



Natural Area
CONSULTING MANAGEMENT SERVICES

Shire of Chittering Targeted Flora Survey and Black Cockatoo Habitat Assessment Bindoon

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Ngala kaaditj Noongar moort keyen kaadak nidja boodja.

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Executive Summary

The Shire of Chittering (the Shire) is proposing the construction of mountain bike trails at Lot 3874, Bindoon. As part of the development process, the Shire commissioned Natural Area Consulting Management and Services (Natural Area) to undertake biological surveys to determine the environmental values and identify any conservation significant flora and fauna with the Lot.

A detailed flora survey and a basic fauna survey was conducted in 2021, including a preliminary black cockatoo habitat assessment. Information gathered from the survey was submitted to the Shire and DWER for assessment in July 2022. During the preliminary assessment, DWER has identified the need for more information, specifically addressing flora and/or fauna listed as threatened under the *Biodiversity Conservation Act 2016* or protected under the *Environmental Protection and Biodiversity Conservation Act 1999*. As such, the Shire has commissioned Natural Area to undertake a targeted flora search and Black Cockatoo habitat assessment to provide DWER with the additional information required to undertake the assessment of the proposed development.

The targeted flora survey aimed to determine:

- the location of declared rare or priority flora within trail boundaries which were not part of the initial survey area in 2021
- mapping the number of species and extent of populations of significant flora if present.

The Black Cockatoo habitat assessment aimed to determine:

- extent and quality of Black Cockatoo foraging and breeding habitat
- presence of Black Cockatoo through direct or indirect observations (feeding debris, dropped feathers, calls etc.)
- number and extent of potential Black Cockatoo habitat trees. Trees with diameter at breast height (DBH) greater than 300 mm that may contain hollow(s) that may be suitable for Black Cockatoo breeding will be recorded.

No conservation significant flora species were identified within the targeted survey boundary during the 2022 Spring survey. Three species identified bore close resemblance to conservation significant species but did not meet key diagnostic characteristics shown by conservation significant species.

The Black Cockatoo habitat assessment recorded a total of 466 trees with diameter at breast height (DBH) greater than 300 mm. 92 trees were observed to have hollows. Of which, 43 trees contained hollows that may be suitable for Black Cockatoo breeding based on the size of entrance and angle of entry. The site is assessed to be of high foraging habitat quality for all three species of Black Cockatoos based on the Commonwealth foraging quality scoring tool (DAWE, 2022).

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1.0 Introduction

The Shire of Chittering (the Shire) is proposing the construction of a mountain bike trail development at Lot 3874, Bindoon. As part of the development process, the Shire has commissioned Natural Area Consulting Management Services (Natural Area) to undertake biological surveys at the proposed site.

Natural Area conducted a detailed flora and basic fauna survey in September 2021 (Natural Area, 2021). Outcomes from the 2021 survey was presented to the Shire and submitted to DWER as supporting information to assess a clearing permit under section 51E (1) of the *Environmental Protection Act 1986*. From the initial survey and preliminary assessment, DWER has identified the need for more information, specifically addressing significant flora and/or fauna listed as threatened under the *Biodiversity Conservation Act 2016* or protected under the *Environmental Protection and Biodiversity Conservation Act 1999*. As such, the Shire has commissioned Natural Area to undertake an additional targeted flora search and Black Cockatoo habitat assessment to provide DWER with the additional information required for the department to undertake assessment of the proposed development.

1.1 Location

The survey area is approximately 100.76 ha and is located on Lot 3874 Red Hill Road, within the suburb of Bindoon. It is within the Shire of Chittering and approximately 500 m to the east of Bindoon town centre (Figure 1). The site occurs outside of an environmentally sensitive area (Department of Water and Environmental Regulation, 2021). The site boundary was revised since the initial survey conducted by Natural Area in 2021 and is shown in blue in Figure 1 (red boundary reflects original survey boundary). The additional targeted flora survey is conducted within the blue site boundary shown in Figure 1 while the Black Cockatoo habitat assessment covers the entire site (Figure 2).

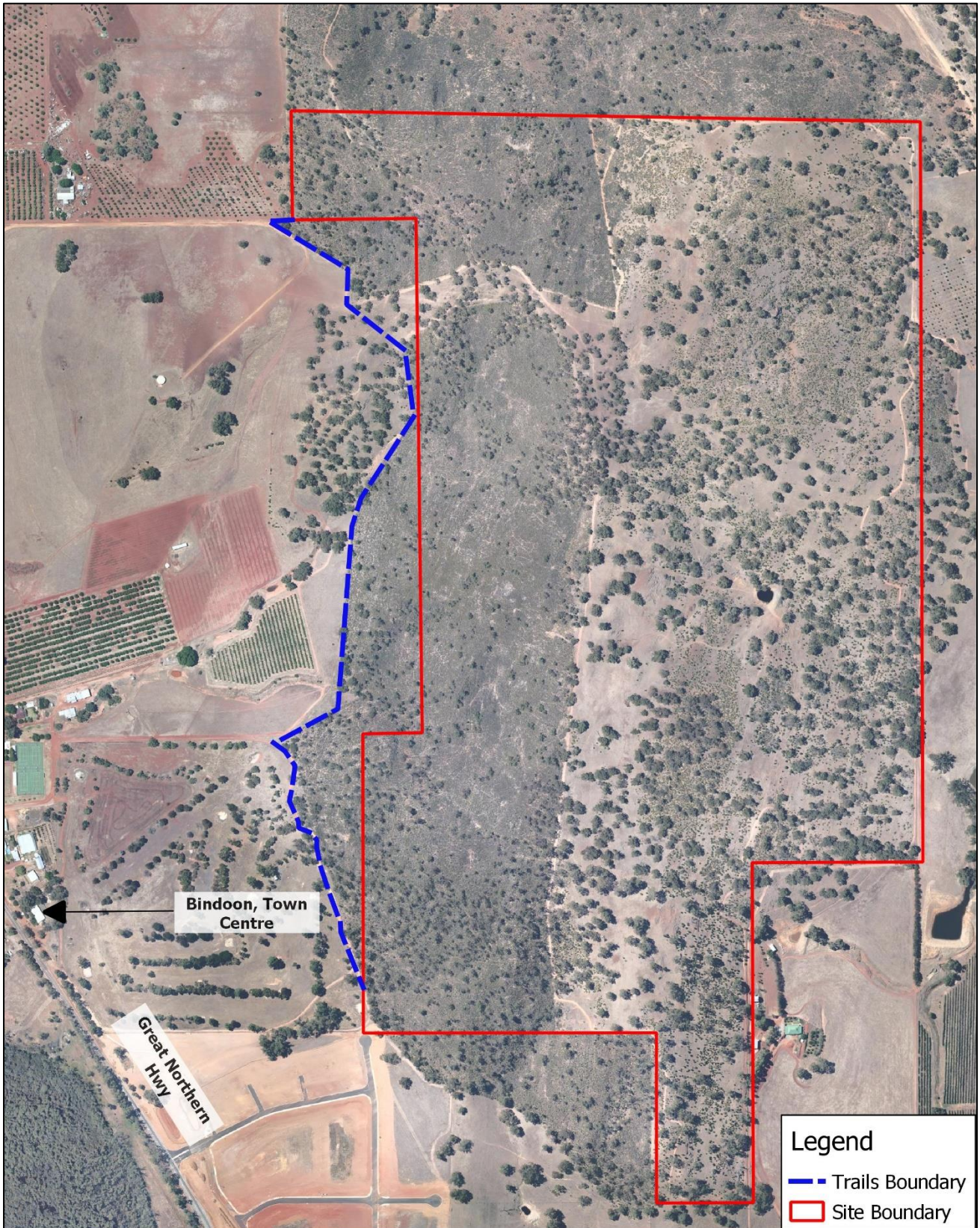
1.2 Scope

Activities undertaken by Natural Area included:

- targeted flora survey to gather extent of significant flora populations if present within the survey area which was not part of the initial detailed flora and vegetation survey in 2021 (blue boundary Figure 1)
- Black Cockatoo habitat assessment to determine potential for black cockatoo breeding and/or foraging habitat value within the site, marking the location of potential habitat trees and recording if suitable hollows are present
- reporting outcomes of the survey.

1.3 Objectives

The main objective of the survey is to provide additional information, as requested by DWER, to continue assessment of clearing permit application (CPS 9796/1).

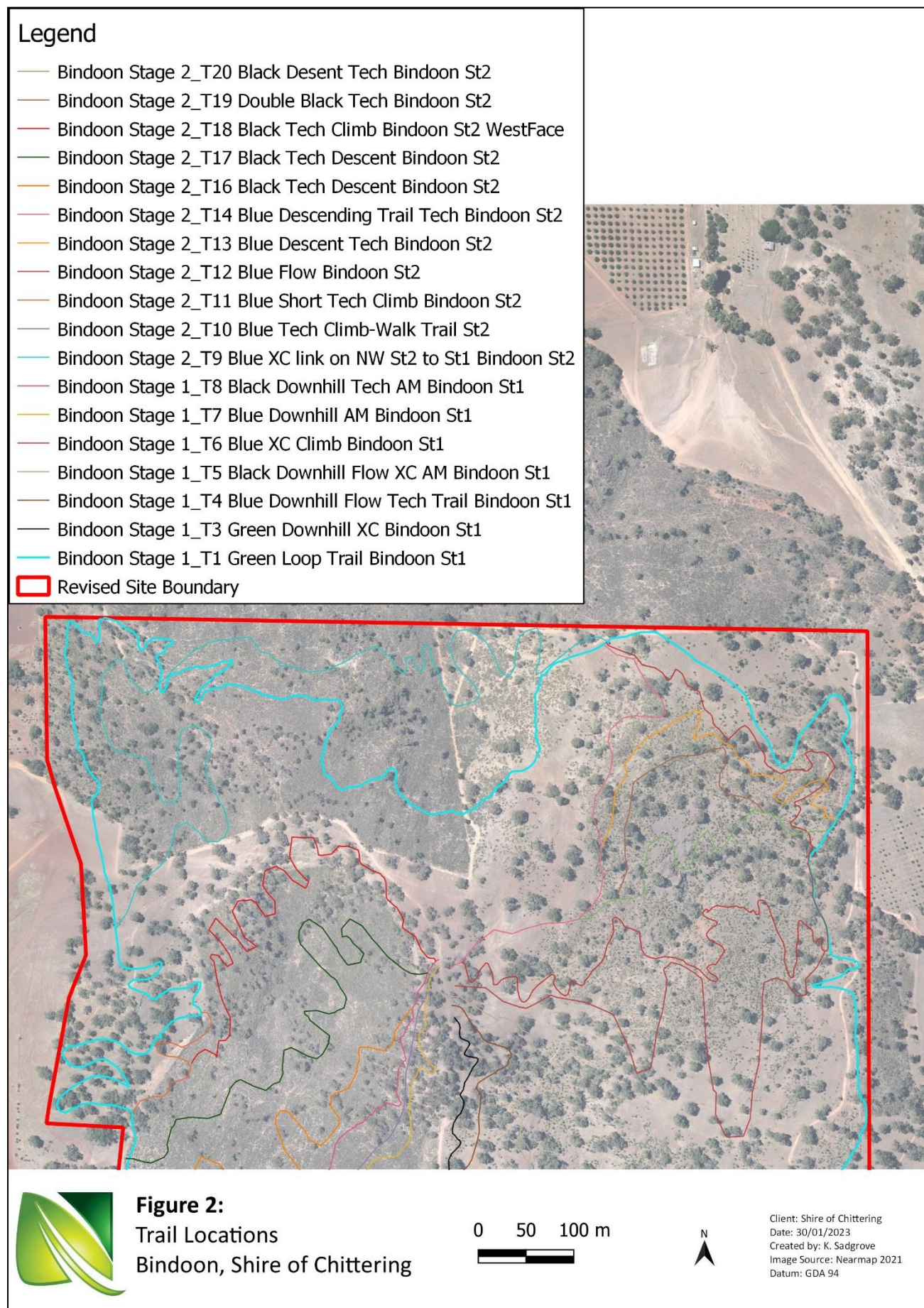


 **Figure 1:**
Site Location
Bindoon, Shire of Chittering

0 100 200 m

N

Client: Shire of Chittering
Date: 02/12/2021
Created by: K. Sadgrove
Image Source: Nearmap 2021
Datum: GDA 94



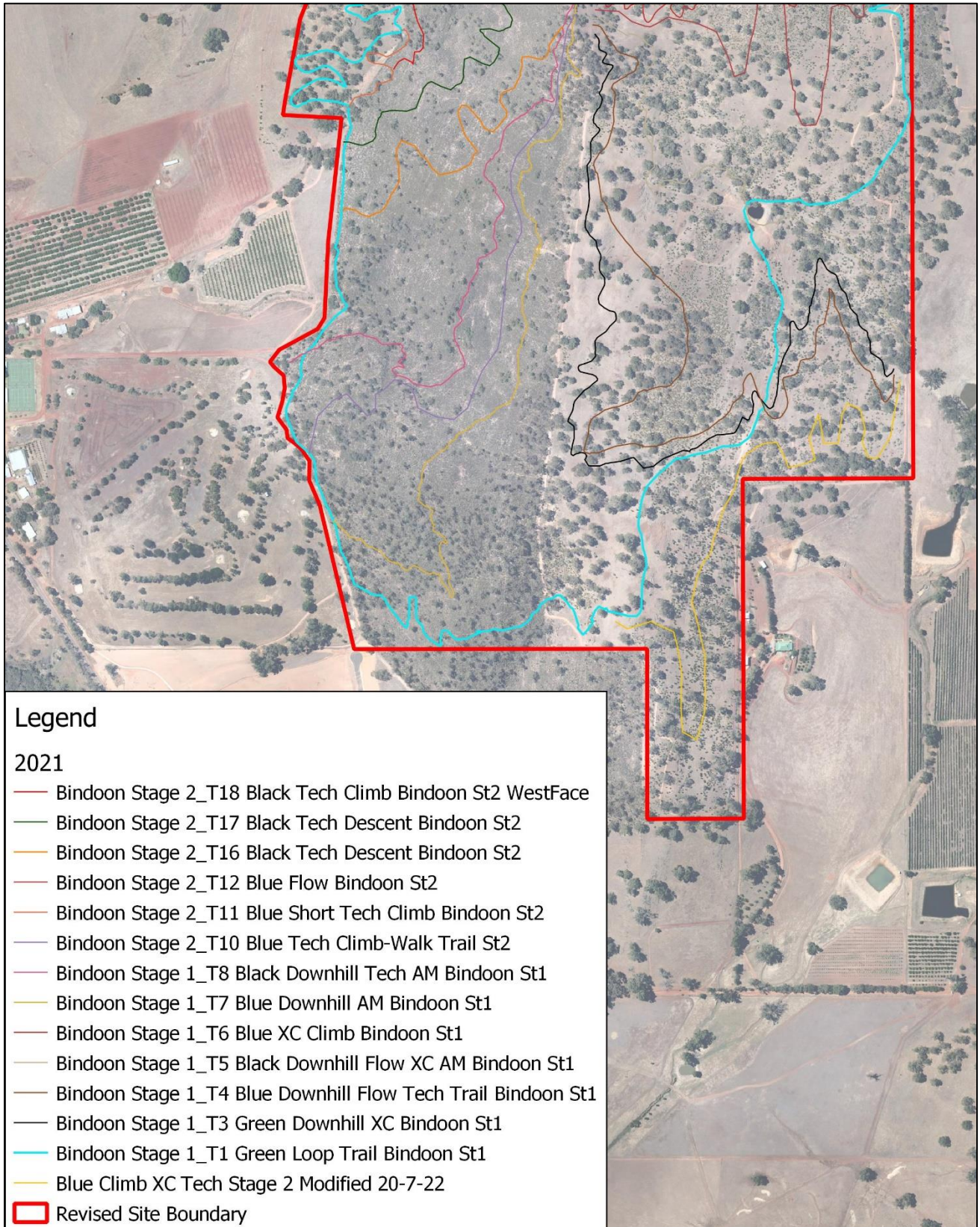


Figure 3:
Trail Locations
Bindoon, Shire of Chittering

0 100 200 m



Client: Shire of Chittering
Date: 30/01/2023
Created by: K. Sadgrove
Image Source: Nearmap 2021
Datum: GDA 94

2.0 Methodology

2.1 Targeted Flora Survey

A targeted flora survey, in accordance with Environmental Protection Authority (2016) Technical Guidance- *Flora and Vegetation Survey for Environmental Impact Assessment*, was conducted to determine the presence and ascertain the size and extent of conservation significant flora within the area not covered in the 2021 survey. Targeted survey was conducted by Natural Area ecologists on 21 October and the 7 and 8 November 2022. Survey dates were split to account for flowering period of target orchid specie, *Cyanicula ixioides* subsp. *candida*. Key data was recorded using Mappt software on a handheld tablet.

Conservation significant flora species were targeted within the search area with those identified by DWER as having the potential to occur were particularly targeted, which were:

- *Goodenia arthrotricha* (Threatened)
- *Grevillea corrugata* (Threatened)
- *Hypocalymma sylvestre* (Threatened)
- *Acacia anarthros* (P3)
- *Acacia browniana* var. *glaucescens* (P2)
- *Acacia drummondii* subsp. *affinis* (P3)
- *Adenanthos cygnorum* subsp. *chamaephyton* (P3)
- *Calothamnus pachystachyus* (P4)
- *Cyanicula ixioides* subsp. *candida* (P2)
- *Eucalyptus exilis* (P4)
- *Gastrolobium nudum* (P2)
- *Hibbertia glomerata* subsp. *ginginensis* (P2)
- *Synaphea rangiferops* (P2).

Results from the Protected Matters Search Tool are provided in Appendix 1. Conservation code descriptions is provided in Appendix 2 and a significant flora species field guide to assist in survey activities is provided in Appendix 3.

2.2 Black Cockatoo Habitat Assessment

The Black Cockatoo habitat assessment was conducted in accordance with the following guidelines:

- Department of Agriculture, Water and the Environment (2022), *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black cockatoo.*
- Department of Environment and Energy (2017), *Revised draft referral guideline for three threatened black cockatoo species: Carnaby's cockatoo (Calyptorhynchus latirostris), Baudin's cockatoo (Calyptorhynchus baudinii), Forest red-tailed black cockatoo (Calyptorhynchus banksii naso).*

Natural Area ecologists undertook the Black Cockatoo habitat survey from 28 November to 2 December 2022, with key data recorded using Mappt software on a handheld tablet. Field survey included:

- traversing the footprint of the proposed trails including a 5 m buffer either side across whole site in a systematic search for potential habitat trees

- recording location and evidence of breeding, roosting and foraging activities (chew marks, feathers, chewed Banksia cones and *Eucalyptus* sp. nuts)
- recording GPS location of each habitat tree with a diameter at breast height (DBH) \geq 300 mm within the 5 m buffer zone of the proposed trails
- recording of the species, height, health of habitat trees recorded.

2.3 Limitations

Potential survey limitations and their impacts are outlined in Table 1.

Table 1: Potential survey limitations with targeted flora survey and Black Cockatoo habitat assessment

Potential Limitation	Degree of Limitation	Comments
Availability of data and information	Not a limitation	Government data on the three Black Cockatoo species as well as published guidelines are available.
Competency/experience of the survey team, including experience in the bioregion survey	Not a limitation	Experienced and qualified ecologists have conducted numerous surveys targeting Black Cockatoo habitat assessments and targeted flora surveys across the Swan Coastal Plain and Jarrah Forest bioregions.
Scope of the survey, e.g., were faunal groups were excluded from the survey	Minor	<p>This is a targeted Black Cockatoo habitat survey. Assessment of hollows were undertaken from the ground. As such determination of exact hollow internal dimensions and hollow occupancy is limited.</p> <p>A Target flora survey of the proposed trail footprint was conducted and therefore the scope of the survey was adequate for the requested information to be gathered.</p>
Timing, weather, season	Not a limitation	<p>Survey was conducted within the main breeding season for Black Cockatoos. Habitat assessment primarily assesses presence and extent of plants and trees preferred by Black Cockatoos. Weather and season were not a limitation.</p> <p>The Targeted Flora survey was conducted during the optimal</p>

Potential Limitation	Degree of Limitation	Comments
		season for surveys (Spring) within the Swan Coastal Plain and Jarrah Forrest regions.
		No recent fires or flooding was evident within the survey site.
Disturbance that may have affected results, e.g., fire, flood	Moderate	Disturbance in the form of construction activities was observed along some of the proposed trails. Vegetation disturbance may impact presence of sensitive flora species.
The proportion of fauna identified, recorded or collected	Not a limitation	This is a targeted Black Cockatoo habitat survey. No specimens were collected.
Adequacy of the survey intensity and proportion of survey achieved, e.g. the extent to which the area was surveyed	Minor	All trees within the survey area with DBH greater than 300mm were systematically surveyed within the specified buffer zone of the proposed trails. All areas were traversed during the Targeted Flora survey.
Access problems	Not a limitation	Ecologists were able to traverse through site with no restriction.
Problems with data and analysis, including sampling biases	Not a limitation	Analysis and assessment of Black Cockatoo habitat was carried out in accordance to published guidelines

3.0 Survey Results

3.1 Targeted Flora Survey

No Threatened or Priority flora were detected within the targeted survey area during the 2022 survey of the site. However, several annual species and orchids with differing life-history traits, may not present annually and therefore may have been undetectable at the time of survey. Some species were observed to bear similarities with the potential Priority and/or Threatened flora targeted during the search with all species determined to be not of conservation significance. Tracklogs of the survey efforts have been provided in Appendix 5.

3.2 Fauna Survey Results

3.2.1 Field survey

A total of 466 trees within the surveyed area were recorded which had DBH \geq 300 mm. Habitat trees, including dead stags, are represented across three species, namely *Corymbia calophylla*, *Eucalyptus accedens* and *Eucalyptus wandoo*. Majority of the potential habitat trees (54.7%) recorded on site are *Eucalyptus wandoo*. Table 2 below outlines the number of trees and their corresponding species while Appendix 4 shows individual characteristics.

Table 2: Habitat trees recorded on site

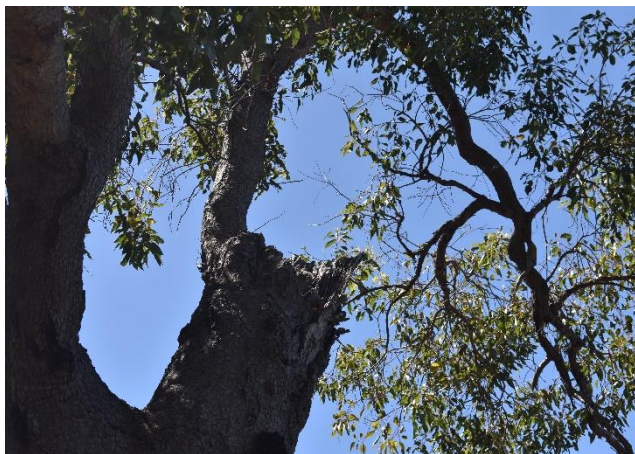
Species	No. of trees with DBH \geq 300mm	
<i>Corymbia calophylla</i>	Trees with hollows: 16	Total no. of <i>Corymbia calophylla</i> : 138
	Dead trees: 36	
<i>Eucalyptus accedens</i>	Trees with hollows: 21	Total no. of <i>Eucalyptus accedens</i> : 73
	Dead trees: 8	
<i>Eucalyptus wandoo</i>	Trees with hollows: 55	Total no. of <i>Eucalyptus wandoo</i> : 255
	Dead tress: 41	

3.2.2 Breeding habitat

Of the 466 potential habitat trees on site, 92 trees were observed to have hollows of various sizes. Black Cockatoos have been recorded to utilise large tree hollows of a vertical or near vertical angle of entry with depth of over 1 m (DBCA, 2017 and DEC 2010). As such, while smaller side entry hollows are present on site and has potential to provide suitable breeding and refuge sites for native species, only vertical/ near vertical (chimney) hollows with entrance greater than 100 mm are identified as suitable potential Black Cockatoo breeding trees. Table 3 outlines the number of trees per species that contain hollows and further differentiated based on hollows that may be suitable for Black Cockatoo breeding based on entrance size and angle of entry. (Table 3, Figure 4)

Table 3: Potential Black Cockatoo habitat trees with hollows

Species	No. of trees with DBH ≥300mm
<i>Corymbia calophylla</i>	Trees with hollows: 16 Suitable Black Cockatoo Breeding hollows: 12 trees with chimney hollows and entrance greater than 100 mm
<i>Eucalyptus accedens</i>	Trees with hollows: 21 Suitable Black Cockatoo Breeding hollows :7 trees with chimney hollows and entrance greater than 100 mm (* one habitat tree (T237) hollow was occupied by bees)
<i>Eucalyptus wandoo</i>	Trees with hollows: 55 Suitable Black Cockatoo Breeding hollows: 24 trees with chimney hollows and entrance greater than 100 mm



Tree 124- Large chimney hollow



Tree 93 – Near vertical chimney hollow



Tree 280- Large chimney hollows



Tree 220- Large chimney hollow and side hollow

Figure 4: Types of tree hollows observed on site

3.2.3 Foraging habitat

A Black Cockatoo foraging habitat scoring tool (DAWE, 2022) was applied to determine the quality of Black Cockatoo foraging habitat. This scoring tool assigns a habitat score between one and ten, with a score of ten representing the maximum possible score and very high quality of foraging habitat. Contextual adjustors

(attributes that improve or reduce functionality of foraging habitat) such as presence of foraging evidence and proximity to known breeding and roosting sites, were considered and used to evaluate habitat quality.

The contextual adjustors applied are consistent for all three Black Cockatoo species, with no evidence attributing to the functional reduction of foraging habitat. The starting score was for all three species are high due to the presence of native Eucalypt Woodland. Natural Area (2021) recorded three vegetation types within the survey site, namely:

- *Corymbia calophylla* and *Eucalyptus wandoo* subsp. *wandoo* Open Woodland
- *Corymbia calophylla* and *Eucalyptus wandoo* subsp. *wandoo* Cleared Open Farmland
- *Eucalyptus accedens* Woodland.

These vegetation communities contain known foraging species such as the seeds of *Corymbia calophylla* (Marri). Feeding debris in the form of chewed Marri nuts were observed within the site (Figure 5).

At least two known Black Cockatoo roosting sites are recorded within a 12 km radius (DBCA, 2019). Nearby Mount Byroomaning Nature Reserve and Julimar State Forest is also likely to provide suitable roosting and foraging habitat. No signs of plant disease were identified within the site. The scoring matrix was applied to the survey area, with a final habitat score of 10 obtained for all Black Cockatoo species (Table 4).

Table 4: Black Cockatoo foraging habitat scoring and justification (10-Very High Quality to 1-Low Quality)

Carnaby's Cockatoo foraging habitat		Starting Score
Site consists of native eucalypt woodland, and it is also located within the modelled distribution of the Carnaby's Black Cockatoo. As such, starting score of 10 (very high quality) is assigned.		10
	Foraging potential	0
	Connectivity	0
Context adjustors: attributes reducing functionality of foraging habitat	Proximity to breeding	0
	Proximity to roosting	0
	Impact from significant plant disease	0
Final Score		10
Baudin's Cockatoo foraging habitat		Score
Site consists of native eucalypt woodland, and it is located towards the northern limits of the species modelled distribution. As such, starting score of 10 (very high quality) is assigned.		10
	Foraging potential	0
	Connectivity	0
Context adjustors: attributes reducing functionality of foraging habitat	Proximity to breeding	0
	Proximity to roosting	0
	Impact from significant plant disease	0
Final Score		10

Forest Red-tailed Black Cockatoo foraging habitat		Score
Site consists of native eucalypt woodland, and it is also located within the modelled distribution of the Forest Red-tailed Black Cockatoo. As such, starting score of 10 (very high quality) is assigned.		10
Context adjustors: attributes reducing functionality of foraging habitat		
	Foraging potential	0
	Connectivity	0
	Proximity to breeding	0
	Proximity to roosting	0
	Impact from significant plant disease	0
Final Score		10



Evidence of previous Black Cockatoo foraging, aged Marri nuts with mandible marking



Evidence of recent Black Cockatoo foraging, freshly chewed Marri nuts

Figure 5: Chewed Marri nuts found within the survey site

3.2.4 Roosting habitat

Black Cockatoos have traditional roosting sites which are well documented in the Great Cocky Count (DBCA, 2019). Two known Black Cockatoo roost sites have been recorded just west and within 5 km of the survey site. The presence of tall mature trees, nearby water source from Brockman River, and favourable foraging species within the site provides potential Black Cockatoo roosting habitat.

4.0 Implications of Results

4.1 Flora Survey

No Threatened or Priority flora were detected within the targeted survey area during the 2022 survey of the site. Three species were identified to be similar to conservation significant species but were ruled out due to diagnostic features which are discussed in the following section.

Goodenia caerulea was identified within the surveyed area and bore resemblance to the Threatened species *Goodenia arthrotricha* (Figure 6). This species was distinguished in the field from the Threatened species due to the presence of a yellow corolla throat whereas *Goodenia arthrotricha* contains a white corolla throat (Threatened Species Scientific Committee, 2017).



Figure 6: *Goodenia caerulea* present within the site distinguished by the presence of a yellow corolla throat

Synaphea acutiloba was identified within the surveyed area and bore resemblance to the Priority 2 species, *Synaphea rangiferops*. Due to the divided nature of the leaves present on the species observed within the site, the species present was identified as *Synaphea acutiloba* which is not a conservation significant species.

Acacia drummondii was identified within the surveyed area and bore resemblance to *Acacia browniana* var. *glaucescens* (Priority 2) and *Acacia drummondii* subsp. *affinis* (Priority 3). Due to diagnostic characteristics present on the species observed during the survey the species was identified as *Acacia drummondii*, which lacked those characteristics present on the potential priority species identified.

4.2 Black Cockatoo Habitat Assessment

The site retains a large number of trees which fulfills species and size requirement of a potential Black Cockatoo habitat tree (DAWE, 2022). Due to the presence of suitable foraging species (*Eucalyptus* spp.) and the presence of feeding debris on site, a high foraging habitat score was attained for all three Black Cockatoo species. Based on the current species distribution, it is very likely that the site provides suitable foraging, roosting and potential breeding habitat for the Carnaby's and Forest Red-tailed Black Cockatoos.

The Shire has confirmed that no Black Cockatoo habitat trees are proposed to be removed as part of the construction of the proposed trails. Construction and design of the proposed trails will take into account retention of Black Cockatoo habitat trees within the project envelope.

4.3 Other Factors

Other factors noted during the survey included trail construction works on one of the trails. The Shire of Chittering has advised that construction activities have commenced on a walking trail which falls under Regulation 5, Item 13 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, an exemption from a Clearing Permit applies to clearing for the purpose of walking tracks.

5.0 References

- Biodiversity Conservation Act 2016*. Western Australia. Retrieved from [https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_44346.pdf/\\$FILE/Biodiversity%20Conservation%20Act%202016%20-%20%5B00-f0-00%5D.pdf?OpenElement](https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_44346.pdf/$FILE/Biodiversity%20Conservation%20Act%202016%20-%20%5B00-f0-00%5D.pdf?OpenElement)
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Threatened Species Scientific Committee. (2017). Conservation Advice *Goodenia arthrotricha*. Retrieved from <http://www.environment.gov.au/biodiversity/threatened/species/pubs/12448-conservation-advice-15022018.pdf>

Appendix 1: PMST Report 10 km



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.

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[Summary](#)

[Details](#)

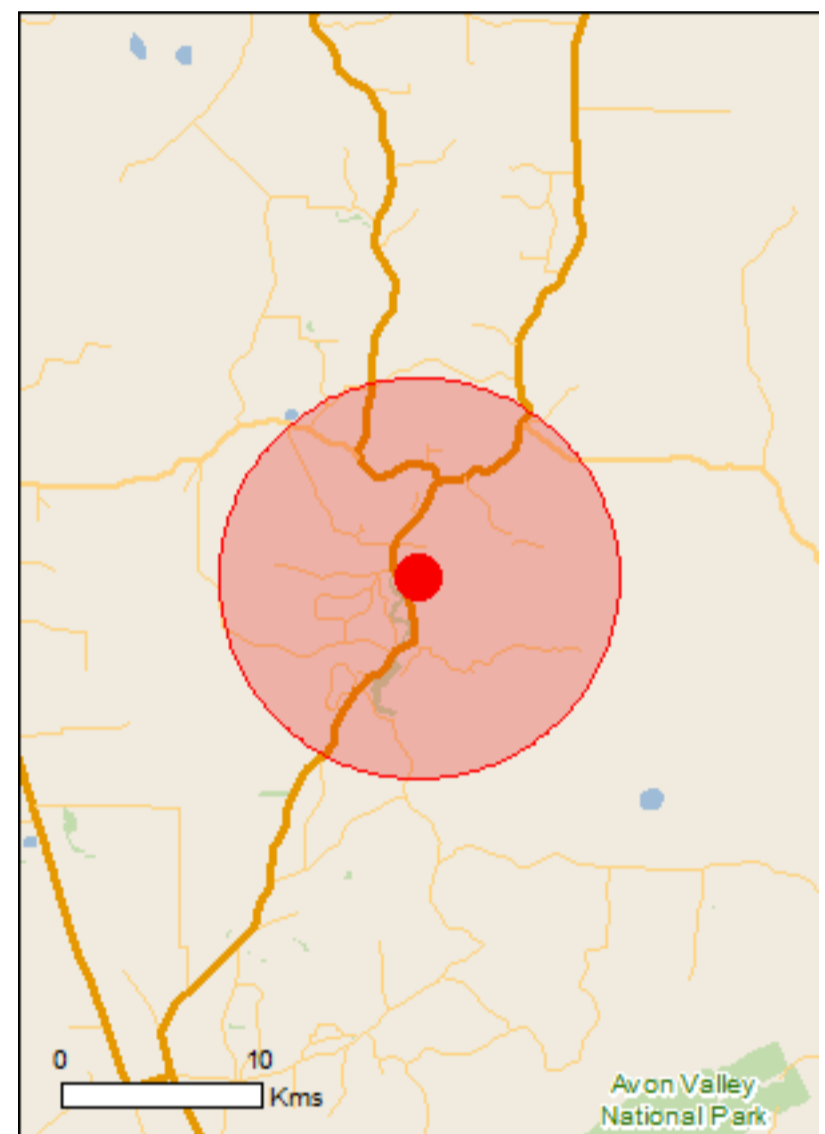
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[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

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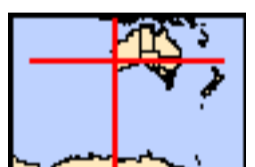
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[Buffer: 10.0Km](#)



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:	3
Listed Threatened Species:	27
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:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	12
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:	18
Nationally Important Wetlands:	1
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
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Name	Status	Type of Presence
------	--------	------------------

Birds

Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Breeding known to 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 likely to occur within area

Mammals

Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Phascogale calura Red-tailed Phascogale, Red-tailed Wambenger, Kenngoor [316]	Vulnerable	Species or species habitat likely to occur within area

Other

Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat likely to occur within area
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Plants

Name	Status	Type of Presence
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Chamelaucium sp. Gingin (N.G.Marchant 6) Gingin Wax [88881]	Endangered	Species or species habitat likely to occur within area
Conospermum densiflorum subsp. unicephalatum One-headed Smokebush [64871]	Endangered	Species or species habitat may occur within area
Darwinia carnea Mogumber Bell, Narrogin Bell [9736]	Endangered	Species or species habitat may occur within area
Diplolaena andrewsii [6601]	Endangered	Species or species habitat may occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat may occur within area
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat may occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat known to occur within area
Eucalyptus leprophloia Scaly Butt Mallee, Scaly-butt Mallee [56712]	Endangered	Species or species habitat may occur within area
Goodenia arthrotricha [12448]	Endangered	Species or species habitat known to occur within area
Grevillea corrugata a shrub [65445]	Endangered	Species or species habitat known to occur within area
Grevillea curviloba subsp. incurva Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
Grevillea flexuosa Zig Zag Grevillea [2957]	Vulnerable	Species or species habitat may occur within area
Hypocalymma sylvestre [86384]	Endangered	Species or species habitat known to occur within area
Melaleuca sciotostyla Wongan Melaleuca [24324]	Endangered	Species or species habitat may occur within area
Ptychosema pusillum Dwarf Pea [11268]	Vulnerable	Species or species habitat may occur within area
Thelymitra dedmaniarum Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area
Thelymitra stellata Star Sun-orchid [7060]	Endangered	Species or species habitat likely to occur within area

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

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

Name	Threatened	Type of Presence
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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

Commonwealth Land [\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name

Commonwealth Land -

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

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

Name	Threatened	Type of Presence
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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 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 likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Burroloo Well	WA
Chittering Lakes	WA
Mount Byroomanning	WA
Unnamed WA42560	WA
Unnamed WA44713	WA

Regional Forest Agreements	[Resource Information]
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Note that all areas with completed RFAs have been included.

Name	State
South West WA RFA	Western Australia

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

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species

Name	Status	Type of Presence
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		habitat likely to occur within area Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		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
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
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
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area

Nationally Important Wetlands		[Resource Information]
Name		State
Chittering-Needonga Lakes		WA

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-31.38619 116.10683

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 2: 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 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

Conservation Code	Name	Description
		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.
P2	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.
P3	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
P4	Priority Four	Rare or near threatened and other species in need of monitoring.



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

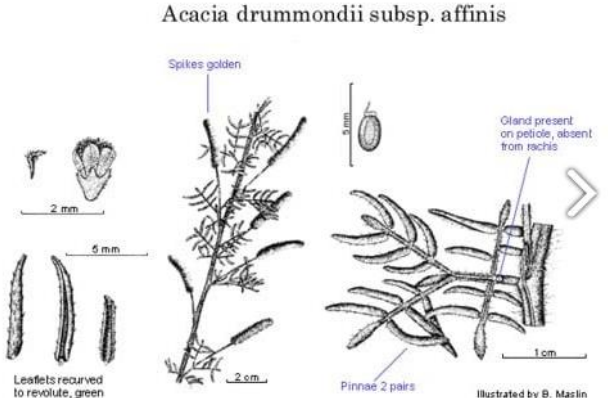
Commonwealth



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



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



Appendix 3: Significant Flora Species Guide



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p data-bbox="174 798 353 821"><i>Acacia anarthros</i></p> <p data-bbox="638 798 795 821">Photos: S.D. Hopper</p>		Erect or prostrate, spinose shrub, 0.1-0.5 m high.	Fl. yellow, Jun to Sep..	Lateritic gravelly soils. Slopes	P3	Habitat may be suitable
 <p data-bbox="318 1308 638 1332"><i>Acacia browniana</i> var. <i>glaucescens</i></p> <p data-bbox="548 1332 654 1348">Photo: B.R. Maslin</p>		Multi-stemmed shrub, 0.2-0.5 m high, spreading by subterranean runners.	Fl. yellow, Aug.	Lateritic gravelly soils.	P2	Habitat may be suitable



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p>Acacia drummondii subsp. affinis</p>		Erect shrub, 0.3-1 m high.	Fl. yellow, Jul to Aug.	Lateritic gravelly soils.	P3	Habitat may be suitable
<p><i>Acacia oncinophylla</i> subsp. <i>oncinophylla</i></p>		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	Habitat may be suitable
<p><i>Acacia pulchella</i> var. <i>reflexa acuminate bracteole variant</i></p>		Shrub, 0.3-1 m high.	Fl. yellow, Jul to Sep.	Sandy loam or sandy clay over laterite. Woodland.	P3	Unlikely-habitat may not be suitable


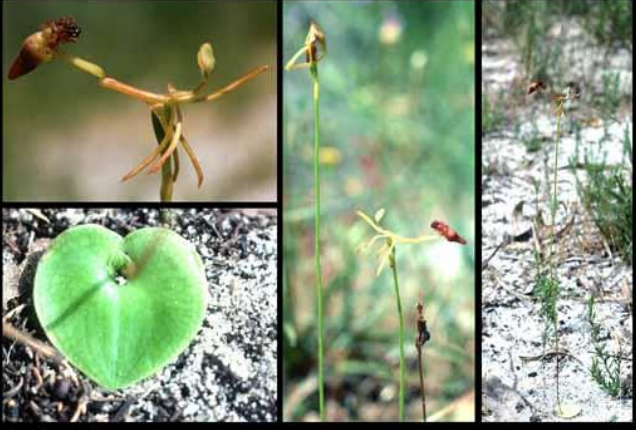
Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p data-bbox="168 762 801 791"><i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i> Photos: A.S. George</p>		Prostrate, mat-forming, non-lignotuberous shrub, to 0.3 m high.	Fl. white-cream-pink-green/green, Jul or Sep to Dec or Jan.	Grey sand, lateritic gravel.	P3	Habitat may be suitable
 <p data-bbox="168 1203 801 1232"><i>Asteridea gracilis</i> Photo: H. Bowler</p>		Annual, herb, 0.15-0.35 m high.	Fl. white-pink, Sep to Dec.	Sand, clay, gravelly soils.	P3	Unlikely- Habitat may not be suitable


Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Asterolasia grandiflora</i> Photos: S.D. Hopper & J.L. Robson</p>		Slender open shrub, 0.2-0.6(-0.8) m high.	Fl. pink/white, Jul to Oct.	Lateritic soils, clay over granite. Breakaways, hills.	P4	Habitat may be suitable
 <p><i>Andersonia gracilis</i> Photos: K. Atkins & M. Hislop</p>		Slender erect or open straggly shrub, 0.1-0.5(-1) m high.	Fl. white-pink-purple, Sep to Nov..	White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps	T/EN	Unlikely- habitat may not be suitable



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Calothamnus pachystachyus</i> Photos: A.D. Crawford & M. Hislop</p>		Erect, much-branched, often straggly shrub, (0.3-)0.6-1.7 m high.	Fl. red-brown-black, Aug to Oct.	Lateritic soils, often gravelly. Ridges, road verges.	P4	Habitat may be suitable
<p><i>Chamelaucium lullfitzii</i> (syn. <i>Chamelaucium</i> sp. Gingin)</p>					T/EN	Unable to assess
 <p><i>Conospermum densiflorum</i> subsp. <i>unicephalatum</i> Photos: S.J. Patrick</p>		Erect, much-branched shrub, 0.3-0.6 m high, inflorescence a spike.	Fl. cream/white & blue, Sep to Nov.	Clay soils. Low-lying areas.	T/EN	Unlikely – habitat may not be suitable


Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Cyamcula ixiooides</i> subsp. <i>candida</i> Photo: A.P. Brown</p>		Tuberous, perennial, herb, 0.04-0.12 m high.	Fl. white, Aug to Oct.	Sand, laterite, gravel.	P2	Habitat may be suitable
 <p><i>Darwinia carnea</i> Photos: M. Hancock & S.D. Hopper</p>	Mogumber Bell	Spreading shrub, 0.2-0.45 m high.	Fl. green & red, Oct to Dec.	Lateritic loam & gravel.	T/EN	Habitat may be suitable



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Darwinia carnea</i> Photos: M. Hancock</p>						
<p><i>Darwinia sp. Bindoon</i></p>					P1	Unable to assess
 <p><i>Diplolaena andrewsii</i> Photo: V.T. Clarke</p>		Erect shrub, 0.5-1 m high, inner involucral bracts glabrous, leaves broadly cordate.	Fl. red, Jul to Oct.	Loam, clay. Granite outcrops & hillsides.	T/EN	Habitat may be suitable



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Diuris drummondii</i> Photos: A. P. Brown and I & M Greeve</p>	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	Unlikely-habitat may not be suitable
 <p><i>Drakaea elastica</i> Photos: A. Brown & S.D. Hopper</p>	Glossy-leaved Hammer Orchid	Tuberous, perennial, herb, 0.12-0.3 m high.	Fl. red & green & yellow, Oct to Nov.	White or grey sand. Low-lying situations adjoining winter-wet swamps.	T/EN	Unlikely-habitat may not be suitable

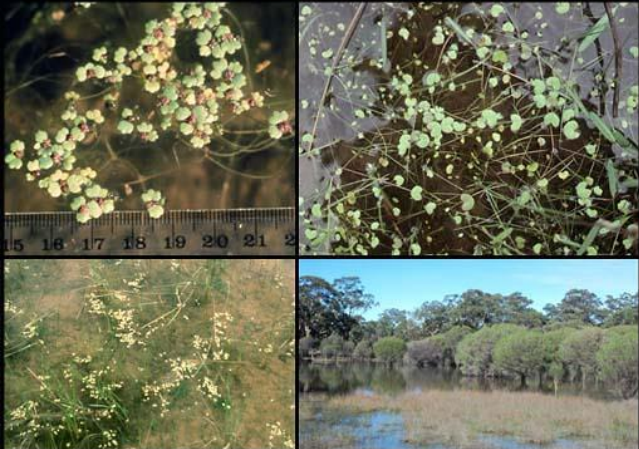
Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p data-bbox="300 868 667 930"><i>Eleocharis keigheryi</i> Photo: G.J. Keighery</p>		Rhizomatous, clumped perennial, grass-like or herb (sedge), to 0.4 m high.	Fl. green, Aug to Nov.	Clay, sandy loam. Emergent in freshwater: creeks, claypans.	V/T	Unlikely-habitat may not be suitable
<p data-bbox="383 975 584 1007"><i>Eucalyptus exilis</i></p>	Boyagin Mallee	(Whipstick mallee), 2-6 m high, bark smooth.	Fl. white, Aug to Oct	Grey sand, gravelly loam. Lateritic ridges.	P4	Habitat may be suitable
<p data-bbox="344 1102 622 1134"><i>Eucalyptus leprophloia</i></p>	Scaly Butt Mallee	(Mallee), 2-5(-8) m high, bark rough loose & flaky to 1 m.	Fl. cream-white, Aug to Oct.	White or grey sand over laterite. Valley slopes.	T/EN	Habitat may be suitable


Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Gastrolobium crispatum</i> Photos: M. Hislop & S.J. Patrick</p>		Tall shrub, to 2.5 m high.	Fl. Yellow & orange & red, Sep to Oct.		P1	Unable to assess
 <p><i>Gastrolobium nudum</i> Photo: J. Hort</p>		Spreading, twiggy shrub, to 0.8 m high.	Fl. Orange & red, Feb.	Red-brown clay, brown loam, gravel, laterite, granite. Flats, slopes, hilltops, ridges, valleys, breakaways.	P2	Habitat may be suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Goodenia arthrotricha</i> Photo: H. Bowler</p>		Erect perennial, herb, to 0.4 m high.	Fl. blue, Oct to Nov.	Gravel. Granite rocks, slopes.	T	Habitat may be suitable
<p><i>Grevillea corrugata</i></p>					EN/T	Unable to assess
<p><i>Grevillea curviloba</i> (syn. <i>Grevillea curviloba</i> subsp. <i>incurva</i>)</p>		Prostrate to erect shrub, 0.1-2.5 m high.	Fl. white-cream, Aug to Oct.	Grey sand, sandy loam. Winter-wet heath.	EN/T	Unlikely-habitat may not be suitable



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Grevillea flexuosa</i> Photos: L. Robson, A.P. Brown & M. Hancock</p>	Tangled Grevillea	Irregular, few-branched, non-lignotuberous shrub, to 2 m high.	Fl. creamy-yellow, Jul to Oct.	Red-brown sand with laterite & gravel, sand over granite. Ridgetop plateau & associated breakaways.	T/VU	Habitat may be suitable
 <p><i>Halgania corymbosa</i> Photo: H. Bowler</p>		Erect shrub, 0.35-1 m high.	Fl. blue-purple, Aug to Nov.	Gravelly soils, soils over granite.	P3	Habitat may be suitable


Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Hibbertia glomerata</i> subsp. <i>ginginensis</i> Photos: A.D. Crawford & J. Hort</p>		Erect shrub, to 0.5 m high.	Fl. yellow, Jul to Sep.	Sand, brown clay, laterite. Near roadsides.	P2	Unlikely-habitat may not be suitable
 <p><i>Hibbertia miniata</i> Photos: C. Chapman, P.J. Davies, C.A. Gardner, S.D. Hopper & J.C. Morgan</p>		Decumbent or erect shrub, 0.1-1 m high.	Fl. orange/orange-red, Aug to Nov..	Lateritic gravelly soils	P4	Habitat may be suitable


Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Hydrocotyle lemnaoides</i> Photos: S.D. Hopper & J.L. Robson</p>		Aquatic, floating annual, herb.	Fl. purple, Aug to Oct.	Swamps.	P4	Unlikely-habitat may not be suitable
<p><i>Hypocalymma sylvestre</i></p>		Spreading shrub, 0.6 m high.	Fl. yellow, Aug.	Yellow-brown sandy loam. Woodland on lateritic hilltop.	T/EN	Unlikely-habitat may not be suitable



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Hypolaena robusta</i> Photos: A.D. Crawford</p>		Dioecious rhizomatous, perennial, herb, ca 0.5 m high.	Fl. Sep to Oct	White sand. Sandplains.	P4	Unlikely-habitat may not be suitable
<p><i>Johnsonia inconspicua</i></p>		Rhizomatous, tufted perennial, grass-like or herb, 0.1-0.3 m high, to 0.2 m wide.	Fl. green-white/pink, Oct to Nov.	White-grey or black sand. Low dunes, winter-wet flats.	P3	Unlikely-habitat may not be suitable
<p><i>Lasiopetalum caroliae</i></p>		Shrub. Stems hairy. Leaves 3-15 mm long, 2.5-12 mm wide, not lobed; margins sinuate or dentate; indumentum present, with stellate hairs; stipules apparently absent, even from youngest leaves. Perianth of two whorls but the corolla reduced to small scales or tiny lobes at the base of the ovary. Pedicel	Flowering time September or October.		P3	Unable to assess


Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
		<p>present, 2-4.5 mm long; indumentum present, with stellate hairs, with scales. Epicalyx (extra segments or 'bracteoles' immediately below the calyx) present, NaN (?) mm long. Calyx pink or purple, 3-5 mm long, the lobes fused less than half their length, stellate hairs present, scales present, number of ribs absent. Corolla glabrous. Stamens five, free and inserted at the base of the ovary; filaments present, 0.1-0.4 mm long; anthers 1.5-2 mm long, indumentum absent (anthers glabrous). Staminodes appendages absent. Ovary hairs or scales present, stellate hairs present; style 1, with a lobed or capitate stigma, 2.8-4.3 mm long, with one style branches or lobes, hairy for most of length.</p>				


Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Lechenaultia magnifica</i> Photos: J. Hort</p>		Erect perennial, herb or shrub (subshrub), to 0.6 m high.		Brown, grey, yellow or white sand, brown sandy loam, laterite. Slopes and flats.	P1	Unlikely-habitat may not be suitable
 <p><i>Melaleuca sciotostyla</i> Photo: P. Brown</p>	Wongan Melaleuca	Spreading shrub, 0.6-1.5 m high.	Fl. Aug.	Orange clayey sand with lateritic pebbles. Scree slopes.	T	Habitat may be suitable
<i>Millotia tenuifolia</i> var. <i>laevis</i>		Ascending to erect annual, herb, 0.02-0.1 m high.	Fl. yellow, Sep to Oct.	Granite or laterite soils.	P2	Habitat may be suitable


Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
<i>Oxymyrrhine coronata</i>					P4	Unable to assess
 <p data-bbox="300 938 667 970"><i>Persoonia rudis</i> Photo: I.R. Dixon</p>		Erect, often spreading shrub, 0.2-1 m high.	Fl. yellow, Sep to Dec or Jan.	White, grey or yellow sand, often over laterite.	P3	Unlikely-habitat may not be suitable
<i>Persoonia sulcata</i>		Erect, spreading to decumbent shrub, 0.2-1 m high.	Fl. yellow, Sep to Nov.	Lateritic or granitic soils.	P4	Unlikely-habitat may not be suitable



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Ptychosema pusillum</i> Photos: S.J. Patrick, I. & M. Greeve & J.L. Robson</p>	Dwarf Pea	Perennial, herb, mostly 0.05-0.1 m high.	Fl. red & brown & yellow, Aug to Oct.	Sand. Rises.	T/VU	Unlikely-habitat may not be suitable
<i>Schoenus capillifolius</i>		Semi-aquatic tufted annual, grass-like or herb (sedge), 0.05 m high.	Fl. green, Oct to Nov.	Brown mud. Claypans.	P3	Unlikely-habitat may not be suitable
<i>Schoenus loliaceus</i>		Annual, grass-like or herb (sedge), 0.03-0.06 m high.	Fl. Aug to Nov.	Sandy soils. Winter-wet depressions.	P2	Unlikely-habitat may not be suitable



Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Schoenus natans</i> Photos: G.J. Keighery & J.L. Robson</p>		Aquatic annual, grass-like or herb (sedge), 0.3 m high.	Fl. brown, Oct.	Winter-wet depressions.	P4	Unlikely-habitat may not be suitable
 <p><i>Senecio gilbertii</i> Photo: S.J. Patrick</p>		Erect, slender perennial, herb, to 1.5 m high.	Fl. yellow, Sep to Nov.	Peaty sand. Swamps, slopes.	P1	Unlikely-habitat may not be suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Stylidium longitubum</i> Photos: M. Hislop and P.G. Armstrong</p>	Jumping Jacks	Erect annual (ephemeral), herb, 0.05-0.12 m high.	Fl. pink, Oct to Dec.	Sandy clay, clay. Seasonal wetlands.	P4	Unlikely-habitat may not be suitable
<p><i>Stylidium roseonatum</i></p>		Diminutive, short-lived annual, herb, 0.015-0.03 m high.	Fl. red-white, Oct.	Swamps.	P3	Unlikely, outside of natural distribution (Great Southern)
<p><i>Styphelia allittii</i></p>						Unable to assess

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p data-bbox="168 1114 797 1161"><i>Synaphea panhesya</i> Photos: R. Butcher</p>		Erect shrub, 0.3-0.6 m high.	Fl. yellow, Aug to Sep.	Gravelly loam & sandy gravel.	P1	Habitat may be suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Synaphea rangiferops</i> Photos: R. Butcher</p>		Shrub, ca 0.3 m high.	Fl. yellow, Jul to Sep.	Sandy loam, gravel.	P2	Unlikely-habitat may not be suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Tetratheca pilifera</i> Photo: I.R. Dixon</p>		Spreading shrub, 0.1-0.3 m high.	Fl. purple, Aug to Oct.	Gravelly soils.	P3	Habitat may be suitable
 <p><i>Thelymitra dedmanianum</i> Photos: A.P. Brown, N. Hoffman & J.L. Robson</p>	Cinnamon Sun Orchid	Tuberous, perennial, herb, to 0.8 m high.	Fl. yellow, Nov to Dec or Jan.	Granite.	EN/T	Habitat may be suitable

Picture	Common Name	Description	Flowering Period	Habitat Type	Cons Code	Likelihood
 <p><i>Thelymitra stellata</i> Photos: A.P. Brown & I. & M. Greeve</p>		Tuberous, perennial, herb, 0.15-0.25 m high.	Fl. yellow & brown, Oct to Nov.	Sand, gravel, lateritic loam.	T/EN	Habitat may be suitable
<p><i>Thysanotus</i> sp. Badgingarra</p>		Perennial, herb (with tuberous roots), ca 0.35 m high.	Fl. blue, Dec.	Grey sand with lateritic gravel.	P2	Habitat may be suitable
 <p><i>Verticordia rutilastra</i> Photos: E.A. Berndt & M. Pieroni</p>		Shrub, 0.2-0.9 m high.	Fl. yellow, Sep to Nov.	Sand & lateritic gravel. Hills.	P3	Habitat may be suitable

Appendix 4: Black Cockatoo Habitat Trees

Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
1	<i>Corymbia calophylla</i>	440	No			Dead	6526640.880	415201.1295
2	<i>Corymbia calophylla</i>	540	Yes. 2 hollows	30x35,25x25	Chimney	Dead	6526641.976	415203.3203
3	<i>Corymbia calophylla</i>	350	No			Dead	6526668.756	415231.3168
4	<i>Eucalyptus wandoo</i>	420	Yes. 4 hollows	8x10,8x8,5x5,3x3	Side and chimney	Yes	6526670.801	415197.922
5	<i>Eucalyptus wandoo</i>	600	Yes. 6 hollows	20x25,5x5,15x15,15x10,15x15	Side	Dead	6526674.865	415194.3823
6	<i>Eucalyptus wandoo</i>	420	No			Dead	6526771.436	415182.9512
7	<i>Corymbia calophylla</i>	340	No			Yes	6526775.925	415184.987
8	<i>Eucalyptus wandoo</i>	440	No			No	6526777.378	415180.225
9	<i>Eucalyptus accedens</i>	420	Yes. 2 hollows	7x7, 15x15	Side	Yes	6526777.644	414943.4803
10	<i>Eucalyptus wandoo</i>	425	No			Yes	6526777.804	415189.7219
11	<i>Eucalyptus wandoo</i>	300	No			No	6526783.652	415179.2815
12	<i>Eucalyptus wandoo</i>	430	No			No	6526786.047	414837.697
13	<i>Eucalyptus wandoo</i>	600	Yes. 2 hollows	15x10,10x10	Side and chimney	Yes	6526790.294	415153.4046
14	<i>Eucalyptus wandoo</i>	630	No			Yes	6526805.843	415114.7989
15	<i>Eucalyptus wandoo</i>	450	No			No	6526817.15	415139.797
16	<i>Eucalyptus wandoo</i>	390	No			No	6526817.643	414790.7988
17	<i>Eucalyptus wandoo</i>	680	Yes. 1 hollow	15x10	Chimney	No	6526821.477	415137.4346

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
18	<i>Eucalyptus wandoo</i>	450	Yes. 1 hollow	15x10	Side	Yes	6526822.65	415024.0267
19	<i>Eucalyptus wandoo</i>	480	Yes. 2 hollows	30x25, 12x12	Side	Yes	6526825.164	414779.4199
20	<i>Eucalyptus wandoo</i>	350	No			No	6526829.054	414781.7474
21	<i>Corymbia calophylla</i>	605	Yes. 1 hollow	10x12	Side	Yes	6526838.305	414873.7427
22	<i>Eucalyptus wandoo</i>	390	No			No	6526840.51	414758.9233
23	<i>Eucalyptus wandoo</i>	650	Yes. 2 hollows	8x10, 5x5	Side	Yes	6526847.036	414753.8967
24	<i>Eucalyptus wandoo</i>	385	No			Yes	6526865.238	414807.4033
25	<i>Eucalyptus wandoo</i>	370	No			Yes	6526872.104	415144.6113
26	<i>Eucalyptus wandoo</i>	520	No			No	6526881.195	415142.9117
27	<i>Eucalyptus wandoo</i>	425	No			No	6526890.569	414727.3679
28	<i>Eucalyptus wandoo</i>	385	No			No	6526892.288	414767.0452
29	<i>Eucalyptus wandoo</i>	340	No			Yes	6526938.522	414850.1322
30	<i>Eucalyptus wandoo</i>	350	No			Yes	6526942.341	414851.6952
31	<i>Eucalyptus wandoo</i>	580	Yes. 1 hollow	35x30	Chimney	Yes	6526943.819	414846.1678
32	<i>Eucalyptus wandoo</i>	350	No			Yes	6526966.844	414837.5
33	<i>Corymbia calophylla</i>	330	No			No	6526975.726	414837.3639
34	<i>Eucalyptus wandoo</i>	370	No			Yes	6526986.767	414701.1745
35	<i>Corymbia calophylla</i>	540	No			Dead	6526986.882	415269.5456
36	<i>Eucalyptus wandoo</i>	420	No			Yes	6527001.686	415072.4974

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
37	<i>Eucalyptus wandoo</i>	460	No			No	6527001.816	415072.8471
38	<i>Corymbia calophylla</i>	540	No			No	6527003.298	415064.004
39	<i>Corymbia calophylla</i>	580	No			No	6527005.565	415280.8395
40	<i>Eucalyptus wandoo</i>	640	Yes. 2 hollows	5x5, 5x5		Yes	6527006.451	415147.5064
41	<i>Eucalyptus wandoo</i>	460	No			No	6527007.272	415158.7856
42	<i>Eucalyptus wandoo</i>	340	Yes. 1 hollow	10x10	Side	Dead	6527014.786	415209.0646
43	<i>Eucalyptus wandoo</i>	560	No			Dead	6527018.373	415123.2758
44	<i>Eucalyptus wandoo</i>	380	Yes. 2 hollows	20x20,20x15	Side	Dead	6527020.833	415180.0677
45	<i>Corymbia calophylla</i>	360	No			Dead	6527022.305	415373.605
46	<i>Corymbia calophylla</i>	330	No. (Birds nest observed photo ref 5)			Yes	6527024.485	415333.3217
47	<i>Eucalyptus wandoo</i>	480	No			No	6527025.094	415087.4508
48	<i>Eucalyptus wandoo</i>	670	Yes. 1 hollow	30x40	Chimney	Dead	6527027.442	415083.6379
49	<i>Eucalyptus wandoo</i>	330, 340	No			Yes	6527027.983	414682.2836
50	<i>Corymbia calophylla</i>	820	No			Yes	6527031.077	414879.0599
51	<i>Eucalyptus wandoo</i>	380	No			No	6527032.629	415163.7446
52	<i>Eucalyptus accedens</i>	410	No			No	6527032.818	415046.3573
53	<i>Eucalyptus wandoo</i>	480	No			Dead	6527033.009	415410.5003
54	<i>Eucalyptus accedens</i>	440	No			No	6527034.202	415044.8476

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
55	<i>Corymbia calophylla</i>	330	No			No	6527035.915	415369.6372
56	<i>Eucalyptus wandoo</i>	460	No			No	6527036.256	415141.5898
57	<i>Eucalyptus wandoo</i>	580	No			No	6527037.603	415139.4747
58	<i>Eucalyptus wandoo</i>	380	No			Yes	6527046.039	414667.2478
59	<i>Eucalyptus wandoo</i>	340	No			Yes	6527047.736	415442.6128
60	<i>Eucalyptus wandoo</i>	490	No			Yes	6527047.901	415443.3767
61	<i>Eucalyptus wandoo</i>	320	No			Yes	6527050.952	414690.1302
62	<i>Eucalyptus wandoo</i>	480	No			Yes	6527056.386	415484.4664
63	<i>Corymbia calophylla</i>	340	No			Dead	6527058.24	415388.1389
64	<i>Eucalyptus wandoo</i>	400	No			Dead	6527059.075	415279.5772
65	<i>Eucalyptus wandoo</i>	450	Yes. 2 hollows	20x20 and 10x15	Chimney and side	Yes	6527059.23	415451.7016
66	<i>Eucalyptus wandoo</i>	460	No			Dead	6527062.082	415392.3798
67	<i>Corymbia calophylla</i>	360, 430, 420	No			Yes	6527064.878	414693.8424
68	<i>Eucalyptus wandoo</i>	400	No			No	6527065.485	414667.1529
69	<i>Corymbia calophylla</i>	420	No			Dead	6527065.613	415076.5054
70	<i>Corymbia calophylla</i>	510	No			No	6527066.177	415079.4977
71	<i>Corymbia calophylla</i>	350	No			Dead	6527072.261	415380.087
72	<i>Corymbia calophylla</i>	380, 340	No			Dead	6527072.542	415414.8352

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
73	<i>Eucalyptus wandoo</i>	340	No			No	6527075.277	414763.0672
74	<i>Corymbia calophylla</i>	460	Yes. 1 hollow	20x20	Chimney	Dead	6527077.137	415414.1285
75	<i>Eucalyptus wandoo</i>	460, 410	No			Dead	6527081.171	415438.2936
76	<i>Corymbia calophylla</i>	430	No			No	6527083.957	414897.822
77	<i>Eucalyptus wandoo</i>	550	No			Yes	6527084.009	414783.4319
78	<i>Eucalyptus wandoo</i>	430	No			No	6527084.459	414772.4611
79	<i>Eucalyptus wandoo</i>	350	No			Yes	6527085.884	414760.494
80	<i>Eucalyptus wandoo</i>	420, 400, 410, 400	No			Dead	6527091.418	415485.3948
81	<i>Eucalyptus wandoo</i>	430	Yes. 3 hollows	10x10, 10x10, 5x5	Side	Yes	6527092.888	414751.7971
82	<i>Eucalyptus wandoo</i>	390	No			Yes	6527093.982	414745.7946
83	<i>Eucalyptus wandoo</i>	330	No			No	6527100.202	414827.8699
84	<i>Eucalyptus wandoo</i>	400	No			Yes	6527101.612	415470.9022
85	<i>Eucalyptus accedens</i>	410	Yes. 1 hollow	15x20	Side	Yes	6527102.357	415139.842
86	<i>Eucalyptus wandoo</i>	650	No			No	6527103.726	414660.7835
87	<i>Eucalyptus wandoo</i>	390	No			Yes	6527105.021	414733.9723
88	<i>Corymbia calophylla</i>	300	No			No	6527105.72	415280.7296
89	<i>Eucalyptus wandoo</i>	400	No			No	6527106.048	415066.8359

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
90	<i>Eucalyptus wandoo</i>	430	No			Dead	6527106.17	414668.7019
91	<i>Eucalyptus wandoo</i>	390	No			No	6527106.173	415066.6117
92	<i>Eucalyptus wandoo</i>	380	No			No	6527107.841	414823.1212
93	<i>Eucalyptus wandoo</i>	490, 430	Yes. 4 hollows	20x15 for first 2, and 15x15 for other 2	Side	Dead	6527111.029	414786.0173
94	<i>Eucalyptus wandoo</i>	310	No			No	6527113.423	414834.6167
95	<i>Eucalyptus wandoo</i>	330	No			No	6527116.344	414838.7056
96	<i>Eucalyptus wandoo</i>	320	No			No	6527118.859	414664.6451
97	<i>Eucalyptus wandoo</i>	520	No			No	6527121.69	414813.5077
98	<i>Eucalyptus wandoo</i>	390	No			Yes	6527130.41	414676.6977
99	<i>Eucalyptus wandoo</i>	360	No			No	6527131.962	414808.7375
100	<i>Eucalyptus accedens</i>	530	Yes. 1 hollow	15x12	Side	Yes	6527132.866	415197.172
101	<i>Corymbia calophylla</i>	480	No			No	6527142.433	415328.4774
102	<i>Eucalyptus wandoo</i>	310	No			Dead	6527143.836	415474.5142
103	<i>Eucalyptus wandoo</i>	450	No			No	6527149.58	414817.8077
104	<i>Corymbia calophylla</i>	460, 450	No			Dead	6527157.16	415450.8781
105	<i>Eucalyptus accedens</i>	410	No			Dead	6527162.964	415207.6402
106	<i>Eucalyptus wandoo</i>	350	No			No	6527164.712	415458.9468
107	<i>Corymbia calophylla</i>	520	No			Yes	6527164.85	414885.272

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
108	<i>Corymbia calophylla</i>	149	No			No	6527164.863	415508.9993
109	<i>Eucalyptus accedens</i>	390	No			Yes	6527165.369	415206.9193
110	<i>Corymbia calophylla</i>	550	No			No	6527169.126	414802.6005
111	<i>Eucalyptus accedens</i>	360	No			Yes	6527172.593	415201.8553
112	<i>Eucalyptus wandoo</i>	460	No			Yes	6527176.939	415456.5844
113	<i>Eucalyptus wandoo</i>	400	No			Yes	6527177.171	414882.7806
114	<i>Eucalyptus wandoo</i>	320	No			Yes	6527177.924	414729.871
115	<i>Corymbia calophylla</i>	410	No			No	6527178.104	415502.6117
116	<i>Corymbia calophylla</i>	480	No			Yes	6527178.898	414981.9817
117	<i>Corymbia calophylla</i>	380	No			No	6527179.587	414883.3348
118	<i>Eucalyptus wandoo</i>	320	No			No	6527180.119	414722.7116
119	<i>Eucalyptus wandoo</i>	420	No			Yes	6527183.024	414732.6987
120	<i>Eucalyptus wandoo</i>	380	No			Dead	6527184.041	414756.3784
121	<i>Corymbia calophylla</i>	790	No			No	6527184.145	415504.157
122	<i>Eucalyptus wandoo</i>	490	No			No	6527185.533	414705.834
123	<i>Eucalyptus wandoo</i>	470	No			No	6527187.255	414745.8313
124	<i>Corymbia calophylla</i>	660	Yes. 2 hollows	20x30 and 15x15	Chimney and side	Yes	6527201.966	414982.368
125	<i>Eucalyptus wandoo</i>	430,470	No			No	6527204.409	415342.2267
126	<i>Corymbia calophylla</i>	365	No			No	6527226.1	415482.3618

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
127	<i>Corymbia calophylla</i>	480	No			Yes	6527226.649	414892.7395
128	<i>Corymbia calophylla</i>	30,35	No			Dead	6527232.85	415332.3045
129	<i>Eucalyptus wandoo</i>	590	No			No	6527233.224	415370.655
130	<i>Corymbia calophylla</i>	470	No			No	6527233.968	414739.6162
131	<i>Eucalyptus accedens</i>	350	Yes. 1 hollow	10x10	Side	Yes	6527234.563	415195.2954
132	<i>Eucalyptus wandoo</i>	430	No			Yes	6527241.014	415404.1632
133	<i>Corymbia calophylla</i>	820	No			No	6527243.981	415378.7934
134	<i>Corymbia calophylla</i>	390	No			No	6527247.547	414957.8631
135	<i>Corymbia calophylla</i>	510	No			Dead	6527247.909	415319.2705
136	<i>Eucalyptus wandoo</i>	390	No			No	6527249.068	414731.6183
137	<i>Eucalyptus wandoo</i>	340	No			Yes	6527251.193	415168.5713
138	<i>Corymbia calophylla</i>	420	No			No	6527253.293	415416.1152
139	<i>Corymbia calophylla</i>	460	No			No	6527254.684	414727.8105
140	<i>Corymbia calophylla</i>	600	No			Dead	6527258.207	415415.6929
141	<i>Corymbia calophylla</i>	420, 380	No			No	6527262.184	414904.6929
142	<i>Eucalyptus wandoo</i>	390	No			No	6527263.12	414727.4548
143	<i>Corymbia calophylla</i>	510	No			No	6527264.323	415450.1394
144	<i>Eucalyptus wandoo</i>	370	No			Yes	6527265.042	415456.6693
145	<i>Corymbia calophylla</i>	440, 400	No			No	6527269.425	415159.4328

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
146	<i>Corymbia calophylla</i>	370, 420	No			Dead	6527269.647	415155.4776
147	<i>Corymbia calophylla</i>	360, 350	Yes. 2 hollows	20x25 , 15x20	Chimney and side	Dead	6527274.777	415150.4625
148	<i>Corymbia calophylla</i>	450	No			Yes	6527288.422	414924.3099
149	<i>Eucalyptus wandoo</i>	550	No			Yes	6527300.456	414933.2346
150	<i>Eucalyptus wandoo</i>	565	No			No	6527300.694	415432.0872
151	<i>Eucalyptus wandoo</i>	400, 410	No			No	6527305.745	414725.6726
152	<i>Corymbia calophylla</i>	730	No			No	6527312.361	415082.6318
153	<i>Eucalyptus wandoo</i>	880	Yes. 3 hollows	10x 15	Side	Yes	6527321.596	415380.3972
154	<i>Eucalyptus wandoo</i>	320	No			No	6527323.225	415389.6935
155	<i>Corymbia calophylla</i>	815	No			Yes	6527331.238	415293.8555
156	<i>Eucalyptus wandoo</i>	440	No			No	6527338.528	415367.4756
157	<i>Eucalyptus wandoo</i>	390	No			Yes	6527358.148	415091.1552
158	<i>Eucalyptus wandoo</i>	610	No			Yes	6527364.46	415094.866
159	<i>Eucalyptus wandoo</i>	440	No			No	6527365.497	415297.1807
160	<i>Eucalyptus wandoo</i>	340	No			Yes	6527365.644	415303.556
161	<i>Eucalyptus wandoo</i>	435	No			No	6527366.345	415394.0632
162	<i>Eucalyptus wandoo</i>	520	No			No	6527369.042	415362.7971
163	<i>Eucalyptus wandoo</i>	490	No			No	6527369.302	415336.0778

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
164	<i>Eucalyptus wandoo</i>	350	Yes. 1 hollow	5x5	Side	No	6527371.592	415426.9868
165	<i>Corymbia calophylla</i>	320	No			No	6527389.46	414942.5536
166	<i>Eucalyptus wandoo</i>	480	Yes. 1 hollow	15x15	Chimney	Yes	6527392.092	415208.1738
167	<i>Eucalyptus wandoo</i>	450	No			Yes	6527393.993	415446.8913
168	<i>Eucalyptus wandoo</i>	360	No			No	6527394.599	415278.6767
169	<i>Eucalyptus wandoo</i>	460	No			No	6527394.652	415285.1802
170	<i>Eucalyptus wandoo</i>	400	No			No	6527394.93	415205.951
171	<i>Eucalyptus wandoo</i>	330	No			No	6527395.506	415206.5839
172	<i>Eucalyptus wandoo</i>	340	No			No	6527395.507	415206.7433
173	<i>Eucalyptus wandoo</i>	485	No			No	6527396.546	415178.328
174	<i>Eucalyptus wandoo</i>	370	Yes. 2 hollows (1 hollow occupied by bees)	12x12, 10x10	Side	Yes	6527397.353	414813.0161
175	<i>Eucalyptus wandoo</i>	490	No			No	6527407.241	415073.2215
176	<i>Eucalyptus wandoo</i>	310	No			No	6527408.752	414740.2319
177	<i>Eucalyptus accedens</i>	510	No			No	6527408.959	415069.8599
178	<i>Eucalyptus wandoo</i>	450	No			No	6527410.978	415260.1161
179	<i>Corymbia calophylla</i>	555	No			Dead	6527420.82	415155.2716
180	<i>Corymbia calophylla</i>	460	No			No	6527422.115	414850.0848
181	<i>Eucalyptus wandoo</i>	400,380	No			Yes	6527429.004	414733.786

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
182	<i>Eucalyptus wandoo</i>	460	No			No	6527430.734	414809.7792
183	<i>Corymbia calophylla</i>	410	No			Yes	6527435.965	414836.6134
184	<i>Eucalyptus wandoo</i>	390	No			Yes	6527439.11	414829.2867
185	<i>Corymbia calophylla</i>	490	No			No	6527443.14	415075.2574
186	<i>Corymbia calophylla</i>	510	Yes. 1 hollow	35x45	Chimney	Dead	6527447.911	415488.0299
187	<i>Eucalyptus wandoo</i>	440	No			No	6527456.389	415500.6824
188	<i>Corymbia calophylla</i>	320	No			No	6527463.448	414935.0016
189	<i>Eucalyptus wandoo</i>	380	No			No	6527467.642	415150.5877
190	<i>Eucalyptus accedens</i>	330	No			Yes	6527468.441	415002.8704
191	<i>Eucalyptus wandoo</i>	360	No			Yes	6527475.49	415371.341
192	<i>Eucalyptus wandoo</i>	500	No			No	6527478.818	415378.8383
193	<i>Corymbia calophylla</i>	350	No			No	6527479.788	415145.9938
194	<i>Corymbia calophylla</i>	360	No			No	6527481.883	415150.0896
195	<i>Eucalyptus accedens</i>	410	Yes. 1 hollow	7x7	Side	Yes	6527486.882	415023.3804
196	<i>Eucalyptus wandoo</i>	500, 380	No			Yes	6527487.098	415359.0681
197	<i>Eucalyptus wandoo</i>	550	Yes. 2 hollows	10x10 for both	Side x2	Dead	6527487.706	415034.947
198	<i>Corymbia calophylla</i>	360, 530	No			Dead	6527490.301	414737.7499
199	<i>Corymbia calophylla</i>	380	Yes. 1 hollow	20x20	Chimney	Yes	6527491.768	414789.3556
200	<i>Corymbia calophylla</i>	380	No			Dead	6527494.515	415138.9877

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
201	<i>Eucalyptus wandoo</i>	370	No			No	6527495.86	415132.6322
202	<i>Eucalyptus wandoo</i>	500	Yes. 1 hollow	12x12	Side	Yes	6527499.897	414993.0182
203	<i>Corymbia calophylla</i>	490	No			Dead	6527500.287	414697.943
204	<i>Eucalyptus wandoo</i>	340	No			No	6527500.685	415090.03
205	<i>Eucalyptus accedens</i>	580	No			Yes	6527501.065	415003.9125
206	<i>Corymbia calophylla</i>	415	No			Yes	6527501.701	414731.2805
207	<i>Eucalyptus wandoo</i>	610	No			Yes	6527502.508	415389.391
208	<i>Eucalyptus wandoo</i>	410	Yes. 1 hollow	30x30	Chimney	Dead	6527504.479	415346.7483
209	<i>Eucalyptus wandoo</i>	480	No			No	6527504.897	415085.0859
210	<i>Corymbia calophylla</i>	310	No			No	6527505.244	414733.8979
211	<i>Corymbia calophylla</i>	320	No			No	6527506.742	414769.7216
212	<i>Eucalyptus accedens</i>	340	No			No	6527507.572	415031.7249
213	<i>Corymbia calophylla</i>	480	No			No	6527508.816	414728.4169
214	<i>Eucalyptus accedens</i>	490	No			No	6527509.535	414668.6632
215	<i>Eucalyptus wandoo</i>	750	Yes. 3 hollows	12x12, 10x10, 15x15	Side	Yes	6527513.25	414957.3607
216	<i>Eucalyptus wandoo</i>	400	Yes. 1 hollow	2x3	Chimney	Dead	6527514.85	415507.0968
217	<i>Eucalyptus wandoo</i>	830	No			Yes	6527516.291	415085.663
218	<i>Eucalyptus accedens</i>	450	No			No	6527519.081	414683.8571
219	<i>Eucalyptus accedens</i>	490	No			Yes	6527520.244	414674.7292

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
220	<i>Eucalyptus wandoo</i>	460	Yes. 2 hollows	20x20, 30x30	Chimney	Yes	6527524.48	414785.6777
221	<i>Corymbia calophylla</i>	590	No			Dead	6527525.653	415391.4037
222	<i>Corymbia calophylla</i>	420	Yes. 1 hollow	8x10	Chimney	Yes	6527525.696	414892.2192
223	<i>Eucalyptus accedens</i>	540	No			Yes	6527526.968	414709.4901
224	<i>Eucalyptus accedens</i>	490	Yes. 1 hollow (occupied by bees)	15x15	Chimney	Yes	6527528.053	415018.136
225	<i>Corymbia calophylla</i>	440	No			Dead	6527532.966	415146.5189
226	<i>Eucalyptus accedens</i>	440	No			Yes	6527534.905	415041.5459
227	<i>Eucalyptus accedens</i>	505	No			No	6527535.43	414739.5182
228	<i>Eucalyptus wandoo</i>	580	Yes. 4 hollows	20x20, 10x15, 10x10,20x30	Side and chimney	No	6527537.919	414803.55
229	<i>Eucalyptus wandoo</i>	310	No			No	6527539.972	415126.3442
230	<i>Corymbia calophylla</i>	420, 350	No			Yes	6527541.65	415270.7265
231	<i>Eucalyptus accedens</i>	350	No			No	6527542.308	415132.6698
232	<i>Corymbia calophylla</i>	470	No			Yes	6527543.706	415266.055
233	<i>Eucalyptus wandoo</i>	510	No			Yes	6527545.533	415103.9812
234	<i>Eucalyptus wandoo</i>	340	No			Yes	6527546.282	414696.8027
235	<i>Eucalyptus accedens</i>	440	No			Yes	6527546.366	414718.801
236	<i>Eucalyptus wandoo</i>	330	No			No	6527546.375	415129.5442
237	<i>Corymbia calophylla</i>	410, 370	No			Yes	6527546.771	415280.1223

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
238	<i>Eucalyptus wandoo</i>	380	No			Yes	6527547.832	414972.989
239	<i>Eucalyptus accedens</i>	330	No			No	6527548.12	415024.0307
240	<i>Eucalyptus wandoo</i>	420	No			Yes	6527548.578	415139.0274
241	<i>Corymbia calophylla</i>	310	Yes. 1 hollow	3x3	Side	Dead	6527550.205	415284.9406
242	<i>Corymbia calophylla</i>	350	No			Yes	6527550.205	415284.9406
243	<i>Eucalyptus accedens</i>	400	No			No	6527550.311	415035.9688
244	<i>Eucalyptus accedens</i>	390	No			Yes	6527550.389	415022.163
245	<i>Corymbia calophylla</i>	380	No			No	6527551.342	415155.1694
246	<i>Eucalyptus wandoo</i>	410	No			Yes	6527551.781	414670.9011
247	<i>Eucalyptus accedens</i>	430	No			Yes	6527551.875	415048.8367
248	<i>Eucalyptus wandoo</i>	550	No			Yes	6527552.181	415086.5194
249	<i>Corymbia calophylla</i>	520	No			Yes	6527552.992	415256.9252
250	<i>Corymbia calophylla</i>	410	No			No	6527554.844	415258.4724
251	<i>Eucalyptus accedens</i>	450	No			Yes	6527554.979	414701.2591
252	<i>Eucalyptus wandoo</i>	400	No			Yes	6527555.663	414757.8771
253	<i>Eucalyptus wandoo</i>	680	Yes. 2 hollows	40x45, 40x45	Chimney	Yes	6527556.315	414834.0394
254	<i>Eucalyptus wandoo</i>	330	Yes. 2 hollows	both 5x5	Side	Yes	6527557.031	415085.9699
255	<i>Eucalyptus wandoo</i>	670	Yes. 4 hollows	8x10, 15x20, 10x10, 10x10	Side	Yes	6527557.359	415341.7931
256	<i>Eucalyptus wandoo</i>	420	Yes. 1 hollow	5x5	Side	Dead	6527557.969	414924.1581

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
257	<i>Corymbia calophylla</i>	370	No			Yes	6527559.746	415291.7181
258	<i>Eucalyptus wandoo</i>	440	No			Yes	6527562.038	415155.7203
259	<i>Eucalyptus accedens</i>	480	No			No	6527563.551	415037.1685
260	<i>Eucalyptus wandoo</i>	520	No			No	6527565.548	415338.2197
261	<i>Eucalyptus wandoo</i>	460	No			No	6527565.768	414693.6469
262	<i>Eucalyptus wandoo</i>	490	No			No	6527566.357	415340.2855
263	<i>Eucalyptus accedens</i>	320	No			No	6527569.429	415112.4275
264	<i>Corymbia calophylla</i>	460	No			No	6527570.341	414686.3722
265	<i>Eucalyptus wandoo</i>	450	No			Dead	6527571.904	414718.561
266	<i>Eucalyptus wandoo</i>	500	Yes. 2 hollows	12x12, 15x20	Side	Dead	6527572.85	415111.794
267	<i>Eucalyptus wandoo</i>	510	No			No	6527573.265	414772.6866
268	<i>Eucalyptus wandoo</i>	450	No			No	6527574.108	415114.3663
269	<i>Eucalyptus wandoo</i>	350	No			No	6527574.784	415107.7929
270	<i>Corymbia calophylla</i>	410	No			Dead	6527575.263	415256.8404
271	<i>Corymbia calophylla</i>	370	No			No	6527575.263	415256.8404
272	<i>Corymbia calophylla</i>	500	No			No	6527575.263	415256.8404
273	<i>Eucalyptus wandoo</i>	300	Yes. 1 hollow	15x12	Side	Dead	6527577.242	415019.6812
274	<i>Eucalyptus accedens</i>	340	No			Yes	6527579.118	415043.7055
275	<i>Eucalyptus accedens</i>	340	Yes. 1 hollow	25x 25	Chimney	Dead	6527581.821	415040.4953

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
276	<i>Eucalyptus accedens</i>	410	No			Yes	6527583.514	415100.5804
277	<i>Eucalyptus wandoo</i>	360	No			No	6527584.043	414841.7205
278	<i>Eucalyptus accedens</i>	470	No			Yes	6527585.657	415098.7457
279	<i>Eucalyptus wandoo</i>	330	No			Yes	6527588.079	414784.0437
280	<i>Eucalyptus wandoo</i>	690	Yes. 4 hollows. (Boobook owl observed)	15x20	Side and chimney	No	6527588.22	415501.4667
281	<i>Eucalyptus wandoo</i>	340	No			Yes	6527589.54	414784.2869
282	<i>Eucalyptus wandoo</i>	310	No			No	6527592.658	414781.4239
283	<i>Eucalyptus accedens</i>	405	Yes. 2 hollows	5x5 for both	Side	Yes	6527593.061	415049.4587
284	<i>Eucalyptus wandoo</i>	400	Yes. 3 hollows	20x20, 5x5, 10x8	Side and chimney	Yes	6527594.923	414841.3769
285	<i>Eucalyptus wandoo</i>	320	No			Yes	6527595.345	414811.4037
286	<i>Eucalyptus wandoo</i>	390	No			Yes	6527595.46	414813.8577
287	<i>Eucalyptus wandoo</i>	320	No			No	6527597.241	414810.4318
288	<i>Eucalyptus accedens</i>	420	Yes. 3 hollows	12x12, 10x10 for both side	Chimney and sidex2	Yes	6527598.631	415032.1011
289	<i>Eucalyptus wandoo</i>	490	Yes. 1 hollow	25x30	Chimney	Dead	6527600.615	415081.025
290	<i>Eucalyptus wandoo</i>	560	No			No	6527602.233	415292.2987
291	<i>Corymbia calophylla</i>	380	No			Dead	6527610.956	415182.4239
292	<i>Corymbia calophylla</i>	450	No			No	6527614.289	415221.8358
293	<i>Corymbia calophylla</i>	560	No			No	6527617.663	415442.6603

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
294	<i>Eucalyptus wandoo</i>	440	No			No	6527618.128	415088.7898
295	<i>Eucalyptus accedens</i>	605	Yes. 1 hollow	20x20	Chimney	Yes	6527621.019	415042.345
296	<i>Eucalyptus accedens</i>	460,320	No			Yes	6527624.236	415055.614
297	<i>Corymbia calophylla</i>	420	No			No	6527624.433	415451.9791
298	<i>Eucalyptus wandoo</i>	450	No			Yes	6527624.677	414774.4358
299	<i>Eucalyptus accedens</i>	330	No			Dead	6527625.574	415079.834
300	<i>Eucalyptus wandoo</i>	720	Yes. 4 hollows	10x10, 15x20, 10x15, 8x10	Side	Dead	6527625.856	415435.803
301	<i>Eucalyptus wandoo</i>	340	No			No	6527626.091	414780.5458
302	<i>Eucalyptus wandoo</i>	640	No			Dead	6527627.501	415450.8065
303	<i>Eucalyptus wandoo</i>	320, 300, 320	No			Yes	6527629.691	414809.6255
304	<i>Eucalyptus wandoo</i>	400	No			No	6527630.064	415093.571
305	<i>Eucalyptus wandoo</i>	420	No			No	6527630.636	415140.6253
306	<i>Eucalyptus accedens</i>	420	No			No	6527631.311	415106.5053
307	<i>Eucalyptus wandoo</i>	650	Yes. 2 hollows	10x10, 5x5	Side	No	6527633.801	415457.0046
308	<i>Corymbia calophylla</i>	420	No			No	6527633.811	415195.6931
309	<i>Eucalyptus wandoo</i>	620	No			Yes	6527634.634	415461.9716
310	<i>Eucalyptus wandoo</i>	350	Yes. 1 hollow	10x15	Chimney	Dead	6527634.99	415455.0183

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Detailed flora and basic fauna survey, Bindoon

Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
311	<i>Eucalyptus wandoo</i>	440	Yes. 1 hollow (Boobook owl sighted in vicinity)	25x25	Side	Dead	6527635.951	415464.0014
312	<i>Eucalyptus accedens</i>	480	Yes. 1 hollow	15x15	Chimney	Yes	6527636.457	415040.8167
313	<i>Eucalyptus wandoo</i>	450	No			Yes	6527636.878	414757.1197
314	<i>Eucalyptus wandoo</i>	360	No			No	6527638.837	415146.4253
315	<i>Eucalyptus accedens</i>	360	No			Yes	6527638.997	415052.7203
316	<i>Eucalyptus wandoo</i>	500	Yes. 2 hollows	30x25,8x10	Side and chimney	No	6527639.273	414825.2339
317	<i>Corymbia calophylla</i>	465, 440	No			Yes	6527640.797	415122.1146
318	<i>Eucalyptus accedens</i>	380, 320, 310, 340	No			Yes	6527643.949	415103.8202
319	<i>Corymbia calophylla</i>	410	No			Dead	6527648.633	415490.2979
320	<i>Eucalyptus wandoo</i>	370, 320	No			Yes	6527649.442	414737.6643
321	<i>Eucalyptus wandoo</i>	310	No			Dead	6527651.174	414743.9312
322	<i>Corymbia calophylla</i>	650	No			No	6527653.642	415078.4903
323	<i>Eucalyptus wandoo</i>	570	No			Yes	6527653.971	415471.6671
324	<i>Eucalyptus wandoo</i>	550	No			Yes	6527654.911	414770.3317
325	<i>Eucalyptus wandoo</i>	340	No			Dead	6527658.217	415486.7772
326	<i>Eucalyptus accedens</i>	340	No			No	6527658.462	415007.8943

Shire of Chittering

Detailed flora and basic fauna survey, Bindoon

Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
327	<i>Corymbia calophylla</i>	480	No			Yes	6527665.788	415442.0481
328	<i>Corymbia calophylla</i>	400	No			Dead	6527672.372	415440.2094
329	<i>Eucalyptus wandoo</i>	300	No			No	6527672.611	414855.6019
330	<i>Corymbia calophylla</i>	390	No			Dead	6527678.123	415464.8403
331	<i>Corymbia calophylla</i>	380	Yes. 1 hollow	30x25	Chimney	Yes	6527680.626	414861.8814
332	<i>Eucalyptus wandoo</i>	380	Yes. 1 hollow	10x10	Side	No	6527681.864	414830.7535
333	<i>Eucalyptus wandoo</i>	320	No			Yes	6527682.118	414858.139
334	<i>Corymbia calophylla</i>	400	No			Yes	6527688.653	414850.1469
335	<i>Eucalyptus wandoo</i>	470	No			No	6527694.128	414720.0195
336	<i>Corymbia calophylla</i>	370	Yes. 1 hollow	5x5	Side	Yes	6527696.346	415172.2941
337	<i>Eucalyptus wandoo</i>	395	No			Yes	6527697.667	414722.0631
338	<i>Corymbia calophylla</i>	390	No			No	6527698.471	415458.3312
339	<i>Corymbia calophylla</i>	460	No			Dead	6527700.262	414845.9076
340	<i>Eucalyptus wandoo</i>	340	No			Yes	6527701.803	414883.1664
341	<i>Eucalyptus wandoo</i>	500	Yes. 3 hollows	15x15,20x20	Side	Dead	6527704.225	414872.8166
342	<i>Eucalyptus accedens</i>	440	Yes. 1 hollow	15x10	Chimney	Yes	6527704.913	415023.8091
343	<i>Corymbia calophylla</i>	340, 310, 540	No			No	6527707.113	415338.1899
344	<i>Eucalyptus wandoo</i>	390	Yes. 1 hollow	7x7	Side	Yes	6527711.185	414722.3355

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Detailed flora and basic fauna survey, Bindoon

Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
345	<i>Corymbia calophylla</i>	570	No			No	6527712.555	415218.8076
346	<i>Corymbia calophylla</i>	530	No			Dead	6527714.746	415462.0894
347	<i>Eucalyptus accedens</i>	550	No			Yes	6527718.221	415006.0697
348	<i>Eucalyptus wandoo</i>	430	No			No	6527725.859	414712.6828
349	<i>Corymbia calophylla</i>	550	No			No	6527726.463	415247.581
350	<i>Corymbia calophylla</i>	430	No			No	6527727.446	415459.3086
351	<i>Corymbia calophylla</i>	330	No			No	6527728.177	415267.3027
352	<i>Eucalyptus accedens</i>	350	No			No	6527728.492	415005.0297
353	<i>Eucalyptus wandoo</i>	480	No			No	6527730.468	414725.4304
354	<i>Corymbia calophylla</i>	415	No			No	6527746.869	415279.6176
355	<i>Corymbia calophylla</i>	390	No			No	6527750.061	415446.7233
356	<i>Eucalyptus wandoo</i>	390	No			Yes	6527750.829	414759.4113
357	<i>Corymbia calophylla</i>	400	No			Yes	6527753.11	415278.515
358	<i>Eucalyptus wandoo</i>	540	Yes. 5 hollows	30x45,20x20,15x20,10x15,15x15	Side and chimney	No	6527754.703	414884.5214
359	<i>Eucalyptus accedens</i>	310	No			No	6527755.275	414989.9864
360	<i>Eucalyptus accedens</i>	310	No			Yes	6527755.828	414987.7501
361	<i>Corymbia calophylla</i>	600	Yes. 1 hollow	5x5	Side	Yes	6527759.094	415257.3917
362	<i>Eucalyptus accedens</i>	450	Yes. 1 hollow	10x10	Side	Yes	6527761.562	414978.9356

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Detailed flora and basic fauna survey, Bindoon

Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
363	<i>Eucalyptus wandoo</i>	550	No			Yes	6527765.515	414774.5956
364	<i>Corymbia calophylla</i>	390	No			No	6527775.81	415233.2801
365	<i>Corymbia calophylla</i>	380	No			No	6527777.119	414956.7779
366	<i>Eucalyptus wandoo</i>	960	Yes. 2 hollows	15x15, 20x25	Side and chimney	Yes	6527777.431	415453.2613
367	<i>Corymbia calophylla</i>	460	No			No	6527780.577	415226.4503
368	<i>Eucalyptus accedens</i>	310	No			Dead	6527783.329	414932.2729
369	<i>Corymbia calophylla</i>	420	No			No	6527789.813	415442.5122
370	<i>Corymbia calophylla</i>	340	No			No	6527794.757	415437.8492
371	<i>Eucalyptus wandoo</i>	330	No			Dead	6527803.325	415383.1001
372	<i>Corymbia calophylla</i>	350 and 300	No			No	6527805.051	415227.9418
373	<i>Corymbia calophylla</i>	430	No			Yes	6527812.558	415465.5713
374	<i>Eucalyptus wandoo</i>	440	No			Yes	6527812.951	415486.7068
375	<i>Corymbia calophylla</i>	330	No			No	6527813.346	414776.7566
376	<i>Corymbia calophylla</i>	450	No			No	6527817.449	415246.6207
377	<i>Corymbia calophylla</i>	320	No			No	6527818.349	415095.4862
378	<i>Eucalyptus wandoo</i>	325	No			No	6527820.886	414833.7984
379	<i>Corymbia calophylla</i>	390	No			Dead	6527821.529	414702.4334
380	<i>Eucalyptus wandoo</i>	560	No			Yes	6527823.423	415424.1308

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
381	<i>Eucalyptus wandoo</i>	330	No			Yes	6527824.275	415376.522
382	<i>Eucalyptus wandoo</i>	380	No			No	6527829.647	414771.937
383	<i>Eucalyptus wandoo</i>	480	Yes. 1 hollow	10 x 10	Side	No	6527838.481	414828.1712
384	<i>Corymbia calophylla</i>	840	Yes. 1 hollow	30x30	Chimney	Yes	6527839.145	415132.4616
385	<i>Eucalyptus wandoo</i>	420	Yes. 1 hollow	15 x 15	Chimney	No	6527841.716	414824.1595
386	<i>Eucalyptus wandoo</i>	430	No			No	6527843.326	414760.8576
387	<i>Corymbia calophylla</i>	540, 350	No			No 350mm is dead	6527844.046	415232.1533
388	<i>Eucalyptus wandoo</i>	460	Yes. 1 hollow	5x5	Side	Yes	6527845.814	414820.874
389	<i>Corymbia calophylla</i>	350, 360	No			No	6527845.829	415460.2968
390	<i>Eucalyptus wandoo</i>	500	Yes. 1 hollow	10x 15	Side	Dead	6527846.198	415470.5921
391	<i>Eucalyptus wandoo</i>	750	No			Yes	6527846.754	415402.0064
392	<i>Corymbia calophylla</i>	640	Yes. 1 hollow	15x15	Chimney	Yes	6527847.963	415398.4575
393	<i>Eucalyptus accedens</i>	490	Yes. 1 hollow	8x10	Side	Yes	6527849.472	414818.1022
394	<i>Corymbia calophylla</i>	515	No			No	6527850.783	415014.4621
395	<i>Corymbia calophylla</i>	380	No			Yes	6527851.635	415287.6647
396	<i>Eucalyptus wandoo</i>	430	No			Yes	6527854.734	415388.3276
397	<i>Eucalyptus accedens</i>	340	No			Yes	6527856.414	414813.3907
398	<i>Eucalyptus accedens</i>	320	No			Yes	6527857.226	414815.7435
399	<i>Eucalyptus wandoo</i>	350	No			Yes	6527858.73	415380.2607

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Detailed flora and basic fauna survey, Bindoon

Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
400	<i>Eucalyptus wandoo</i>	330, 340	No			Yes	6527858.889	414700.5028
401	<i>Eucalyptus accedens</i>	430	Yes. 1 hollow	10 x10	Side	Dead	6527860.867	415424.9121
402	<i>Eucalyptus accedens</i>	360	No			No	6527862.371	414816.403
403	<i>Eucalyptus wandoo</i>	420	No			No	6527862.421	415487.5825
404	<i>Eucalyptus wandoo</i>	340	No			No	6527862.851	415379.8128
405	<i>Eucalyptus wandoo</i>	420	No			Yes	6527866.56	414824.3079
406	<i>Eucalyptus wandoo</i>	430	No			Yes	6527867.984	415429.9878
407	<i>Eucalyptus wandoo</i>	420	No			Yes	6527870.074	414823.3547
408	<i>Eucalyptus wandoo</i>	460	No			Yes	6527870.214	415368.4027
409	<i>Eucalyptus wandoo</i>	430	No			No	6527870.543	414693.9673
410	<i>Eucalyptus wandoo</i>	310	No			Dead	6527871.378	414687.4562
411	<i>Eucalyptus wandoo</i>	320	No			Dead	6527874.15	414719.9868
412	<i>Eucalyptus wandoo</i>	310	No			Dead	6527875.725	414687.5164
413	<i>Eucalyptus wandoo</i>	480	No			Yes	6527877.367	415334.8353
414	<i>Eucalyptus accedens</i>	430, 340	No			Yes	6527880.231	415402.5328
415	<i>Corymbia calophylla</i>	350	No			No	6527880.436	415243.5916
416	<i>Eucalyptus wandoo</i>	430	Yes. 1 hollow	15x20	Chimney	Yes	6527880.886	414791.2555
417	<i>Eucalyptus wandoo</i>	340	No			Yes	6527884.099	415437.5734
418	<i>Eucalyptus accedens</i>	460	No			No	6527886.82	414939.5617

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
419	<i>Eucalyptus wandoo</i>	380	No			No	6527886.969	415490.3494
420	<i>Eucalyptus accedens</i>	550	Yes. 1 hollow	7x7	Side	Yes	6527887.903	415366.4742
421	<i>Eucalyptus accedens</i>	360	No			Yes	6527892.312	414822.8867
422	<i>Eucalyptus wandoo</i>	620, ³⁴ 5	Yes. 1 hollow	30x40	Chimney	Yes	6527894.428	415439.658
423	<i>Eucalyptus accedens</i>	650	No			No	6527894.646	415384.2426
424	<i>Eucalyptus accedens</i>	500	Yes. 2 hollows	30x30	Side	Yes	6527894.944	414807.2104
425	<i>Eucalyptus wandoo</i>	525	No			Dead	6527895.662	415494.2965
426	<i>Eucalyptus wandoo</i>	310	No			Dead	6527895.926	414678.488
427	<i>Eucalyptus wandoo</i>	330	No			Dead	6527897.054	414684.5367
428	<i>Corymbia calophylla</i>	520	No			No	6527899.29	415236.7752
429	<i>Eucalyptus wandoo</i>	390	No			No	6527907.426	415489.5145
430	<i>Eucalyptus wandoo</i>	360	No			No	6527911.562	414677.8504
431	<i>Eucalyptus wandoo</i>	390	No			No	6527915.087	414705.401
432	<i>Corymbia calophylla</i>	560	No			Yes	6527920.02	414952.7786
433	<i>Corymbia calophylla</i>	330	Yes. 1 hollow	20x20	Chimney	Dead	6527920.182	415297.44
434	<i>Corymbia calophylla</i>	320	Yes. 1 hollow	15x15	Chimney	Dead	6527921.502	415295.8032
435	<i>Eucalyptus wandoo</i>	910	Yes. 1 hollow	20x 20	Chimney	Yes	6527928.631	415467.2797
436	<i>Eucalyptus wandoo</i>	570	Yes. 2 hollows	10x10 for both	Side	Dead	6527932.331	414707.3648
437	<i>Eucalyptus wandoo</i>	440	No			Dead	6527932.972	414677.0062

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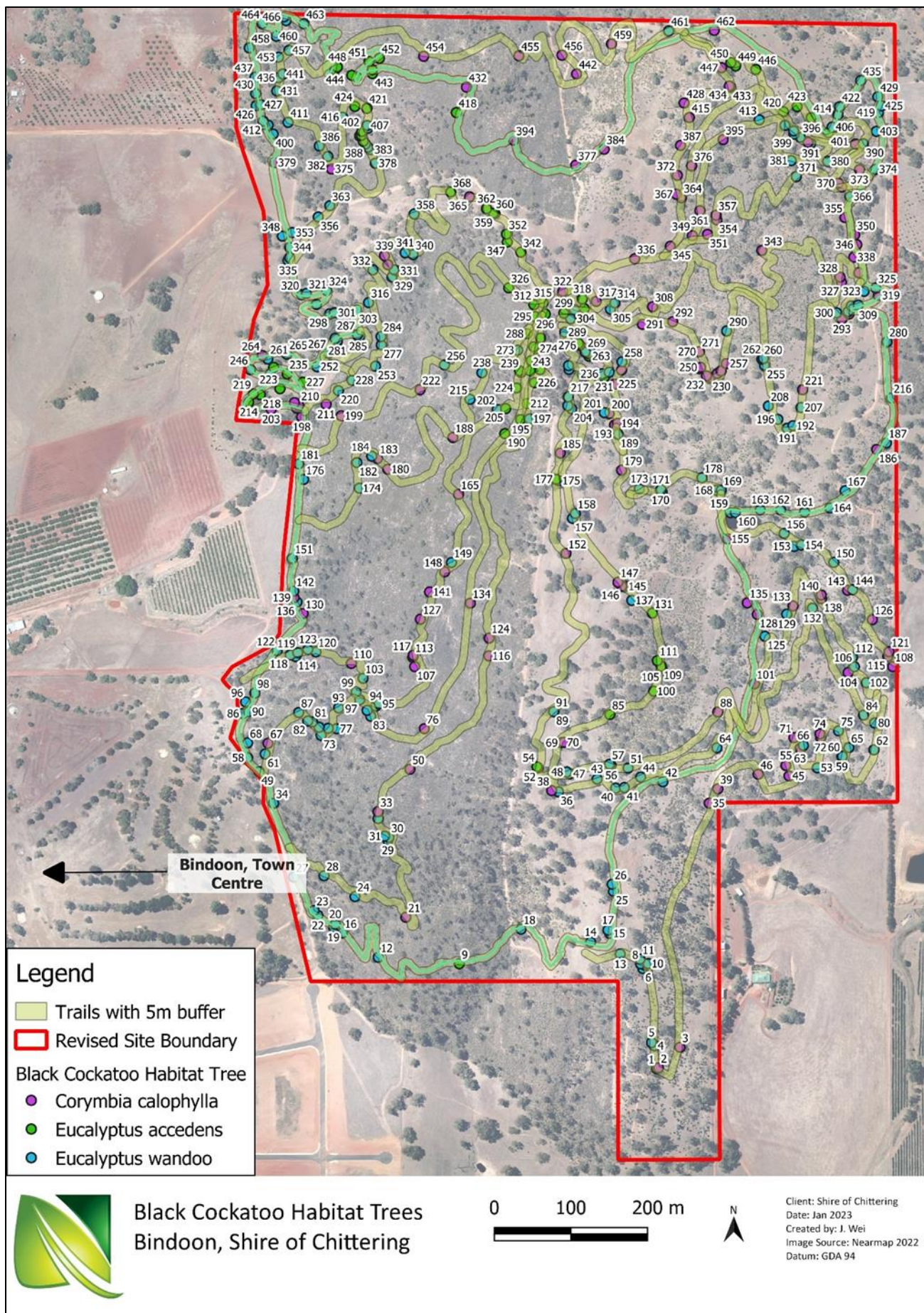
Detailed flora and basic fauna survey, Bindoon

Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
438	<i>Eucalyptus accedens</i>	490	No			Yes	6527933.543	414809.383
439	<i>Eucalyptus accedens</i>	440	Yes. 1 hollow	12x12	Side	Dead	6527935.428	414803.1503
440	<i>Eucalyptus wandoo</i>	490	No			Yes	6527937.074	414713.1608
441	<i>Eucalyptus wandoo</i>	330	No			Yes	6527937.074	414713.1608
442	<i>Corymbia calophylla</i>	450	No			No	6527937.21	415096.4983
443	<i>Eucalyptus accedens</i>	380	No			Yes	6527937.677	414830.0738
444	<i>Eucalyptus accedens</i>	570	Yes. 2 hollows	3x3 and 15x15	Side	Yes	6527942.545	414781.0925
445	<i>Eucalyptus accedens</i>	665	No			Yes	6527942.659	414830.0651
446	<i>Eucalyptus accedens</i>	535	No			No	6527943.039	415330.3502
447	<i>Corymbia calophylla</i>	560	No			Dead	6527945.342	415285.6306
448	<i>Eucalyptus accedens</i>	530	No			Yes	6527946.125	414784.3155
449	<i>Eucalyptus accedens</i>	475	No			Yes	6527947.649	415304.0407
450	<i>Eucalyptus accedens</i>	355	Yes. 5 hollows	5x5, 7x7 small	Side	Dead	6527951.945	415297.7886
451	<i>Eucalyptus accedens</i>	470	No			Yes	6527953.536	414825.5766
452	<i>Eucalyptus accedens</i>	380	Yes. 1 hollow	12x12	Chimney	Dead	6527957.454	414839.0953
453	<i>Eucalyptus wandoo</i>	350	No			Yes	6527959.08	414707.625
454	<i>Corymbia calophylla</i>	355	No			No	6527960.241	414896.9737
455	<i>Corymbia calophylla</i>	380	No			No	6527960.87	415021.188
456	<i>Corymbia calophylla</i>	320	No			No	6527961.612	415077.4251

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Tree No	Species	DBH (mm)	Hollows Present	Approximate Hollow Entrance (cm)	Angle of entry	Senescence	Easting	Northing
457	<i>Eucalyptus wandoo</i>	330	No			Yes	6527968.01	414721.1347
458	<i>Eucalyptus wandoo</i>	330	No			Dead	6527971.205	414669.3292
459	<i>Corymbia calophylla</i>	380	No			No	6527976.317	415141.8705
460	<i>Eucalyptus wandoo</i>	810	Yes. 3 hollows	20x25, 12x12, 15x15	Side and chimney	Yes	6527986.468	414704.5321
461	<i>Eucalyptus wandoo</i>	430	No			Yes	6527993.264	415216.6603
462	<i>Corymbia calophylla</i>	420	No			Dead	6527993.999	415276.1178
463	<i>Eucalyptus wandoo</i>	580	Yes. 1 hollow (occupied by bees)	15x15	Side	Yes	6528002.627	414740.7163
464	<i>Eucalyptus wandoo</i>	310	No			No	6528002.689	414686.0985
465	<i>Eucalyptus wandoo</i>	520	No			Yes	6528006.752	414717.4073
466	<i>Eucalyptus wandoo</i>	400	No			Yes	6528011.679	414714.7208



Appendix 5: Track Logs

