Rush Leaved Patersonia)*			
587.	1548	*Patersonia limbata*			
588.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
589.	30472	*Patersonia occidentalis var. occidentalis*			
590.	1553	*Patersonia umbrosa (Yellow Flags)*			
591.	11550	*Patersonia umbrosa var. xanthina (Yellow Flags)*			
592.	43760	*Pauridia occidentalis*			
593.	1478	*Phlebocarya ciliata*			
594.	1668	*Prasophyllum brownii*			
595.	1672	*Prasophyllum fimbria (Fringed Leek Orchid)*			
596.	1686	*Pterostylis barbata (Bird Orchid)*			
597.	11118	*Pterostylis pyramidalis (Snail Orchid)*			
598.	1693	*Pterostylis recurva (Jug Orchid)*			
599.	48683	*Pterostylis serotina*			
600.	18655	*Pterostylis sp. crinkled leaf (G.J. Keighery 13426)*			
601.	10998	*Pterostylis turfosa (Bird Orchid)*			
602.	1698	*Pterostylis vittata (Banded Greenhood)*			
603.	40430	*Rytidosperma pilosum*			
604.	40427	*Rytidosperma setaceum*			
605.	984	*Schoenus curvifolius*			
606.	44487	*Schoenus sp. Little black fruit (A.C. Beauglehole ACB 12538)*			
607.	8710	*Sporobolus africanus (Parramatta Grass)*	Y		
608.	1034	*Tetraria capillaris (Hair Sedge)*			
609.	1036	*Tetraria octandra*			
610.	667	*Tetrarrhena laevis (Forest Ricegrass)*			
611.		*Thelymitra aff. pauciflora*			
612.	1705	*Thelymitra crinita (Blue Lady Orchid)*			
613.	673	*Themeda triandra*			
614.	1319	*Thysanotus arenarius*			
615.	1328	*Thysanotus dichotomus (Branching Fringe Lily)*			
616.	1343	*Thysanotus patersonii*			
617.	1345	*Thysanotus pseudojunceus*			
618.	1357	*Thysanotus thyrsoideus*			
619.	1485	*Tribonanthes violacea (Violet Tiurndin)*			
620.	1361	*Tricoryne elatior (Yellow Autumn Lily)*			
621.	1362	*Tricoryne humilis*			
622.	1363	*Tricoryne tenella*			
623.	18587	*Triglochin nana*			
624.	1249	*Xanthorrhoea acanthostachya*			
625.	1253	*Xanthorrhoea gracilis (Graceful Grass Tree, Mimidi)*			

Pteridophyte (Fern)

626.	59	*Lindsaea linearis (Screw Fern)*			
627.	17	*Ophioglossum lusitanicum (Adders Tongue)*			

Reptile

628.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
629.	24990	*Aprasia pulchella (Granite Worm-lizard)*			
630.	24980	*Christinus marmoratus (Marbled Gecko)*			
631.	30893	*Cryptoblepharus buchananii*			
632.	25047	*Ctenotus impar*			
633.	25049	*Ctenotus labillardieri*			
634.	24939	*Diplodactylus polyophthalmus*			
635.	25096	*Egernia kingii (King's Skink)*			
636.	25100	*Egernia napoleonis*			
637.	25115	*Hemiergis initialis subsp. initialis*			
638.	25118	*Hemiergis peronii subsp. tridactyla*			
639.	25131	*Lerista distinguenda*			
640.	25154	*Lerista microtis subsp. microtis*			
641.	25191	*Morethia lineoocellata*			
642.	25192	*Morethia obscura*			
643.	25255	*Parasuta nigriceps*			
644.	25511	*Pseudonaja affinis (Dugite)*			
645.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
646.	25519	*Tiliqua rugosa*			
647.	24983	*Underwoodisaurus milii (Barking Gecko)*			
648.	25218	*Varanus gouldii (Bungarra or Sand Monitor)*			
649.	25225	*Varanus rosenbergi (Heath Monitor)*			

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

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

Appendix 2: Protected Matters Search Tool Report

Australian Government
Department of the Environment and Energy

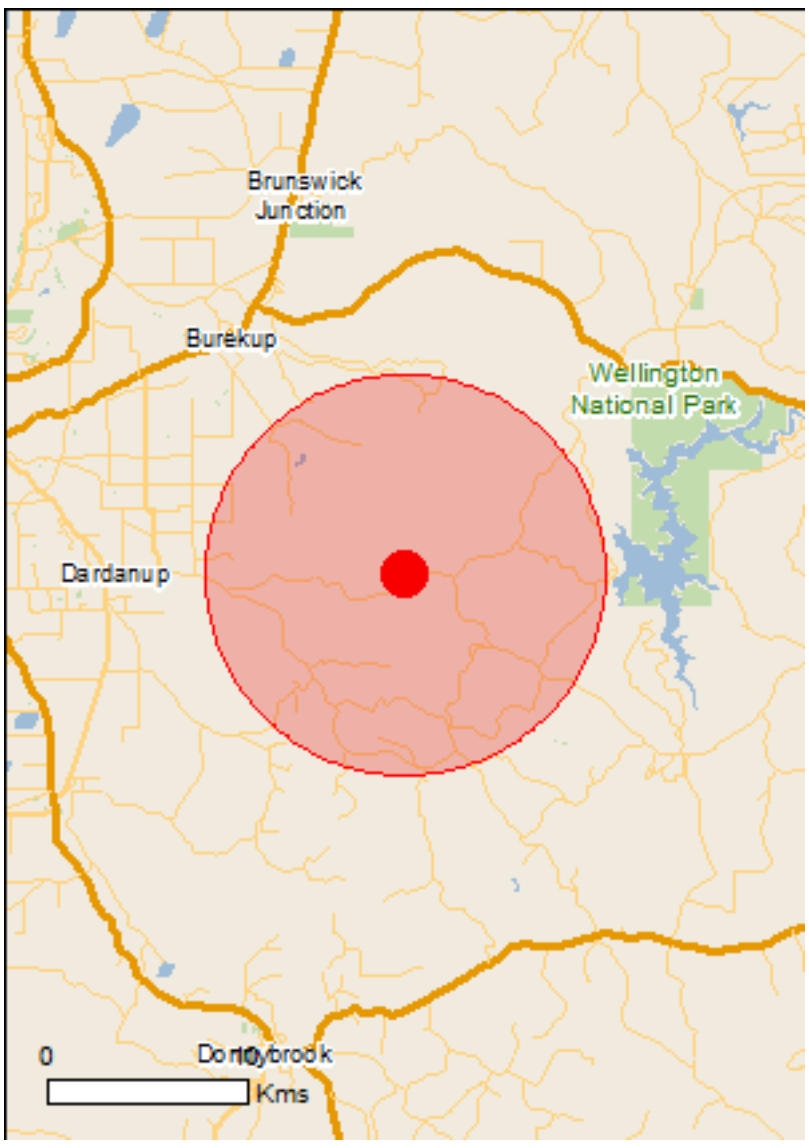
EPBC Act Protected Matters Report

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.

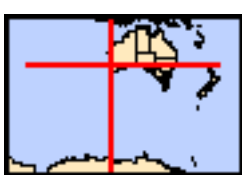
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 17/07/20 16:13:50



Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	28
Listed Migratory Species:	8

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:	5
Regional Forest Agreements:	1
Invasive Species:	27
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
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	Breeding known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Breeding likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to 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 [77037]	Endangered	Species or species habitat may occur within area
Fish		
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat likely to occur within area
Mammals		

Name	Status	Type of Presence
Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat known to occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat known to occur within area
Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat known to occur within area
Other		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
Plants		
Banksia nivea subsp. uliginosa Swamp Honeypot [82766]	Endangered	Species or species habitat may occur within area
Banksia squarrosa subsp. argillacea Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat may occur within area
Brachyscias verecundus Ironstone Brachyscias [81321]	Critically Endangered	Species or species habitat may occur within area
Chamelaucium sp. S coastal plain (R.D.Royce 4872) Royce's Waxflower [87814]	Vulnerable	Species or species habitat may occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat likely to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat likely to occur within area
Lambertia echinata subsp. occidentalis Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat may occur within area
Synaphea sp. Fairbridge Farm (D. Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat known to occur within area
Synaphea sp. Serpentine (G.R. Brand 103) [86879]	Critically Endangered	Species or species habitat may occur within area
Synaphea stenoloba Dwellingup Synaphea [66311]	Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence 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 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]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
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 likely to 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 likely to occur within area
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Thinornis rubricollis		
Hooded Plover [59510]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Dardanup	WA
NTWA Bushland covenant (0146)	WA
NTWA Bushland covenant (0150)	WA
Wellington	WA
Wellington Discovery Forest	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 Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Anas platyrhynchos		
Mallard [974]		Species or species habitat likely to occur within area
Columba livia		
Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus		
House Sparrow [405]		Species or species

Name	Status	Type of Presence
		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
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
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		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-33.39953 115.88646

Acknowledgements

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

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

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

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

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Appendix 3: Conservation Significant Species

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
Acacia oncinophylla* subsp. *oncinophylla		Shrub, 0.9-2.5 m high, 'minni-ritchi' bark, phyllodes mostly 8-13 cm long, 1-2 mm wide. Fl. yellow	Aug to Oct	Granitic soils	P3	N	Soils not suitable
		Slender, erect, pungent shrub, (0.1-) 0.2-0.7(-1.5) m high. Fl. cream-white	May to Oct	White/grey sand, sometimes over laterite, clay. Sandplains, swampy areas	P4	N	Soils not suitable
	Swamp Honeypot	Shrubs, 0.5-1.5 m high; branchlets hairy. Leaves petiolate, alternate, 150-455 mm long, 3-10 mm wide, hairy; petiole 14-35 mm long; lamina flat, once divided, pinnately divided, divided to the midrib, with 30-102 lobes on each side, the margins revolute. Inflorescences hirsute (with long, rough, and coarse hairs), brown; innermost bracts 23-24 mm long, hairy. Perianth 26-29 mm long, hairy, all over, limb apex hirsute	Aug to Sep	Sandy clay, gravel	T, En	N	Soils not suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
		(with long, rough, and coarse hairs), without awns; pistil 35-45 mm long, curved, style glabrous. Follicles glabrous, obovate, 9-13 mm long					
	Whicher Range Dryander	Erect, open, non-lignotuberous shrub, 1.2-4 m high. Fl. yellow	Jun to Nov	White/grey sand, gravelly clay or loam. Winter-wet flats, clay flats	T, Vu	N	Soils not suitable
	Blue Boronia	Procumbent or erect & slender shrub, 0.1-0.5 m high. Fl. blue/pink-white	Aug to Nov	Laterite, stony soils, granite	P4	Y	Soils suitable Recorded within Shire of Dardanup
Brachyscias verecundus	Ironstone Brachyscias	Annual (or ephemeral), herb, 0.012-0.022 m high, entirely glabrous. Fl. white/cream; may be a disturbance opportunist the requires fire for seed germination	Nov	In a moss sward on a granite outcrop; winter wet clay over ironstone in open to tall shrubland	T, CE	N	Soils not suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
Chamelaucium erythrochlorum (previously Chamelaucium sp. Yoongarillup)					P4	U	Recorded within Shire of Dardanup
Chamelaucium roycei (previously Chamelaucium sp. S coastal plain)	Royce's Waxflower				T, Vu	U	Not recorded in Shire of Dardanup
	Tall Donkey Orchid	Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow	Nov to Dec or Jan	Low-lying depressions, swamps	T, Vu	N	Soils not suitable
	Dwarf Bee-Orchid	Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow and brown.	Sep - Oct	Brown loamy clay. Winter-wet swamps, in shallow water.	T, Vu	N	Soils not suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
	Purdie's Donkey Orchid	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. yellow	Sep to Oct	Grey-black sand, moist. Winter-wet swamps	T, En	N	Soils not suitable
		Tuberous, perennial, herb, 0.15-0.3 m high. Fl. red & yellow	Sep to Oct	White-grey sand	T, Vu	N	Soils not suitable
		Rhizomatous, clumped perennial, grass-like or herb (sedge), to 0.4 m high. Fl. green	Aug to Nov	Clay, sandy loam. Emergent in freshwater: creeks, claypans	T, Vu	N	Soils not suitable
Gastrolobium sp. Yoongarillup					P1	U	Recorded within Shire of Dardanup

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
		Slender, open shrub, to 1.6 m high. Fl. orange/yellow/red	Oct	Red-grey sandy clay over quartzite. Steep westerly slopes	P2	N	Soils not suitable
		Shrubs, 0.50 m high; branchlets hairy, not glaucous. Leaves alternate, 15-35 mm long, 0.5-1.5 mm wide, hairy, on the adaxial or abaxial surface, the hairs straight; lamina flat, more or less the same width throughout, entire, the margins revolute, enclosing the lower surface of the leaf blade, forming a single groove. Inflorescences axillary, red or brown; pedicels 3-5 mm long. Perianth 6.5-8 mm long; tepals all free after flower opens, hairy, simple-hairy; ovary hairy, stipitate, the stipe 1-2 mm long; pistil 15-20 mm long, red, pollen presenter	July, August, or September	Sandy soils	P2	N	Soils not suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
		lateral or oblique, style glabrous. Follicles hairy, not viscid, dehiscent, 6-10 mm long					
		Shrubs; branchlets hairy. Leaves whorled, 10-30 mm long, 5-8 mm wide, hairy or glabrous; lamina flat, widest around the middle or clearly widest above the middle, once divided, pinnately divided, entire or shallowly divided, the margins flat; apex pungent, 1.2-2 mm long. Inflorescences yellow; innermost bracts 22-27 mm long. Perianth 40-42 mm long, glabrous; pistil 42-45 mm long, style hairy	February, March, April, or December	White sandy soils over laterite, orange/brown-red clay over ironstone. Flats to foothills, winter-wet sites	T, En	N	Soils not suitable
Lasiopetalum laxiflorum					P3	U	Recorded within Shire of Dardanup
Lomandra whicherensis					P3	U	Recorded within Shire of Dardanup
Orianthera wendyae					P1	U	Recorded within Shire of Dardanup

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
	Corymbose Pithocarpa	Erect to scrambling perennial, herb, 0.5-1 m high. Fl. white	Jan to Apr	Gravelly or sandy loam. Amongst granite outcrops	P3	Y	Soils suitable Recorded within Shire of Dardanup
Senecio leucoglossus		Erect annual, herb, to 1.3 m high. Fl. white	Aug to Dec	Gravelly lateritic or granitic soils. Granite outcrops, slopes	P4	Y	Soils suitable Recorded within Shire of Dardanup
Stylidium acuminatum **(Carlquist) Wege subsp. acuminatum (previously *Stylidium acuminatum* subsp. *acuminatum*)**					P2	Y	Recorded within 2 km of Pile Rd
Stylidium paludicola		Reed-like perennial, herb, 0.35-1 m high, Leaves tufted, linear or subulate or narrowly oblanceolate, 0.5-4 cm long, 0.5-1.5 mm wide, apex acute, margin entire, glabrous. Scape mostly glabrous, inflorescence axis glandular. Inflorescence racemose. Fl. pink,	Oct to Dec	Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland	P3	N	Soils not suitable
Stylidium perplexum					P3	U	Recorded in Shire of Dardanup

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
		Shrubs; branchlets hairy. Leaves alternate, 90-220 mm long, hairy; petiole hairy; lamina flat, clearly widest above the middle, once divided, divided only at the apex, shallowly divided, indumentum spreading; terminal leaf lobe 5-7 mm long, 3-5 mm wide. Inflorescences yellow; scape 90-320 mm long; floral bracts 1.5-2 mm long. Perianth 7-8 mm long, hairy; adaxial tepal 7-8 mm long; abaxial tepal 6-6.5 mm long; ovary hairy, style glabrous; style including stigmatic disc 3.5-4 mm long, horned; stigma 2-2.2 mm long, 1.2-1.3 mm wide. Follicles 6-7 mm long	July, August, September, October, or November	Sandy soils. Rises	P3	N	Soils not suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
		Shrubs; branchlets hairy. Leaves alternate, (140-)170-225 mm long, glabrous; petiole glabrous; lamina flat, once divided, tripartitely divided, deeply divided; distance from base of leaf to lowest lobe 30-140 mm; terminal leaf lobe 10-40 mm long, 4-7 mm wide; lowest lobes 25-75 mm long. Inflorescences yellow; scape 155-400 mm long; floral bracts 2-2.2 mm long. Perianth 5-7 mm long, glabrous; adaxial tepal 5-7 mm long; abaxial tepal 4.5-6.5 mm long; ovary hairy, style glabrous; style including stigmatic disc 2.7-3 mm long, strongly concave; stigma 1.5 mm long, 1-1.5 mm wide. Follicles NaN mm (?) long	September, October, or November	Light brown loam, red-brown sandy loam, gravelly, brown sandy clay over laterite. In undulating areas	P3	Y	Soils suitable Recorded within Shire of Dardanup

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
		Shrubs; branchlets hairy. Leaves alternate, 120-240 mm long, hairy; petiole hairy; lamina terete or flat, once divided or twice or more divided, pinnately divided or tripartitely divided, deeply divided or divided to the midrib, indumentum appressed; distance from base of leaf to lowest lobe 75-150 mm; terminal leaf lobe 10-50 mm long, 1.5-8 mm wide; lowest lobes 20-70 mm long. Inflorescences yellow; scape 105-420 mm long; floral bracts 2-3 mm long. Perianth 5-6 mm long, hairy; adaxial tepal 5-6 mm long; abaxial tepal 4-5.2 mm long; ovary hairy, style glabrous; style including stigmatic disc 3-3.5 mm long, lobed; stigma 0.8-1 mm long, 0.6-0.8 mm wide. Follicles 6.5-8.5 mm long	September or October	Sandy with lateritic pebbles. Near winter-wet flats, in low woodland with weedy grasses	T, CE	N	Soils not suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
					T	U	Not recorded in Shire of Dardanup
		Shrubs; branchlets hairy. Leaves alternate, 150-280 mm long, glabrous; petiole glabrous; lamina terete or flat, twice or more divided, pinnately divided, deeply divided or divided to the midrib; distance from base of leaf to lowest lobe 100-160 mm; terminal leaf lobe 5-55 mm long, 2-4 mm wide; lowest lobes 45-90 mm long. Inflorescences yellow; scape 220-330 mm long; floral bracts 1.5-2 mm long. Perianth 5-6 mm long, glabrous; adaxial tepal 5-6 mm long; abaxial tepal 4.2-4.5 mm long; ovary hairy, style glabrous; style including stigmatic disc 3.5-4 mm long,	Aug to Oct	Sandy or sandy clay soils. Winter-wet flats, granite	T, En	N	Soils not suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood (Y/N)	Comment
		horned; stigma 1-1.2 mm long, 1-1.5 mm wide. Follicles 5-6 mm long					

Source: DBCA, 2020a

Appendix 4: Conservation Codes

Western Australia

Conservation Code	Name	Description
T	Threatened	Flora or fauna that is rare or likely to become extinct, ranked according to their level of threat using IUCN Red List criteria (Schedules 1-3 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
CR	Critically endangered	Species considered to be facing an extremely high risk of extinction within the wild in the immediate future
EN	Endangered	Species considered to be facing a very high risk of extinction in the wild in the near future
VU	Vulnerable	Species considered to be facing a high risk of extinction in the wild in the medium-term future
EX	Extinct Species	Species where 'there is no reasonable doubt that the last member of the species has died (Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
EW	Extinct in the Wild	Species that are known to only survive in cultivation, in captivity, or as a naturalised population well outside its past range; and it has not been recorded in its known or expected habitat at appropriate seasons anywhere in its past range, despite surveys over a timeframe appropriate to its life cycle and form
MI	Migratory Species	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth (Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice)
CD	Conservation Dependent	Species of special conservation interest (conservation dependent fauna), being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened (Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice)
OS	Specially Protected	Fauna otherwise in need of special protection to ensure their conservation (Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice)
P	Priority Species	Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of

Conservation Code	Name	Description
		conservation status so that consideration can be given to their declaration as threatened fauna or flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.
P1	Priority One	Poorly known species – Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either very small or on lands not managed for conservation, such as road verges, urban areas, farmland, active mineral lease and under threat of habitat destruction or degradation.
2	Priority Two	Poorly known species – Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, such as national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves and similar.
3	Priority Three	Poorly known species – Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat
4	Priority Four	Rare or near threatened and other species in need of monitoring.

(Source: Department of Biodiversity, Conservation and Attractions, 2019)

Commonwealth

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

(Source: Australian Government, 2020)

Appendix 5: Transect Data

Transect: T1
Date: 08/09/2020
Personnel: SH, KS
GPS Coordinates: 401851.734, 6300266.241
Landform: Mid-slope
Aspect: NE
Soil: Sandy loam
Bare Ground: 0%
Leaf Litter: 80%
Surface Rock: 0%
Drainage: Well drained
Condition: Excellent
Notes: Marri Woodland

Species	Cover (%)	Height (m)
Acacia lateriticola	3	1
Agonis flexuosa	2	4
Amphipogon laguroides subsp. laguroides	3	0.1
Bossiaea aquifolium subsp. aquifolium	25	3
Burchardia congesta	0.1	0.1
Caladenia reptans subsp. reptans	0.1	0.1
Chamaescilla corymbosa	0.1	0.1
Conostylis aculeata	0.1	0.1
Corymbia calophylla	70	20
Cyanicula sericea	0.1	0.1
Eucalyptus marginata	2	6
Hakea amplexicaulis	0.1	0.5
Hakea lissocarpha	1	2
Hibbertia diamesogenos	15	0.5
Leucopogon capitellatus	1	0.5
Lomandra sericea	0.1	0.1
Macrozamia riedlei	0.5	0.5
Neurachne alopecuroidea	0.1	0.1
Opercularia hispidula	0.1	0.1
Patersonia umbrosa	3	0.5
Pteridium esculentum	2	1
Pterostylis crispula	0.1	0.1
Pterostylis turfosa	0.1	0.1
Pterostylis vittata	0.1	0.1
Scaevola calliptera	0.1	0.1
Stylidium carnosum	0.1	0.1

Species	Cover (%)	Height (m)
Stylidium ciliatum	0.1	0.1
Stylidium rhynchocarpum	0.1	0.1
Tetrarrhena laevis	0.1	0.3
Thomasia grandiflora	1	0.5
Tricoryne tenella	0.1	0.1
Trymalium odoratissimum subsp*. odoratissimum*	2	5

* denotes introduced species

Transect: T2
Date: 08/09/2020
Personnel: SH, KS
GPS Coordinates: 398728.098, 6302131.562
Landform: Mid-slope
Aspect: North
Soil: Sandy loam
Bare Ground: 0%
Leaf Litter: 95%
Surface Rock: 0%
Drainage: Well drained
Condition: Excellent
Notes: Jarrah-Marri Woodland

Species	Cover (%)	Height (m)
Acacia lateriticola	10	0.5
Acacia pulchella var. *pulchella*	0.1	0.5
Agonis flexuosa	10	6
Allocasuarina fraseriana	2	10
Amphipogon laguroides subsp. *laguroides*	0.1	0.1
Boronia crenulata	0.5	0.5
Bossiaea aquifolium subsp. *aquifolium*	95	1.5
Conostylis aculeata	0.1	0.1
Corymbia calophylla	50	15
Eriochilus sp.	0.1	0.1
Eucalyptus marginata	20	10
Gompholobium capitatum	0.1	0.5
Lagenophora huegelii	0.1	0.1
Lepidosperma pubisquameum	0.1	0.1
Macrozamia riedlei	0.5	0.5
Opercularia hispidula	0.1	0.1
Patersonia umbrosa	5	0.5
Stackhousia monogyna	0.5	0.3
Stylidium ciliatum	0.1	0.1
Thelymitra crinita	0.1	0.1
Thysanotus multiflorus	0.1	0.1
Trichocline spathulata	0.1	0.1

* denotes introduced species

Transect: T3
Date: 08/09/2020
Personnel: SH, KS
GPS Coordinates: 397515.516, 6303971.177
Landform: Mid-slope
Aspect: South
Soil: Sandy Loam
Bare Ground: 0%
Leaf Litter: 85%
Surface Rock: 0%
Drainage: Well drained
Condition: Excellent
Notes: Jarrah-Marri Woodland

Species	Cover (%)	Height (m)
Acacia pulchella var pulchella	0.5	0.5
Acacia urophylla	1	1.5
Acacia varia var. *varia*	0.5	0.5
Allocasuarina fraseriana	10	10
Banksia dallanneyi subsp. *sylvestris*	1	0.1
Bossiaea aquifolium subsp. *aquifolium*	90	3
Caladenia flava subsp. flava	0.1	0.1
Conostylis serrulata	0.1	0.1
Corymbia calophylla	50	15
Eucalyptus marginata	20	15
Gompholobium capitatum	0.1	0.5
Hakea amplexicaulis	1	1
Hibbertia diamesogenos	4	0.5
Hibbertia perfoliata	0.5	1
Hypolaena exsulca	0.1	0.1
Lagenophora huegelii	0.1	0.1
Lepidosperma pubisquameum	3	0.5
Lomandra purpurea	0.5	0.3
Neurachne alopecuroidea	0.1	0.1
Pterostylis vittata	0.1	0.1
Stylidium ciliatum	0.1	0.1
Thelymitra crinita	0.1	0.1
Thysanotus multiflorus	0.1	0.1
Trichocline spathulata	0.1	0.1
Xanthorrhoea brunonis	3	0.5

* denotes introduced species

Transect: T4
Date: 09/09/2020
Personnel: SH, KS
GPS Coordinates: 395960.096, 6303211.793
Landform: Upper slope
Aspect: West
Soil: Sandy loam
Bare Ground: 1%
Leaf Litter: 95%
Surface Rock: 0%
Drainage: Well drained
Condition: Excellent
Notes: Jarrah-Marri Woodland

Species	Cover (%)	Height (m)
Acacia pulchella var. *pulchella*	0.1	0.5
Allocasuarina fraseriana	2	0.5
Amphipogon laguroides subsp. laguroides	0.1	0.1
Banksia grandis	0.5	0.5
Bossiaea aquifolium subsp. *aquifolium*	80	2
Bossiaea eriocarpa	0.1	0.3
Caladenia flava subsp. *flava*	0.1	0.1
Conostylis serrulata	2	0.1
Corymbia calophylla	50	15
Gompholobium capitatum	0.1	0.5
Hibbertia diamesogenos	0.1	0.3
Hypolaena exsulca	0.1	0.1
Lechenaultia biloba	0.1	0.1
Macrozamia riedlei	0.1	0.5
Persoonia saccata	0.1	0.3
Philotheca spicata	0.1	0.1
Pteridium esculentum	0.1	0.5
Stylidium ciliatum	0.1	0.1
Tetrarrhena laevis	0.1	0.1
Tetratheca hirsuta subsp. *viminea*	0.1	0.3
Thelymitra crinita	0.1	0.1
Thysanotus multiflorus	0.1	0.1
Trachymene pilosa	0.1	0.1

* denotes introduced species

Appendix 6: Flora Species List

* denotes introduced species

Family	Scientific Name	Common Name
Fabaceae	*Acacia iteaphylla**	
Fabaceae	*Acacia lateriticola*	
Fabaceae	*Acacia pulchella* var. *pulchella*	
Fabaceae	*Acacia urophylla*	
Fabaceae	*Acacia varia* var. *varia*	
Apiaceae	*Actinotus glomeratus*	
Myrtaceae	*Agonis flexuosa*	Peppermint
Casuarinaceae	*Allocasuarina fraseriana*	Sheoak
Poaceae	*Amphipogon laguroides* subsp. *laguroides*	
Poaceae	*Amphipogon turbinatus*	
Proteaceae	*Banksia dallanneyi* subsp. *sylvestris*	
Proteaceae	*Banksia grandis*	Bull Banksia
Rutaceae	*Boronia crenulata*	Aniseed Boronia
Fabaceae	*Bossiaea aquifolium* subsp. *aquifolium*	
Fabaceae	*Bossiaea eriocarpa*	Common Brown Pea
Poaceae	*Briza maxima**	Blowfly Grass
Colchicaceae	*Burchardia congesta*	
Orchidaceae	*Caladenia flava* subsp. *flava*	
Orchidaceae	*Caladenia macrostylis*	Leaping Spider Orchid
Orchidaceae	*Caladenia reptans* subsp. *reptans*	
Poaceae	*Cenchrus clandestinus**	Kikuyu
Xanthorrhoeaceae	*Chamaescilla corymbosa*	Blue Squill
Fabaceae	*Chorizema rhombeum*	
Ranunculaceae	*Clematis pubescens*	Common Clematis
Haemodoraceae	*Conostylis aculeata*	Prickly Conostylis
Haemodoraceae	*Conostylis aculeata* subsp. *gracilis*	
Haemodoraceae	*Conostylis serrulata*	
Myrtaceae	*Corymbia calophylla*	Marri
Asteraceae	*Cotula turbinata**	Funnel Weed
Orchidaceae	*Cyanicula sericea*	
Orchidaceae	*Cyrtostylis huegelii*	
Goodeniaceae	*Dampiera linearis*	Common Dampiera
Restionaceae	*Desmocladus flexuosus*	
Orchidaceae	*Disa bracteata**	
Droseraceae	*Drosera erythrorhiza*	Red Ink Sundew
Droseraceae	*Drosera glanduligera*	Pimpernel Sundew
Droseraceae	*Drosera pallida*	Pale Rainbow
Poaceae	*Eragrostis curvula**	African Lovegrass

Family	Scientific Name	Common Name
Orchidaceae	*Eriochilus sp.*	
Myrtaceae	*Eucalyptus diversicolor*	Karri
Myrtaceae	*Eucalyptus marginata*	Jarrah
Fabaceae	*Gompholobium capitatum*	
Fabaceae	*Gompholobium marginatum*	
Proteaceae	*Hakea amplexicaulis*	Prickly Hakea
Proteaceae	*Hakea lissocarpha*	Honey Bush
Fabaceae	*Hardenbergia comptoniana*	Native Wisteria
Dilleniaceae	*Hibbertia amplexicaulis*	
Dilleniaceae	*Hibbertia commutata*	
Dilleniaceae	*Hibbertia diamesogenos*	
Dilleniaceae	*Hibbertia perfoliata*	
Fabaceae	*Hovea chorizemifolia*	Holly-leaved Hovea
Fabaceae	*Hovea trisperma*	Common Hovea
Fabaceae	*Hovea trisperma* var. *grandiflora*	
Myrtaceae	*Hypocalymma angustifolium*	White Myrtle
Asteraceae	*Hypochaeris glabra**	Smooth Cat's Ear
Restionaceae	*Hypolaena exsulca*	
Fabaceae	*Jacksonia furcellata*	Grey Stinkwood
Hemerocalllidaceae	*Johnsonia lupulina*	Hooded Lily
Fabaceae	*Kennedia coccinea*	Coral Vine
Fabaceae	*Kennedia prostrata*	Scarlet Runner
Asteraceae	*Lagenophora huegelii*	
Goodeniaceae	*Lechenaultia biloba*	Blue Leschenaultia
Cyperaceae	*Lepidosperma pubisquameum*	
Myrtaceae	*Leptospermum erubescens*	Roadside Teatree
Ericaceae	*Leucopogon capitellatus*	
Ericaceae	*Leucopogon verticillatus*	Tassel Flower
Asparagaceae	*Lomandra caespitosa*	Tufted Mat Rush
Asparagaceae	*Lomandra preissii*	
Asparagaceae	*Lomandra purpurea*	Purple Mat Rush
Asparagaceae	*Lomandra sericea*	Silky Mat Rush
Primulaceae	*Lysimachia arvensis**	Pimpernel
Zamiaceae	*Macrozamia riedlei*	Zamia
Orchidaceae	*Microtis sp.*	
Fabaceae	*Mirbelia dilatata*	Holly-leaved Mirbelia
Apocynaceae	*Nerium oleander**	Oleander
Poaceae	*Neurachne alopecuroidea*	Foxtail Mulga Grass
Oleaceae	*Olea europaea**	Olive
Rubiaceae	*Opercularia hispidula*	Hispid Stinkweed
Oxalidaceae	*Oxalis glabra**	
Oxalidaceae	*Oxalis pes-caprae**	Soursob
Iridaceae	*Patersonia umbrosa*	Yellow Flags

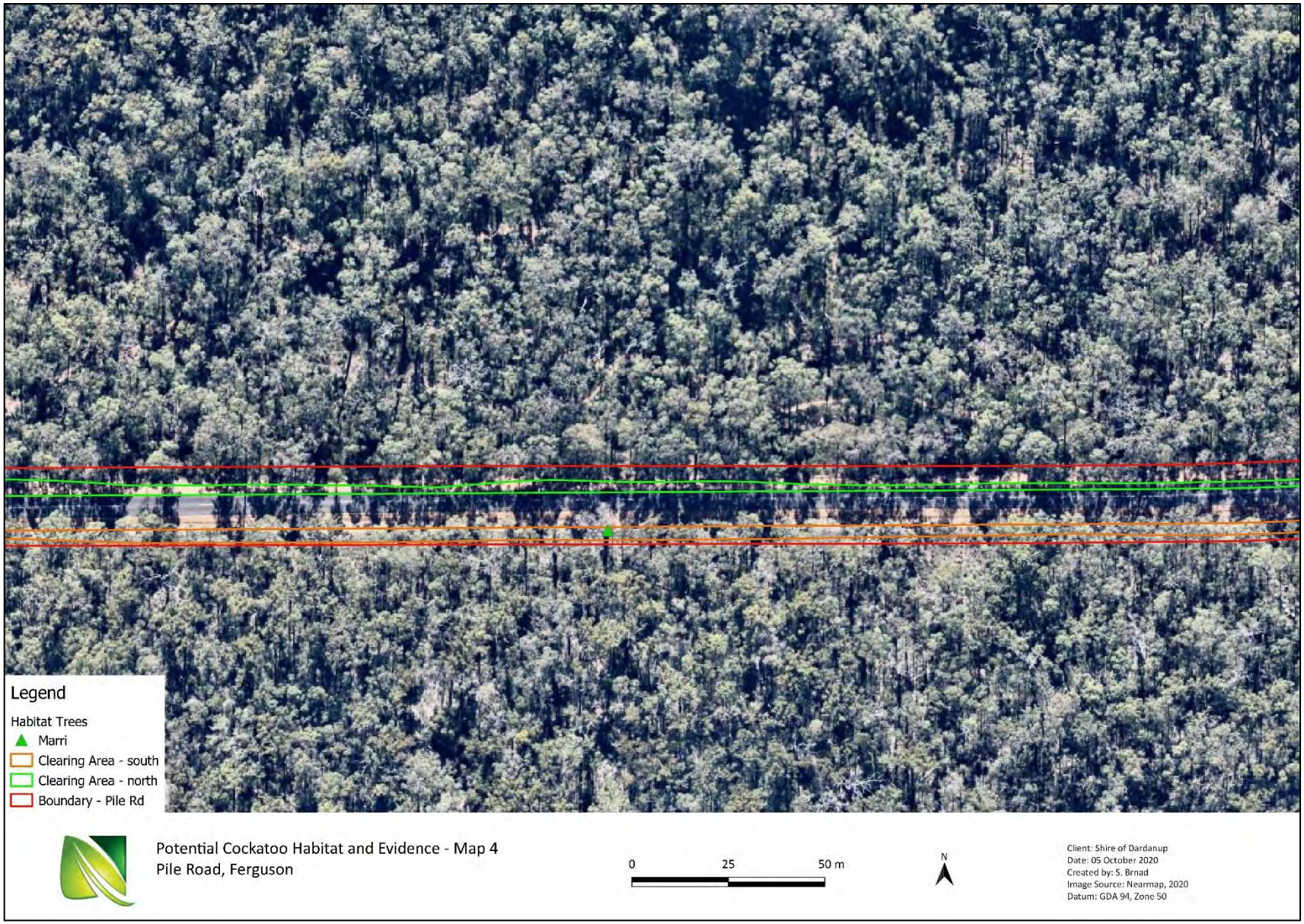
Family	Scientific Name	Common Name
Proteaceae	*Persoonia longifolia*	Snottygobble
Proteaceae	*Persoonia saccata*	Snottygobble
Rutaceae	*Philotheca spicata*	Pepper and Salt
Plantaginaceae	*Plantago lanceolata**	Ribwort Plantain
Dennstaedtiaceae	*Pteridium esculentum*	Bracken
Orchidaceae	*Pterostylis crispula*	Slender Snail Orchid
Orchidaceae	*Pterostylis recurva*	Jug Orchid
Orchidaceae	*Pterostylis turfosa*	Bird Orchid
Orchidaceae	*Pterostylis vittata*	Banded Greenhood
Orchidaceae	*Pyrorchis nigricans*	Red Beaks
Iridaceae	*Romulea rosea**	Guildford Grass
Goodeniaceae	*Scaevola calliptera*	
Asteraceae	*Sonchus oleraceus**	Common Sowthistle
Celastraceae	*Stackhousia monogyna*	
Stylidiaceae	*Stylidium carnosum*	Fleshy-leaved Triggerplant
Stylidiaceae	*Stylidium ciliatum*	Golden Triggerplant
Stylidiaceae	*Stylidium rhynchocarpum*	Black-beaked Triggerplant
Ericaceae	*Styphelia propinqua*	
Proteaceae	*Synaphea gracillima*	
Myrtaceae	*Taxandria linearifolia*	
Poaceae	*Tetrarrhena laevis*	Forest Ricegrass
Elaeocarpaceae	*Tetratheca hirsuta* subsp. *viminea*	Slender Tetratheca
Orchidaceae	*Thelymitra crinita*	Blue Lady Orchid
Malvaceae	*Thomasia grandiflora*	Large Flowered Thomasia
Asparagaceae	*Thysanotus multiflorus*	Many-flowered Fringe Lily
Araliaceae	*Trachymene pilosa*	Native Parsnip
Asteraceae	*Trichocline spathulata*	Native Gerbera
Hemerocalllidaceae	*Tricoryne tenella*	
Rhamnaceae	*Trymalium odoratissimum* subsp. *odoratissimum*	
Asteraceae	*Ursinia anthemoides**	Ursinia
Iridaceae	*Watsonia meriana**	Bugle Lily
Xanthorrhoeaceae	*Xanthorrhoea brunonis*	
Xanthorrhoeaceae	*Xanthorrhoea preissii*	Grass Tree

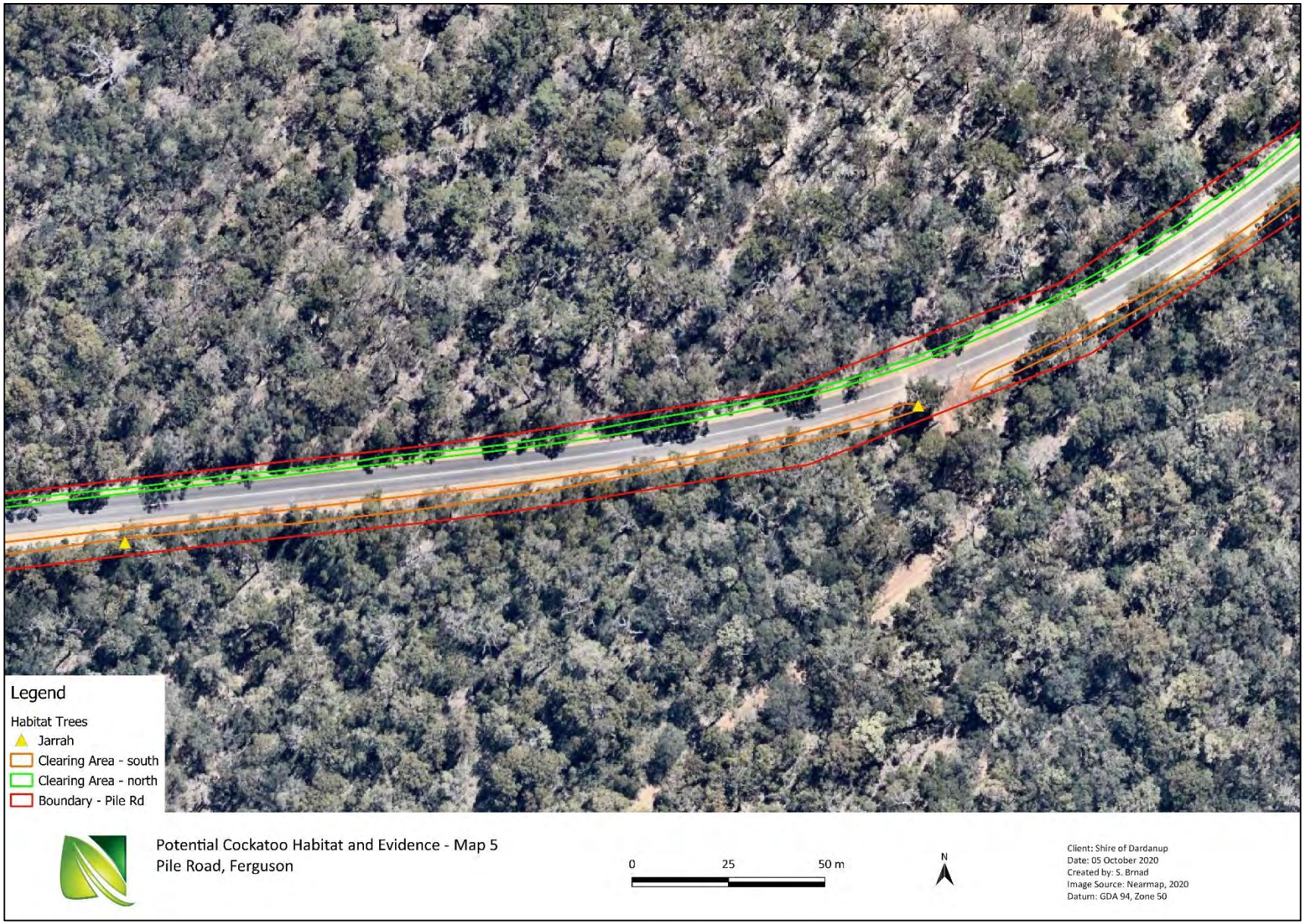
Appendix 7: Detailed Maps – Cockatoo Habitat


Legend
Habitat Trees
Marri
Marri - dead
Feeding Evidence
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 1
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 2
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50

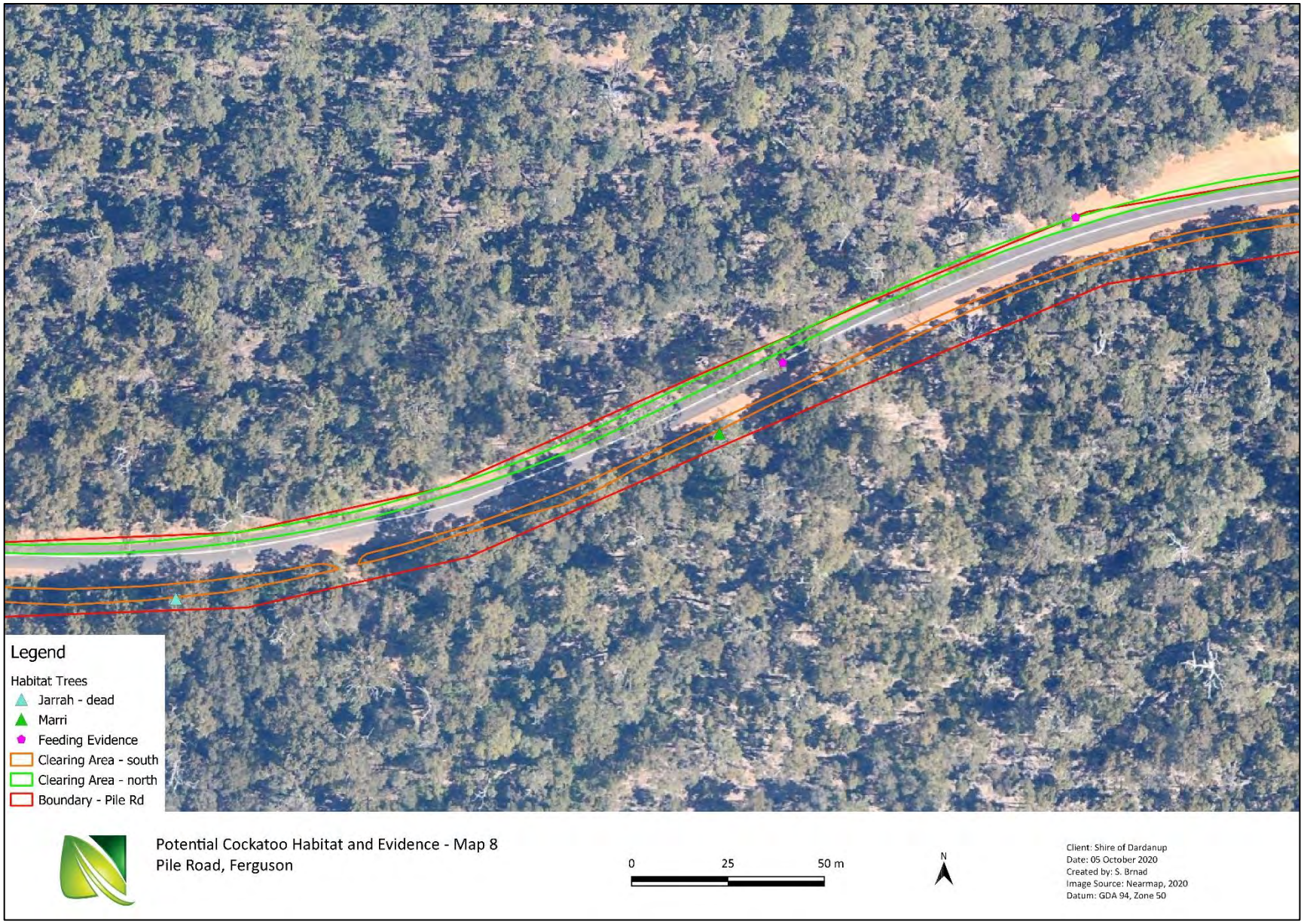

Legend
Habitat Trees
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 3
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 4
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Jarrah
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 5
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Feeding Evidence
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 6
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Jarrah
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 7
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Jarrah - dead
Marri
Feeding Evidence
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 8
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 9
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50

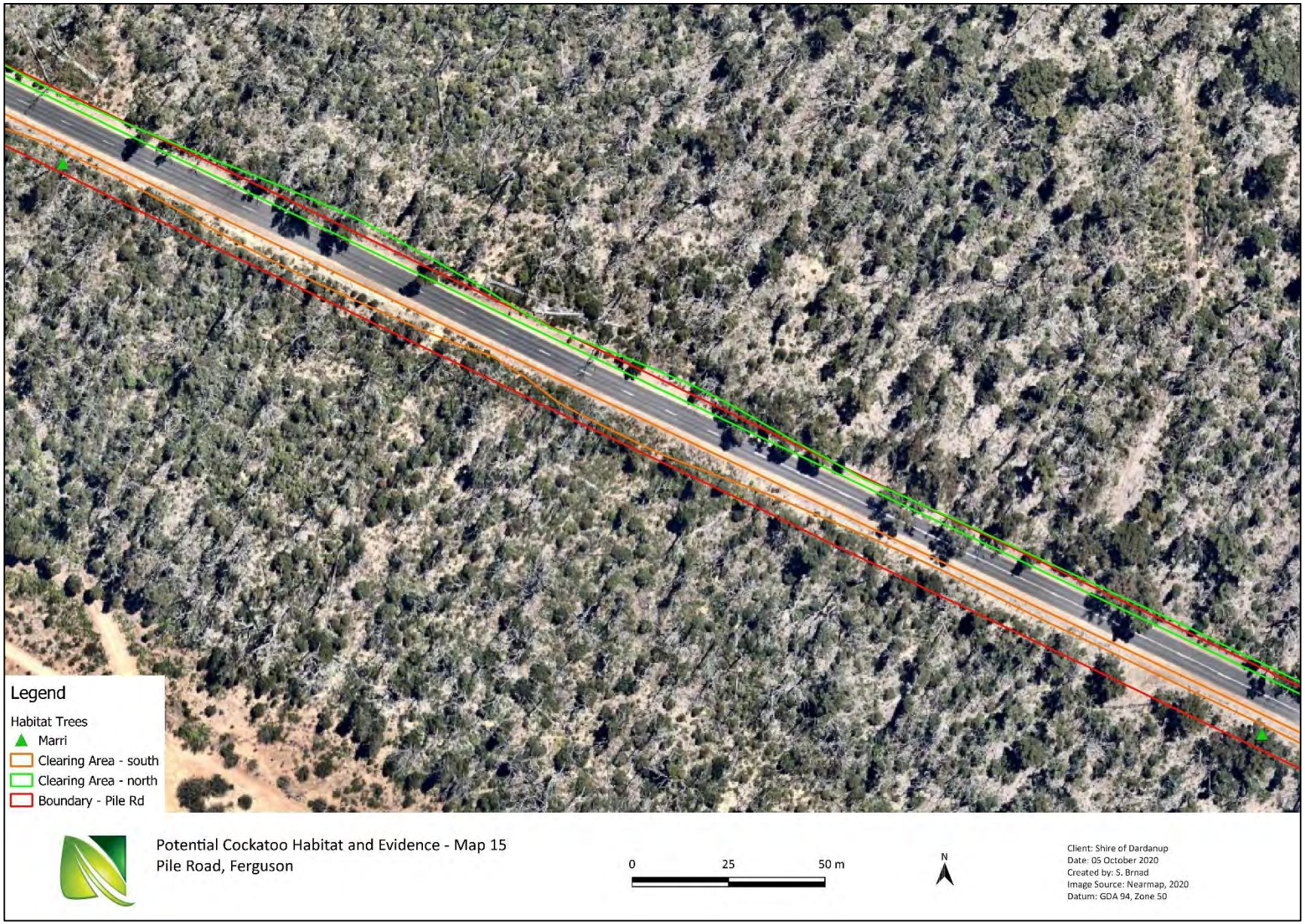

Legend
Habitat Trees
Allocasuarina
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 10
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Allocasuarina
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 11
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Jarrah
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 12
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Jarrah
Karri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 13
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50

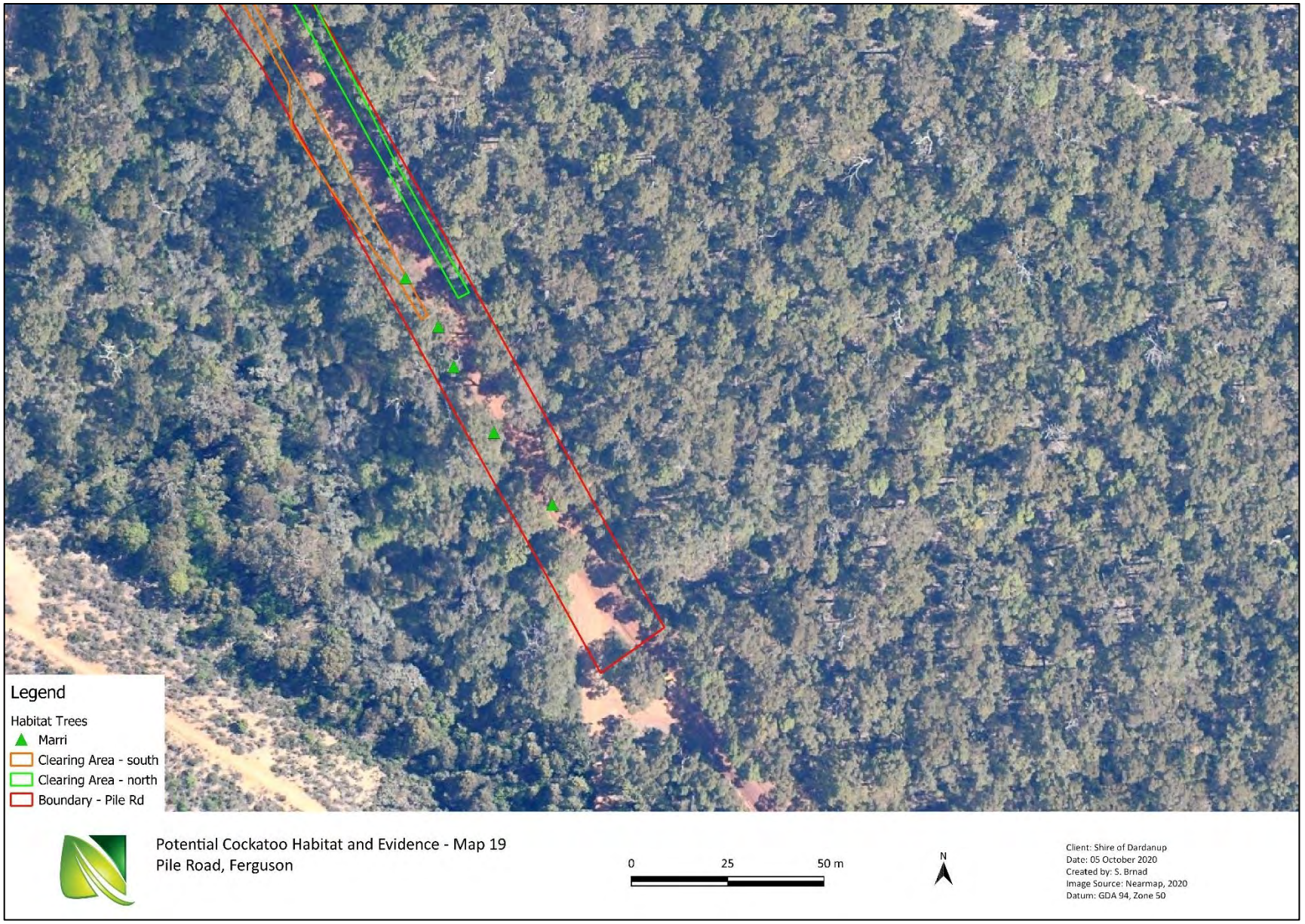

Legend
Trees with Hollows
Habitat Trees
Jarrah
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 14
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 15
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Jarrah
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 16
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Trees with Hollows
Habitat Trees
Jarrah
Marri
Feeding Evidence
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 17
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Trees with Hollows
Habitat Trees
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 18
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50


Legend
Habitat Trees
Marri
Clearing Area - south
Clearing Area - north
Boundary - Pile Rd
Potential Cockatoo Habitat and Evidence - Map 19
Pile Road, Ferguson
0
25
50 m
N
Client: Shire of Dardanup
Date: 05 October 2020
Created by: S. Brnad
Image Source: Nearmap, 2020
Datum: GDA 94, Zone 50