



WESTERN
ENVIRONMENTAL

Abercrombie Road Quarry Expansion

Native Vegetation Clearing Permit
Supporting Document

Western Environmental Pty Ltd

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Abercrombie Road Quarry Expansion

Native Vegetation Clearing Permit
Supporting Document

Report No:

A25.363_RPT-NCVP_0

Issue Date:

2-Apr-2026

Status

FINAL

Prepared for:

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23-Mar-2026	27-Mar-2026	27-Mar-2026

Distribution Record

Copies	Document ID / Version	Date	Received by
1 (E)	A25.363_RPT-NVCP_0_DRAFT	27-Mar-2026	WA Limestone
1 (E)	A25.363_RPT-NVCP_0_FINAL	2-Apr-2026	WA Limestone

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Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. To the maximum extent permitted by law, no other warranty, express or implied, is made.

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WEPL will not be liable to update or revise this report to take into account any events or circumstances or facts becoming apparent after the date of this report.

Executive Summary

Project Background

P.M.R Quarries Pty Ltd T/A WA Limestone Co (WA Limestone) are proposing to undertake clearing associated with the Abercrombie Road Quarry expansion. The proposed quarry expansion will necessitate the clearing of 14.68 ha of native vegetation within a 15.15 ha clearing footprint. The proposed works will be undertaken within Mining Tenement M70/565 (the 'Site'), within the City of Wanneroo (Figure 1).

Summary of Potential Impacts

The Abercrombie Road Quarry expansion will necessitate the clearing of 14.68 ha of remnant native vegetation, which includes the following values:

- 14.68 ha of native vegetation mapped within the Cottesloe Complex - Central and South.
- 14.68 ha of native vegetation in 'Good' condition.
- 7.24 ha of vegetation representative of the Banksia woodlands of the Swan Coastal Plain (State-listed Priority Ecological Community [PEC] and Commonwealth-listed Threatened Ecological Community [TEC]) with a habitat quality score of 4/10.
- 5.18 ha of vegetation representative of the Tuart woodlands of the Swan Coastal Plain (State-listed PEC and Commonwealth-listed TEC) across two patches, each with a habitat quality score of 5/10.
- 10.47 ha foraging habitat for Carnaby's black cockatoo with a weighted average quality of 'Low to Moderate'.
- 9.53 ha of foraging habitat for Forest red-tailed black cockatoo, all of which is of 'Low to Moderate' quality.
- 27 potential nesting trees (DBH > 50 cm), none of which contain suitable hollows for black cockatoos (comprising part of the foraging habitat described above).
- 161 trees that may constitute potential roosting habitat (comprising part of the foraging habitat described above).
- 14.68 ha of potentially suitable habitat for Priority fauna, including quenda, western brush wallaby, Perth slider, Graceful sunmoth and swan coastal plain shield-backed trapdoor spider.

Avoidance and Mitigation

Avoidance

WA Limestone reduced the clearing footprint as far as possible, and elected to retain a vegetated border around the perimeter of the Site (20 m from lease boundary). Through this measure the Abercrombie Road Quarry Expansion will avoid impacts to following values:

- 2.24 ha of foraging habitat for Carnaby's black cockatoo with a weighted average quality of 'Low to Moderate'.
- 1.89 ha foraging habitat for forest red-tailed black cockatoo with a weighted average quality of 'Low to Moderate'.
- Included in the above, 36 trees with DBH $\geq$ 30 cm that comprise potential roosting habitat (not currently used).
- Included in the above, eight trees with DBH $\geq$ 50 cm that are classed as potential nesting trees (none of which contain suitable hollows for black cockatoo nesting).
- 1.86 ha of Banksia woodlands of the Swan Coastal Plain (State-listed PEC and Commonwealth-listed TEC).
- 2.33 ha of Tuart woodlands of the Swan Coastal Plain ecological community (State-listed PEC and Commonwealth-listed TEC).

Mitigation

Potential indirect impacts will be avoided for the duration of the project through the implementation of a Construction Environmental Management Plan (CEMP).

Rehabilitation

No rehabilitation of the Site is proposed. The Site is located on Commonwealth land (under an existing mining lease) and it is expected that the Site will be developed for Urban purposes following sand and limestone extraction.

Assessment Against Clearing Principles

An assessment against the ten clearing principles found that the proposed clearing may be at variance to principle a, is likely to be at variance to principles b and d and is not at variance to the remaining principles.

Offsets

Should the Department consider the NVCP to result in significant residual impact to any of the biodiversity related clearing principles, an offset proposal will be provided.

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Appendix B	Flora and Vegetation Survey (PGV, 2020)
Appendix C	Tree Assessment (Kirkby, 2023)
Appendix D	Ecological Surveys (WEPL, 2024a)
Appendix E	Environmental Management Plan
Appendix F	Fauna Likelihood of Occurrence Assessment

1. Introduction

1.1 Project Background

P.M.R Quarries Pty Ltd T/A WA Limestone Co (WA Limestone) are proposing to undertake clearing associated with the Abercrombie Road Quarry expansion within Mining Tenement M70/565 (hereafter referred to as the 'Site'). The proposed quarry expansion will necessitate the clearing of 14.68 ha of native vegetation within a 15.15 ha disturbance footprint. The balance of the disturbance footprint has been previously cleared. The disturbance footprint comprises the proposed clearing boundary, for the purpose of this Native Vegetation Clearing Permit (NVCP) application.

The Site is located within the City of Kwinana, approximately 31 km south of Perth's Central Business District (Figure 1). The purpose of the quarry expansion is to meet ongoing demand for sand and limestone construction materials to support construction projects within the Perth Metropolitan Area. The quarry expansion will provide an additional 2.6 million cubic metres of sand and limestone, which is predicted to extend the life of the quarry by 10 years.

The Site contains two conservation significant ecological communities which are identified as Priority Ecological Communities (PEC) by the Department of Biodiversity, Conservation and Attractions (DBCA) and listed Threatened Ecological Communities (TEC) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and These are Banksia woodlands of the Swan Coastal Plain (Commonwealth-listed Endangered; State-listed Priority 3) ('Banksia TEC/PEC') and Tuart woodlands and forests of the Swan Coastal Plain (Commonwealth-listed Critically Endangered; State-listed Priority 3) ('Tuart TEC/PEC'). The Site is also within the known distribution of two black cockatoo species from the south-west of Western Australia listed as Threatened under the EPBC Act and *Biodiversity Conservation Act 2016* (BC Act). These are Carnaby's black cockatoo (*Zanda latirostris*) (Endangered) and Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) (Vulnerable). The Site also provides potentially suitable habitat for priority fauna species.

1.1.1 Other Environmental Approvals

The quarry expansion was referred to the Commonwealth Department of Climate Change, Energy, Environment and Water (DCCEEW) under the EPBC Act (EPBC 2023/09465). On 2 June 2023, a delegate of the Minister determined that the expansion is a controlled action to be assessed by preliminary documentation due to impacts to threatened species and communities, namely:

- Carnaby's black cockatoo (*Zanda latirostris*) – Endangered.
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) – Vulnerable.
- Banksia woodlands of the Swan Coastal Plain TEC (Banksia TEC) – Endangered.
- Tuart woodlands and forests of the Swan Coastal Plain TEC (Tuart TEC) – Critically Endangered.

- Other potentially impacted species not discussed in the referral (Threatened Orchid species)¹.

The assessment of EPBC 2023/09465 is currently underway.

1.2 Objective

WA Limestone has commissioned Western Environmental Approvals Pty Ltd (WEPL) to prepare an NVCP application for the Abercrombie Road Quarry expansion.

This report details the following:

- Overview of the project and purpose of proposed clearing.
- Description of the Site's existing environment.
- Description of the proposed impacts, together with measures to avoid, impact, rehabilitate, and offset those impacts.
- Assessment against the ten clearing principles outlined in Schedule 5 of the EP Act and *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (the 'Regulations').
- Conclusion as to whether the proposed clearing is at variance with any of the clearing principles.

1.3 Previous Surveys

A number of ecological surveys have been undertaken within the Site in recent years. These are summarised in Table 1.

Table 1: Previous Surveys

Survey/Assessment Title	Survey Type	Field Date(s)	Field Methodology
Black Cockatoo Habitat Assessment M70/565 Abercrombie Road Postans (Harewood, 2018) provided as provided in Appendix A	Black cockatoo habitat assessment	23 April and 3 July 2018	• Breeding assessment identified trees with a diameter at breast height (DBH) greater than 50 cm of a suitable species to develop hollows. Hollows were identified from the ground. Hollows were categorised according to size. Each potentially suitable hollow was examined using a drone for chew marks, scarring, scratch marks. • Site was walked to identify the nature and extent of foraging habitat, and the location and nature of black cockatoo foraging

¹It should be noted that additional targeted orchid surveys were undertaken to respond to the Request for Further Information for EPBC 2023/09465, and it is confirmed that the Site does not support any individuals, populations, or critical habitat for Threatened orchids.

Survey/Assessment Title	Survey Type	Field Date(s)	Field Methodology
			evidence (e.g. chewed fruits around the base of trees). • Direct and indirect evidence of black cockatoo roosting was noted if present (e.g. branch clippings, droppings, or moulted feathers).
M70/656 Abercrombie Road, Postans Flora and Vegetation Survey (PGV, 2020) provided as Appendix B	Detailed flora and vegetation survey	13 September 2020	• Site was walked in parallel transects spaced 20 m apart throughout most vegetation types, with lower site coverage within dense stands of <i>Acacia rostellifera</i>. • Six 10 x 10 m non-permanent quadrats in representative vegetation types. • Most plant species identified in the field, some specimens photographed or taken for identification at the Perth Reference Herbarium or office.
Assessment of Tree 6, Tree 1, and Tree 66 Abercrombie Road (Kirkby, 2023) provided as Appendix C	Follow-up assessment of possible black cockatoo breeding trees.	1 November 2023	• Trees identified in Harewood (2018) as containing possibly suitable hollows for black cockatoo breeding re-visited to confirm suitability using pole camera.
Flora and Vegetation Assessment Abercrombie Road (WEPL, 2024a) provided as Appendix D	• Targeted searches for Threatened orchid species. • Follow-up Banksia and Tuart TEC assessment. • Black Cockatoo habitat assessment.	• 28 September 2023 • 11-11 October 2023 • 5 November 2023	• Targeted flora searches: Parallel transects approximately 10 m apart across the Survey Area (excluding unsuitable habitat – <i>Acacia</i> thicket). • Banksia TEC: Survey Area was walked to verify previous vegetation type description and mapping were consistent with vegetation across the site. Mapping notes used to collect information required to inform a comprehensive assessment against a habitat quality scoring tool developed by DCCEEW (n.d.). • Tuart TEC: individual tuart tree locations marked with a handheld GPS (within and immediately adjacent to the Survey Area). Mapping notes used to collect information required to inform a comprehensive assessment against a habitat quality scoring tool developed by DCCEEW (n.d.). • Black cockatoo habitat assessment: ○ Handheld GPS used to collect all trees over 30 cm DBH that have the potential to form hollows. The following was recorded for each: species, DBH approx. 1.3 m from the ground, tree health, and presence of hollows as observable from the ground. ○ Mapping notes used to collect information required to inform a comprehensive assessment against a habitat quality scoring tool developed by DCCEEW (n.d.).

1.4 Legislation, Policy and Guidance

This environmental assessment was conducted in accordance with Commonwealth and State legislation, guidelines and advice:

- EPBC Act.
- EP Act.
- BC Act.
- Western Australian *Biodiversity Conservation Regulations 2018*.
- Commonwealth Department of the Environment (DotE). (2013). *Matters of National Environmental Significance. Significant Impact Guidelines 1.1 - EPBC Act*.
- Commonwealth Department of the Environment and Energy (DotEE). (2016). *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community*.
- Commonwealth Department of Agriculture, Water, and Environment (DAWE). (2022). *Referral guidelines for 3 Threatened Black Cockatoo species*.
- WA Environmental Protection Authority (EPA). (2020). *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. Known herein as the ‘Fauna Technical Guidance’.
- WA EPA. (2016). *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*. Known herein as the ‘Flora and Vegetation Technical Guidance’.



Figure 2: Proposed Clearing Footprint

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

Nearmaps, Image Date 3 February 2025

PROJECT/REPORT NAME

Abercrombie Road Quarry Expansion – NVCP Application

Abercrombie Road, Postans, WA

CLIENT

WA Limestone

PROJECT

A25.363

VERSION

0

DRAWN BY / REVIEWED BY

SC/CE

DATE

27/3/2026

Legend

Site

Proposed Clearing Footprint

No	Description	Drawn	Approved	Date
A	Original issue	SC	CE	27/3/2026

NOTES:

Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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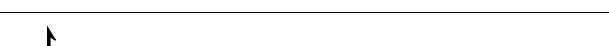
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Figure 1: Site Location

		PROJECT/REPORT NAME Preliminary Documentation- EPBC 2023/09465 Abercrombie Road	
SCALE 1:3,000		SHEET SIZE A3 COLOUR	
CLIENT WA Limestone		VERSION 0	
COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50		DATE 19/9/2024	
DATA SOURCE LANDGATE AERIAL IMAGERY Summer 2023		DRAWN BY / REVIEWED BY JP/RM	

Legend

-  Site
-  Mining Tenements (DMIRS-003)
-  Local Road

No	Description	Drawn	Approved	Date
A	Original issue	JP	RM	19/9/2024
NOTES: Cadastral boundary (LGATE-002). Base map ESRI Topo. Townsites (LGATE-248).				



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2. Existing Environment

2.1 Biogeographic and Regional Setting

The Interim Biogeographic Regionalisation for Australia (IBRA) recognises 89 bioregions. The Site is located within the Swan Coastal Plain bioregion, as defined by the IBRA. The Swan Coastal Plain has been further subdivided into two sub-regions, being Dandaragan Plateau (SWA1) and Perth (SWA2) the Site located within the Perth (SWA2) sub-region.

The Perth sub-region is described by Mitchell et al. (2003) as a low-lying coastal plain, mainly covered with woodlands. It is dominated by banksia or tuart on sandy soils, Casuarina obesa on outwash plains, and paperbark in swampy areas. In the east, the plain rises to duricrusted Mesozoic sediments dominated by Jarrah woodland. The climate is described as Warm Mediterranean with annual rainfall ranging between 600 and 1,000 mm. Three phases of marine sand dune development provide relief. The outwash plains, once dominated by C. obesa-marri woodlands and melaleuca shrublands, are extensive only in the south (Mitchell et al., 2003).

2.2 Historic Land Use

A review of historic aerial imagery across the Site indicates that it has been relatively undisturbed, with the only visible vegetation clearance from the establishment of tracks, as early as 1953. Vegetation clearance has been progressively undertaken adjacent to the north of the Site since 1989. Vegetation clearance that appears to be associated with the Kwinana Town Rubbish Tip and Perth Motorplex to the west of the Site has been undertaken since 1970. The Site was subject to fire in 2021 which resulted in substantial damage to several mature trees.

2.3 Geology And Soils

Soil mapping by the Department of Primary Industries and Regional Development (DPIRD) (DPIRD-027) identifies one soil unit occurring within the Site, being Spearwood S2a Phase (211Sp_S2a). These soils are described as lower slopes of dune ridge with moderately deep siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrops.

2.4 Topography

The gradient of the Site is gently undulating with a peak elevation of 250 m Australian Height Datum (AHD) in the centre down to a lowest point of 19 m AHD on the eastern boundary (DPIRD-072). The project will involve excavation to a maximum depth of 5 m AHD, consistent with the adjacent quarrying operations. The topography of the Site is shown in Figure 3.

2.5 Acid Sulfate Soils

Acid sulfate soil risk mapping by DWER (DWER-055) does not show any areas of concern within the Site.

2.6 Hydrology

Groundwater mapping by the Department of Water and Environmental Regulation (DWER) identifies the maximum groundwater level underlying the Site as 1.0 m AHD, with groundwater flow from east to west across the Site (Figure 4). Depth to groundwater ranges across the Site and is approximately 20 m in the east, 31 m in the centre, and 24 m in the west. Groundwater salinity is fresh, ranging from 500 – 1000 mg/L (DWER, n.d).

No wetlands exist within or in proximity to the Site. The nearest wetland (Long Swamp; UFI 15391) is located approximately 2.5 km north and upgradient of the Site (Figure 5).

Due to the topography and highly porous soils, there are no surface watercourses within the Site or surrounding area. The nearest surface watercourse is the Peel Main Drain, located approximately 3.5 km east and upgradient of the Site (Figure 5).



Figure 5: Surface Water Features and Geomorphic Wetlands

0

100

200

300

400 m

N

SCALE

1:15,000

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

Nearmaps, Image Date 3 February 2025

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DATE

27/3/2026

Legend

Site

Proposed Clearing Footprint

Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)

Conservation

Multiple Use

Not Applicable

Resource Enhancement

No	Description	Drawn	Approved	Date
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NOTES:

Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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Figure 4: Depth to Groundwater

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

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Site

Proposed Clearing Footprint

Gnangara Jandakot Depth to Groundwater (Contours) – 2019 Min (DWER-095)

No	Description	Drawn	Approved	Date
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2.7 Flora and Vegetation

2.7.1 Pre-European Vegetation

During the 1970s, John Beard and associates conducted a systematic survey of native vegetation, describing the vegetation systems in Western Australia. Beard (1980) mapped the vegetation of the Swan Coastal Plain at 1:1,000,00 scale (Beard, 1980). Beard's mapping attempted to depict the native vegetation as it was presumed to be at the time of settlement and is known as the pre-European vegetation type and extent. Beard's vegetation maps are maintained in digital form by DPIRD (DPIRD-006). Extents are updated periodically by DBCA (Government of Western Australia, 2019a). This mapping indicates that the Site intersects one pre-European vegetation association, which is:

- Spearwood_998: Woodland southwest: Jarrah, marri and wandoo (*Eucalyptus marginata*, *Corymbia calophylla*, *E. wandoo*).

Regional vegetation for the Swan Coastal Plain region of Western Australia (at vegetation complex level) was mapped by Matiske and Havel (1998) and are maintained in digital form by DBCA (DBCA-046). The mapping indicates that the Site intersects one vegetation complex, which is:

- Cottesloe Complex-Central and South (52): Mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri); closed heath on the Limestone outcrops.

The pre-European vegetation association and vegetation complex identified from the clearing footprint, and its pre-European and current extents within the Northern Jarrah Forest bioregion, are listed in Table 2 and shown on Figure 6 (Government of Western Australia, 2019a; Government of Western Australia, 2019b).

Table 2: Pre-European Vegetation Association and Complex Representation within the Clearing Footprint

Vegetation	Original Extent (ha)	Current Extent (ha)	% Remaining	% Managed for Conservation	Extent within Clearing Footprint (ha)
Spearwood_998 Association	48,293.94	17,666.85	36.58	37.56	14.68
Cottesloe Complex-Central and South (Unit 52)	45,299.61	14,567.87	32.16	9.51	14.68

2.7.2 Flora and Vegetation Surveys

The following flora and vegetation surveys have been undertaken across the clearing footprint:

- A detailed flora and vegetation assessment by PGV in September 2020.
- Ecological surveys (flora, vegetation, and black cockatoo habitat assessment) undertaken by WEPL (2024) to assess the quality of Banksia TEC and Tuart TEC, and complete targeted surveys for Threatened orchid species.

A summary of the survey methods is provided in Table 1.

2.7.3 Flora

PGV (2020) recorded a total of 109 plant species, including 73 native and 36 introduced species (Appendix B). PGV (2020) surveyed the Site 20 m parallel transects (with lower coverage through dense stands of *Acacia rostellifera*) and using six 10 m x 10 m non-permanent quadrats in representative vegetation types. No Threatened or Priority flora species were recorded.

Additional targeted searches for conservation significant flora were undertaken by WEPL (2024). Targeted searches were undertaken using parallel transects at 10 m spacing, excluding unsuitable habitat (*Acacia* thicket). No Threatened or Priority species were recorded.

2.7.4 Vegetation Units

Three vegetation units were recorded within the Site, as shown on Figure 7. A description of each, together with the extent each occupies within the Site, is provided in Table 3.

Table 3. Vegetation Types within the Site

Vegetation Type	Description	Area (ha)	% of Site
Ar	<i>Acacia rostellifera</i> Closed Heath to Tall Open Scrub over weeds.	4.10	22.8%
Eg	<i>Eucalyptus gomphocephala</i> Low Open Woodland Over <i>Banksia attenuata</i> / <i>Allocasuarina fraseriana</i> Low Open Woodland over <i>Acacia pulchella</i> / <i>Grevillea vestita</i> / <i>Xanthorrhoea preissii</i> Open Low Heath.	3.91	21.7%
EmBa	<i>Eucalyptus marginata</i> / <i>Banksia attenuata</i> Low Woodland to Open Woodland over <i>Xanthorrhoea preissii</i> Open Low Heath.	9.25	51.3%
Cleared land		0.75	4.2%
Total		18.01	100%

2.7.5 Vegetation Condition

PGV (2020) determined that all vegetation within the Site is in 'Good' condition, and cleared tracks are in 'Completely Degraded' condition, as detailed in Table 4 and shown on Figure 8. The vegetation structure has been significantly altered through obvious signs of disturbance; however, retains basic vegetation structure. Weed incursion is the most significant degrading factor within the Site, with introduced species comprising approximately 33% of all plant species recorded (PGV, 2020).

Table 4. Vegetation Condition within the Site

Vegetation Condition	Area (ha)	% of Site
Good	17.26	95.8%
Completely Degraded	0.75	4.2%
Total	18.01	100.0%

2.7.6 Conservation Significant Flora

PGV (2020) did not record any Threatened (Declared Rare) or Priority plant species within the Site (Appendix B). The additional targeted search for Threatened orchid survey, conducted by WEPL in September of 2023 (WEPL, 2024) concluded no Threatened orchid species were recorded within the Site, and none are considered to occur given the absence of suitable habitat (Appendix D).

2.7.7 Conservation Significant Ecological Communities

PGV (2020) identified two conservation significant ecological communities within the Site, which are listed TECs under the EPBC Act and PECs by DBCA. These are:

- Banksia TEC/PEC (EPBC Act-listed Endangered; State-listed Priority 3).
- Tuart TEC/PEC (EPBC Act-listed Critically Endangered; State-listed Priority 3).

Banksia TEC/PEC occurs as a single patch, covering an area of 9.10 ha over the northern and southeastern portion of the Site. There are two patches of Tuart TEC/PEC within the site with Patch 1 covering 4.52 ha in the west of the Site and Patch 2 covering 2.99 ha in the central and eastern portion of the Site. The location and extent of each TEC/PEC within the Site are shown Table 5 and Figure 9.

Table 5. Conservation Significant Ecological Communities within the Site

Threatened Ecological Communities	Number of Patches	Area (ha)
Banksia Woodlands of the Swan Coastal Plain	1	9.10 ha
Tuart Woodlands and Forests of the Swan Coastal Plain	2	7.52 ha ²
Patch 1		4.52 ha
Patch 2		2.99 ha

WEPL undertook a follow-up survey of Banksia TEC/PEC and Tuart TEC/PEC within the Site in 2024. Information was collected across the Site to verify the details reported by PGV (2020) and to directly address the habitat quality scoring (HQS) criteria outlined in an unpublished tool prepared by DCCEEW (n.d.). The habitat scoring system describes elements indicative of suitable habitat for both ecological communities and the assessment is informed by qualified and experienced ecologists (PGV, 2020; WEPL, 2024). This assessment found that Banksia TEC within the Site has a habitat quality score of 4/10, and both patches of Tuart TEC/PEC have a habitat quality score of 5/10. Detailed scoring of each TEC/PEC is provided in Appendix D.

² Patch 1 and Patch 2 extend beyond the boundary of the Site.

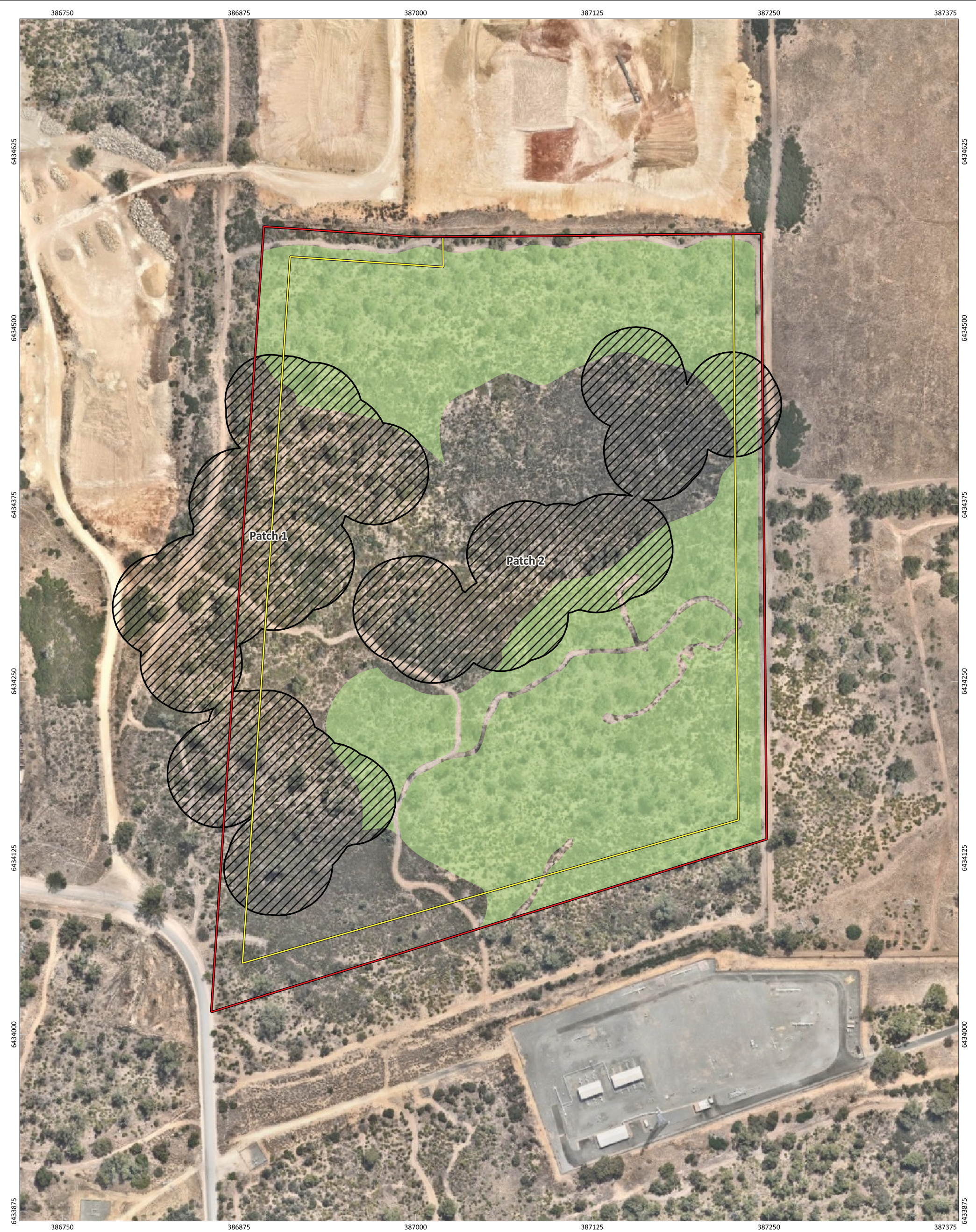


Figure 9: Conservation Significant Ecological Communities

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

Nearmaps, Image Date 3 February 2025

PROJECT/REPORT NAME

Abercrombie Road Quarry Expansion – NVCP Application
Abercrombie Road, Postans, WA

CLIENT

WA Limestone

PROJECT

A25.363

VERSION

0

DRAWN BY / REVIEWED BY

SC/CE

DATE

27/3/2026

Legend

Site

Proposed Clearing Footprint

Tuart woodlands and forests of the Swan Coastal Plain ecological community (Commonwealth TEC; State PEC)

Banksia woodlands of the Swan Coastal Plain ecological community (Commonwealth TEC; State PEC)

No	Description	Drawn	Approved	Date
A	Original issue	SC	CE	27/3/2026

NOTES:

Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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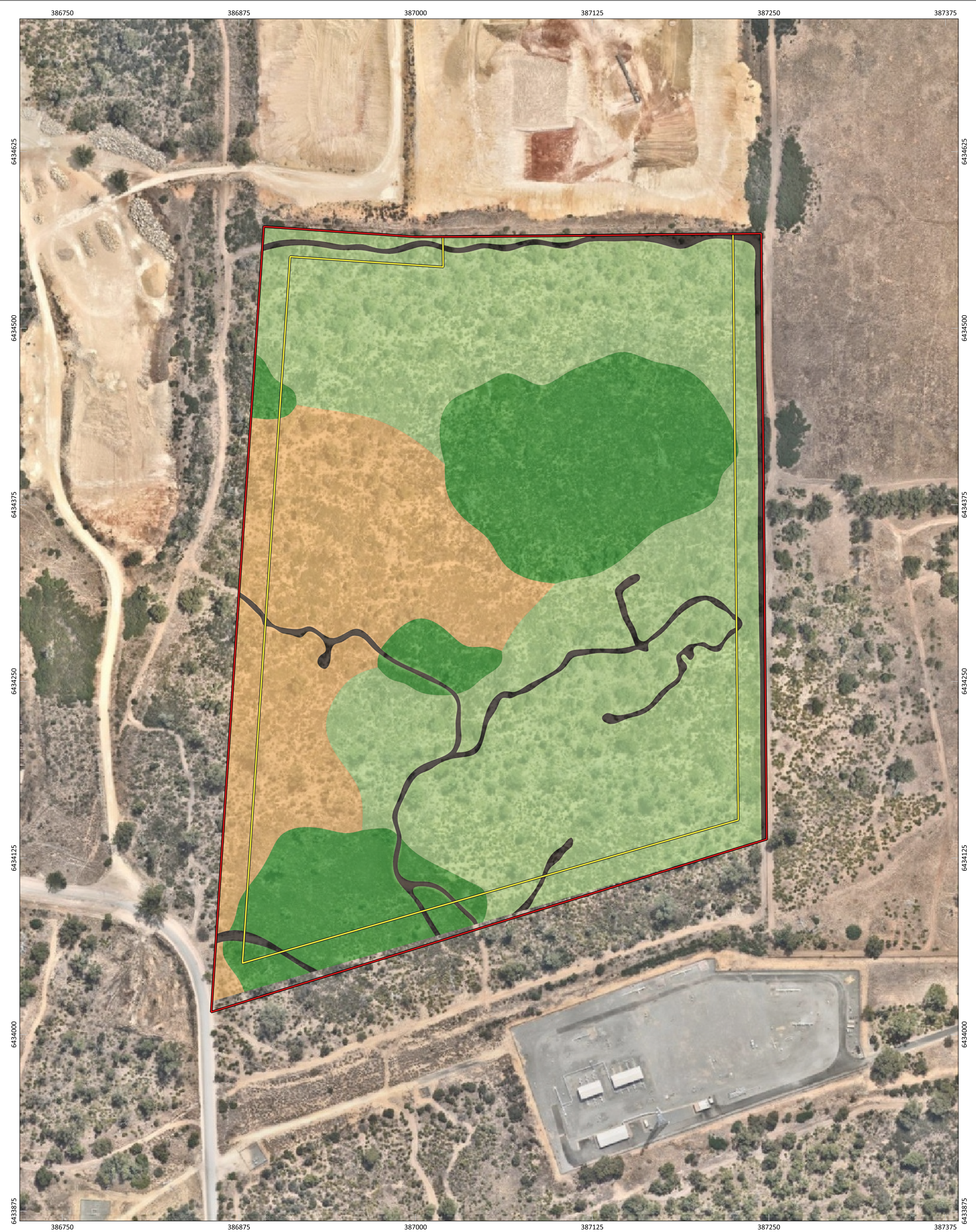


Figure 7: Vegetation Types

0

20

40

60

80 m

N

SCALE
1:2,500

SHEET SIZE
A3 COLOUR

COORDINATE REFERENCE SYSTEM
GDA2020 / MGA zone 50

DATA SOURCE
Nearmaps, Image Date 3 February 2025

PROJECT/REPORT NAME
Abercrombie Road Quarry Expansion –
NVCP Application
Abercrombie Road, Postans, WA

CLIENT
WA Limestone

PROJECT
A25.363

VERSION
0

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SC/CE

DATE
27/3/2026

Legend

Site

Proposed Clearing Footprint

Vegetation Types

Ar

Eg

EmBa

Cleared

No	Description	Drawn	Approved	Date
A	Original issue	SC	CE	27/3/2026

NOTES:

Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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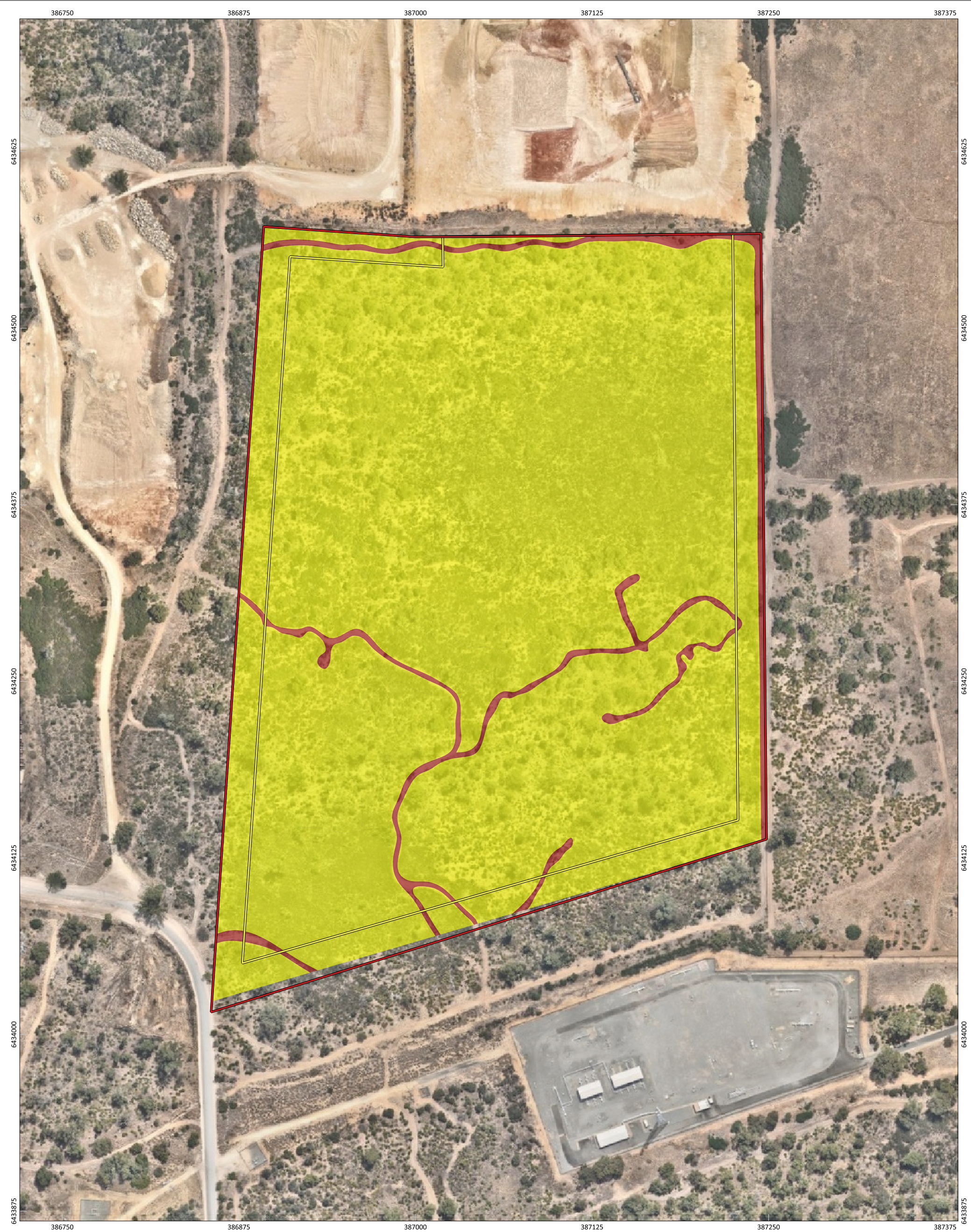


Figure 8: Vegetation Condition

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

Nearmaps, Image Date 3 February 2025

PROJECT/REPORT NAME

Abercrombie Road Quarry Expansion – NVCP Application

Abercrombie Road, Postans, WA

CLIENT

WA Limestone

PROJECT

A25.363

VERSION

0

DRAWN BY / REVIEWED BY

SC/CE

DATE

27/3/2026

Legend

Site

Proposed Clearing Footprint

Vegetation Condition

Good

Completely Degraded

No	Description	Drawn	Approved	Date
A	Original issue	SC	CE	27/3/2026

NOTES:

Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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2.8 Fauna

2.8.1 Desktop Assessment

A desktop assessment was undertaken utilising a search of DBCA database records and PMST within 10 km of the Site (Appendix F). The desktop assessment identifies that 85 species of conservation significant fauna have been recorded within 10 km of the Site. 31 are marine or pelagic species and therefore have been omitted from further discussion.

Table 6 details conservation significant species with a medium or high likelihood of occurrence within the Site.

Table 6. Conservation Significant Fauna with Medium to High Potential to Utilise the Site

Species Name	Common Name	Conservation status		Presence within Site and Likelihood of Occurrence
		Cwlth	State	
<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	VU	VU	Recorded Evidence of foraging was observed at several locations within the Site by Harewood (2018) and WEPL (2024). The Site provides suitable foraging habitat for the species. The Site also provides potential nesting and roosting habitat, however no evidence of nesting or roosting was recorded.
<i>Dasyurus geoffroii</i>	Chuditch, western quoll	VU	VU	Medium Species is wide-ranging and likely to be present within the Site as a vagrant only.
<i>Falco peregrinus</i>	Peregrine falcon	N/A	OS	Medium The species are considered potential only to utilise the habitat very infrequently for foraging and the habitat is not considered likely to be significant in supporting the local population of the species.
<i>Idiosoma sigillatum</i>	Swan Coastal Plain shield-backed trapdoor spider	N/A	P3	High Expected to be a resident of the Site.
<i>Isoodon fusciventer</i>	Quenda, southwestern brown bandicoot	N/A	P4	High Expected to be a resident of the Site. Recorded extensively within 10 km of the Site and suitable habitat is present.
<i>Lerista lineata</i>	Perth slider, lined skink	N/A	P3	High Banksia woodland habitat within the survey area is core habitat for this species.
<i>Neelaps calonotos</i>	Black-striped snake, black-	N/A	P3	Medium

Species Name	Common Name	Conservation status		Presence within Site and Likelihood of Occurrence
		Cwlth	State	
	striped burrowing snake			Survey area within the ambiguous extant population area (he, 2019) and banksia woodland provides suitable habitat on site.
<i>Notamacropus irma</i>	Western brush wallaby	N/A	P4	High Expected to be a regular visitor to the Site.
<i>Phascogale tapoatafa wambenger</i>	South-western brush-tailed phascogale, wambenger	N/A	CD	Medium Large trees within Site provide suitable habitat. Low records, but species can be hard to detect.
<i>Synemon gratiosa</i>	Graceful sunmoth	N/A	P4	High Banksia woodland provides suitable habitat within Site.
<i>Zanda latirostris</i>	Carnaby's black cockatoo	EN	EN	Recorded Evidence of foraging was observed at several locations within the Site by Harewood (2018) and WEPL (2024). The Site provides suitable foraging habitat for the species. The Site also provides potential nesting and roosting habitat, however no evidence of nesting or roosting was recorded.

2.8.2 Conservation Significant Fauna

A description of each conservation significant fauna species considered to potentially occur within the Site (Table 6) and the extent to which the proposed clearing may impact the species, is described in the following sections.

Chuditch

The Chuditch is a wide-ranging resident in marri-jarrah forest of the southwest of Western Australia and also in heaths and eucalypt woodlands of the eastern wheatbelt and goldfields (Van Dyck & Strahan, 2008). This species was formerly distributed throughout much of western and inland Australia, but its range has contracted to the region approximately south-west of a line between Shark Bay and Esperance (Burbidge, 2004; Van Dyck & Strahan, 2008; DCCEEW, 2023b).

The Chuditch is a nocturnal, terrestrial carnivore, feeding mainly on smaller vertebrates (e.g. reptiles, birds and mammals) and large invertebrates (Burbidge, 2004; Van Dyck & Strahan, 2008). During the day, Chuditch shelter in dens within predominantly hollow logs and earth burrows (Van Dyck & Strahan, 2008). Chuditch have a large home range, with females in the deeper southwest occupying 55-120 ha and males ranging over 400 ha or more (Van Dyck & Strahan, 2008).

Given the species is wide-ranging, it is possible Chuditch may be present within the Site on occasion as a vagrant. The species has been recorded twice within 10 km of the Site. It is considered unlikely that the species would regularly occur within the Site.

Peregrine Falcon

The Peregrine Falcon is a large bird of prey that occurs throughout WA, from the south near Albany to the north near Kununurra. This species is uncommon but wide-ranging across Australia. Habitat is extremely diverse, comprising most dryland habitats of Australia. The peregrine falcon nests primarily on ledges of cliffs, shallow tree hollows, and ledges of buildings or antennas.

The Peregrine Falcon is expected to pass over the Site on a regular basis, however, is unlikely to be dependent on habitat within the Site. The species may very infrequently utilise habitat within the Site for foraging. The habitat is not considered likely to be significant in supporting the local population of the species.

Swan Coastal Plain shield-backed trapdoor spider

The species has a sandy substrate focused distribution from north of Shark Bay, through the northern Wheatbelt and the Swan Coastal Plain. Burrows of this species usually occur in banksia woodland and heathland on sandy soils and are adorned with a typical 'moustache-like' arrangement of twig-lines.

This species is expected to be a resident of the Site. Therefore, the proposed clearing will result in habitat loss for the species.

Quenda

The Quenda formerly occurred across the south-west of Western Australia from Geraldton to east of Esperance, including the wheatbelt, but it now has a much-reduced range, with few records north of Yanchep/Muchea on the coastal plain, and it is more or less extinct across the Wheatbelt (Van Dyck & Strahan, 2008; Travouillon & Phillips, 2018). It persists around Perth, particularly in areas of dense vegetation around wetlands, and it remains locally common in suitable environments (Howard et al., 2014).

Quenda are associated with wetlands and fringing areas with dense cover of shrubs and sedges adjoining areas of woodland and grassland. Quenda will forage in grasslands or paddocks when adjacent to dense cover.

Quenda are commonly recorded in bushland <5km from the Site. The majority of the Site is considered to provide suitable habitat for Quenda. Due to the presence of suitable habitat and numerous previous records close by, the species is expected to be consistently present. Therefore, the proposed clearing will result in habitat loss for the species and forced relocation away from the Site.

Perth Slider

Locally restricted to the Swan Coastal Plain south of the Swan River including Rottnest and Garden Islands, where it inhabits coastal dunes, banksia/eucalypt woodlands and suburban gardens. There are also isolated populations on the mid-west coast at Woodleigh Station and in Busselton. The species is fossorial and inhabits the leaf and upper soil layer.

Banksia woodland within the Site is likely to provide core habitat for the species. Therefore, the proposed clearing will result in habitat loss for the species and forced relocation away from the Site if present.

Black-striped snake

The Black-striped Snake occurs on the coastal plain and coastal dune formations supporting low shrublands, heaths, and Banksia woodlands between Mandurah and Cataby (Bush et al., 2010). This species is infrequently recorded in the Swan Coastal Plain ranging from Lancelin to Port Denison but is limited to intact undisturbed habitats and large nature reserves (He., Forrest., 2021).

Banksia Woodland within the Site provides suitable habitat for the species. Therefore, the proposed clearing will result in habitat loss for the species and forced relocation away from the Site if present.

Western brush wallaby

The Western Brush Wallaby is found in the south-west coastal region of WA where populations are particularly centralised near the Swan River and the dry sclerophyll Jarrah forests to the east of Perth (Groves, 2005). The species is found in some areas of mallee and heathland but is generally uncommon in wet sclerophyll forest further south. It prefers tall open forests that supply adequate grazing and open, seasonally damp flat areas with low grasses and open scrubby brushes that allow it to move freely and speedily.

The Western Brush Wallaby is a crepuscular animal, unlike many macropod species, and is active mainly at dusk and dawn (Menkhorst & Knight, 2009). It is herbivorous and feeds on many plant species, in particular on *Carpobrotus edulis*, *Cynodon dactylon*, and *Nuytsia floribunda*. Western Brush Wallabies are commonly recorded around the Swan Coastal Plain in suitable habitat.

The species has been recorded numerous times within 10 km of the Site and is expected to be a regular visitor to the Site. Therefore, the proposed clearing will result in habitat loss for the species and forced relocation away from the Site if present.

South-western brush-tailed phascogale

This species is found in dry forests and woodlands with connective canopy of large mature trees containing hollows and denning opportunities. An arboreal species foraging is undertaken on trees and large logs and dead trees. The species has been reported in the Thompson Lake area which is less than 3km from the Survey Area.

The Site provides suitable habitat for the species. The species can be difficult to detect, so despite a low number of local records, it is possible that the species may utilise the Site. Therefore, the proposed clearing will result in habitat loss for the species and forced relocation away from the Site if present.

Graceful sun moth

The graceful sun moth is endemic to Western Australia and distributionally restricted to the Swan Coastal Plan between the Wanneroo area in northern Perth to Mandurah. This species depends on two species of *Lomandra* mat-rushes (*L.maritima* and *L.hermaphrodita*) as host plants for feeding and egg laying (DSEWPac, 2013).

Banksia woodland within the Site provides suitable habitat for the species. Therefore, the proposed clearing will result in habitat loss for the species if present.

2.8.3 Black Cockatoos

The Site is situated within the known distribution and breeding range of Carnaby's black cockatoo (*Zanda latirostris*) (Endangered) and Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) (Vulnerable). The Site is outside of the known distribution of Baudin's black cockatoo (*Zanda baudinii*) (Endangered).

Foraging

The ecological surveys undertaken by WEPL (2024) constitute the most detailed assessment of black cockatoo foraging quality for Carnaby's black cockatoo and Forest red-tailed black cockatoo. The quality of habitat present for each species was assessed against the habitat quality scoring tool provided by DCCEEW (n.d.).

Preliminary assessment by WEPL (2024) identified 17.41 ha of foraging habitat suitable for Carnaby's black cockatoo, with habitat quality ranging from 'negligible to low' to 'moderate' (Table 7). Similarly, preliminary assessment found the Site to contain 17.41 ha of foraging habitat for forest red-tailed black cockatoo, ranging from 'negligible to low' to 'low to moderate' quality (Table 7).

Table 7. Preliminary Assessment of Foraging Habitat Quality for Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo (Site Condition)

Site Condition Score	Carnaby's black cockatoo		forest red-tailed black cockatoo	
	Area (ha)	% of Total	Area (ha)	% of Total
4 (moderate)	2.19	12.6	N/A	N/A
3 (low to moderate)	10.47	60.1	11.42	65.6
2 (low)	0.61	3.5	1.84	10.6
1 (negligible to low)	4.14	23.8	4.14	23.8
Total	17.41	100.0	17.41	100.0

Foraging quality for Carnaby's black cockatoo is presented on Figure 10 and for Forest red-tailed black cockatoo is presented on Figure 11. Approximately 27.3% of the foraging habitat for Carnaby's black cockatoo habitat and 34.4% of that for Forest red-tailed black cockatoo was assessed to have a site condition score of 2 or less and therefore had negligible to low foraging value for the species. DCCEEW (n.d.) identifies that habitat that receives a site condition score of 2 or less is extremely unlikely to be considered as suitable habitat.

Therefore, the Site contains a total of 12.66 ha of suitable foraging habitat for Carnaby's black cockatoo (and 11.42 of foraging habitat for Forest red-tailed black cockatoo).

Table 8. Final Assessment of Foraging Habitat Quality for Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo (Site Condition)

Site Condition Score (out of 7)	Site Context Score (out of 3)	Total Score (out of 10)	Carnaby's black cockatoo		forest red-tailed black cockatoo	
			Area (ha)	% of Total	Area (ha)	% of Total
4 (moderate)	3	7 (moderate)	2.19	17.3	-	-
3 (low to moderate)	3	6 (low to moderate)	10.47	82.7	11.42	100.0
Total			12.66	100.0	11.42	100.0
Weighted Average Quality		6/10	Low to Moderate		Low to Moderate	

A site context score of 3 was assigned to all suitable foraging habitat within the Site (i.e. with a site condition score of at least 3), given that it is situated within 12 km of other foraging resources with an estimated site condition score greater than 3. Specifically, the proposed clearing is within 2 km of banksia and eucalypt woodland habitat with a projected foliage cover of >50% (with an estimated site condition score of 6). Table 8 provides the total habitat quality score out of 10 for Carnaby's black cockatoo and Forest red-tailed black cockatoo.

Breeding

During a black cockatoo habitat assessment in 2018, Harewood (2018) identified the Site to contain 119 trees of a suitable size (DBH > 50 cm) and species to develop hollows suitable for black cockatoo nesting. One tree was identified to show evidence of chewing, possibly by black cockatoos. In response to the RFI for EPBC 2023/9465, WEPL (2024) conducted an updated black cockatoo habitat assessment across the Site.

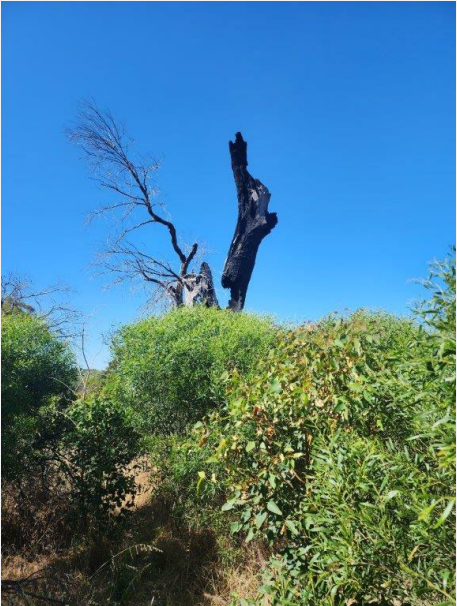
It is important to note that in 2021, between the surveys undertaken by Harewood (2018) and WEPL (2024), the Site was subject to a bushfire. This bushfire was very hot and resulted in the loss of many very large trees. Therefore, the WEPL (2024) survey results provide the most accurate and up-to-date information for the Site.

The purpose of the survey by WEPL (2024) was to identify all trees with DBH over 50 cm that are of a suitable species to develop hollows for black cockatoo nesting (referred to as potential nesting trees) as well as those with a DBH between 30 cm and 50 cm that may comprise potential nesting habitat in the future (at the request of DCCEEW).

WEPL also engaged Tony Kirkby to undertake a follow-up black cockatoo habitat assessment of one tree with hollows considered potentially suitable for black cockatoos, and two trees identified to have 'possible' hollows. Harewood (2018) identified one tree with a suitable hollow, and two that were potentially suitable. Tony Kirkby (2023) attended the site on 1 November 2023 to assess the three trees via pole camera and found that all three had been reduced to stumps during the fire that affected the area in 2021. The locations were confirmed to be correct through cross-checking against the Harewood (2018) figures. An image of each tree in 2018 and 2023 is provided in Table 9.

Table 9. Follow-up Inspection of Tree 1, Tree 6 and Tree 66

Tree no.	Location (easting, northing)	Image from Harewood (2018)	Image from November 2023
1	386913 mE 6434327 mN		
6	386933 mE 6434458 mN		

Tree no.	Location (easting, northing)	Image from Harewood (2018)	Image from November 2023
66	387000 mE 6434262 mN		

Potential breeding trees and potential future breeding trees within the Site were categorised according to a scoring system developed by Dr Mike Bamford, which is described in Table 10.

Table 10: Black Cockatoo Potential Nesting Tree Class

Class	Description of Tree and Hollows/Activity
1	Active nest observed; adult (or immature) bird seen entering or emerging from hollow, eggs present.
2	Hollow of suitable size and angle visible with chew marks around entrance.
3	Potentially suitable hollow visible but no chew marks present; or potentially suitable hollow present (as suggested by structure of tree, such as large, vertical trunk broken off at a height of >10m).
4	Tree with hollows or broken branches that might contain hollows, but hollows or potential hollows are not of a suitable size, or are aligned or obstructed so as to prevent access
5	Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown.

Following the completion of all black cockatoo surveys above, the Site was confirmed to contain 35 trees with a DBH > 50 cm and therefore with the potential to develop suitable breeding hollows for black cockatoos. These are defined as 'potential nesting trees'. There are an additional 162 trees with a DBH between 30 cm and 50 cm that have the potential to develop a nest hollow in the future, however these are not considered potential nesting trees as they are not suitably mature.

As shown in Table 11, the large majority of trees (31) within the Site do not show any signs of potential nesting hollow development and are, as such, considered Class 5 trees. Four trees possess hollows that are currently of insufficient size to support nesting; however, are of sufficient age and growth form to be developing hollows. As such, these are considered Class 4 trees.

Table 11. Potential Nesting Trees within the Site

Species	Tree Class		Total
	Class 4	Class 5	
Stag	2	-	2
<i>Eucalyptus gomphocephala</i>	-	10	10
<i>Eucalyptus marginata</i>	2	21	23
Total	4	31	35

Roosting

Black cockatoo species typically roost in tall eucalypt trees, commonly the tallest trees in the landscape, that are in close proximity (within 2 km) of permanent or artificial water sources (DAWE, 2022). Based on this definition, there are a total of 197 trees within the Site that could comprise suitable roosting habitat (DBH > 30 cm). The Site is not known to support black cockatoo roosting, and no evidence of current or former roosting was observed by Harewood (2018) or WEPL (2024).

Observations

Evidence of both Carnaby's and Forest red-tailed black cockatoo foraging onsite was observed at several locations within the Site by Harewood (2018) and WEPL (2024).

Harewood (2018) recorded evidence of foraging on site at several locations (although fresh evidence was not common). Old evidence of black cockatoos foraging on banksia was found in the form of banksia cones. A small flock (~15) of Carnaby's black cockatoo were also observed foraging on *Banksia sessilis*.

WEPL (2024) observed a flock of eight Carnaby's black cockatoo fly over the site during the survey. Evidence of Carnaby's black cockatoo and Forest red-tailed black cockatoo foraging was observed within the *Eucalyptus marginata* and *Banksia attenuata* lowland.

Regional Context

The presence and extent of foraging habitat for Carnaby's black cockatoo and forest red-tailed black cockatoo within 12 km of the Site was estimated based on vegetation complex mapping (DBCA-046) and the mapped extent of remnant native vegetation (DPIRD-005). The description of vegetation complexes within 12 km of the Site were reviewed to identify those with dominant species that are known to provide foraging habitat for Carnaby's black cockatoo.

Based on this assessment, there is an estimated 9,872.92 ha of potential foraging habitat for Carnaby's black cockatoo within 12 km of the Site, as presented in Figure 13. Of this, 35.9% (3,544.62 ha) is currently within land managed by DBCA, with at least 1,458.92 ha managed for conservation purposes (Conservation Park and Nature Reserve) (DBCA-011). With 12.66 ha of suitable habitat, the Site comprises an estimated 0.13% of the potential foraging habitat for Carnaby's black cockatoo within the local area.

There is approximately 8,782.97 ha of potential foraging habitat for forest red-tailed black cockatoo within 12 km of the Site. Of this, 31.5% (2,768.18 ha) is within land managed by DBCA and at least 1,340.42 ha is specifically managed for conservation (DBCA-011). With 11.42 ha of suitable habitat, the Site comprises an estimated 0.13% of the potential foraging habitat for forest red-tailed black cockatoo within the local area.

There are no records of Carnaby's or Forest red-tailed black cockatoo breeding within a 12 km radius of the Site (Birdlife, 2023; Figure 14), however this is not surprising as there are very few locations where black cockatoos breed successfully on the Swan Coastal Plain. The closest known breeding locations for Carnaby's black cockatoo are approximately 15 km north and 14 km south of the Site (Birdlife, 2023). Successful breeding by Forest red-tailed black cockatoo has been recorded at the Murdoch University South Street Campus, approximately 18 km south of the Site (Murdoch, 2011).

There are a total of 17 roosting sites utilised by white-tailed black cockatoos (assumed to be Carnaby's black cockatoo) within 12 km of the Site, and nine utilised by Forest red-tailed black cockatoos (Birdlife, 2023). Of these, seven are joint roosts. The closest roosting site is situated 4.0 km southeast of the Site. Publicly available roosting sites are shown on Figure 14.

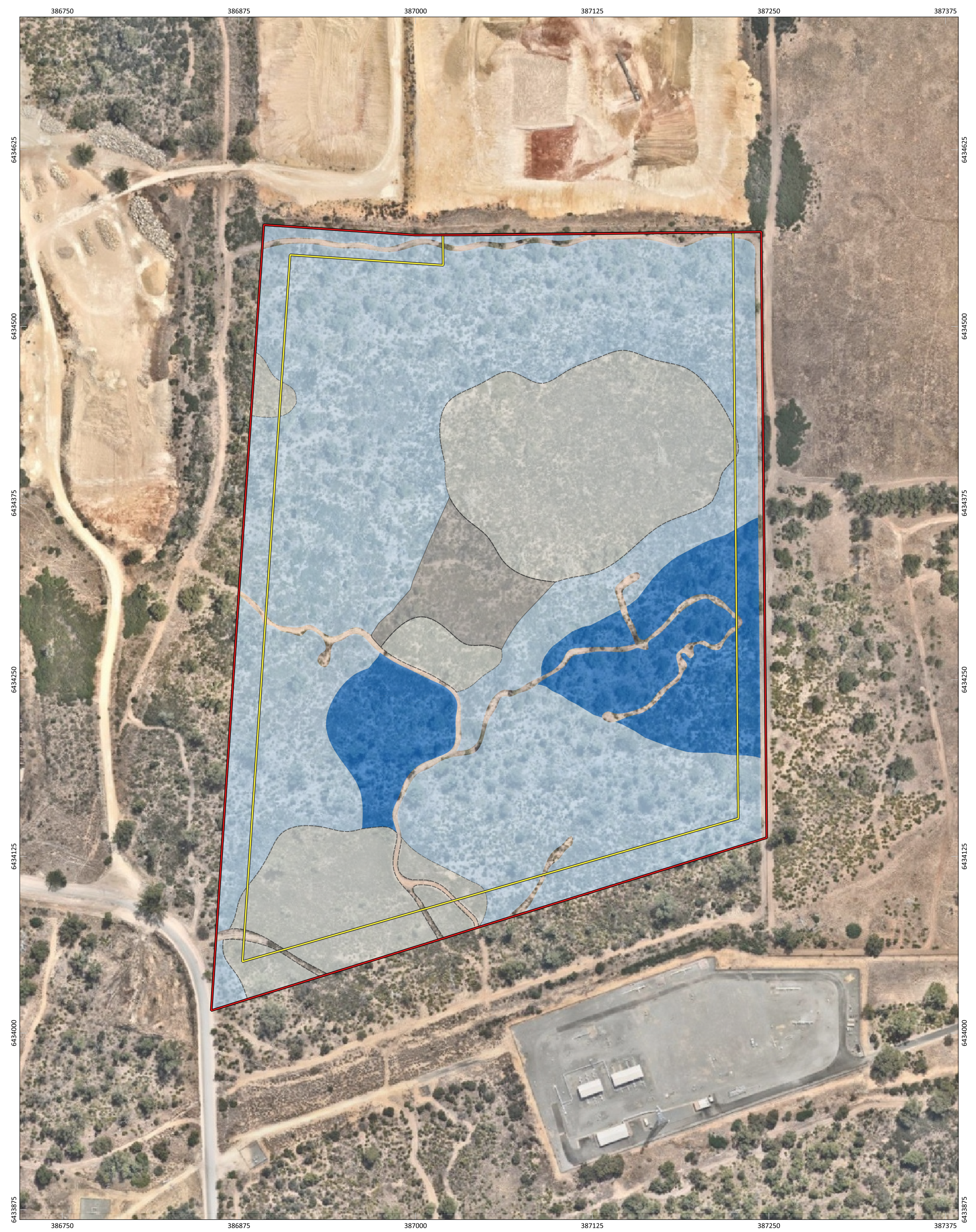


Figure 10: Carnaby's Black Cockatoo Foraging Habitat Quality

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

Nearmaps, Image Date 3 February 2025

PROJECT/REPORT NAME

Abercrombie Road Quarry Expansion – NVCP Application
Abercrombie Road, Postans, WA

CLIENT

WA Limestone

PROJECT

A25.363

VERSION

0

DRAWN BY / REVIEWED BY

SC/CE

DATE

27/3/2026

Legend

Site

Proposed Clearing Footprint

Carnaby's Black Cockatoo Foraging Habitat Quality (Total)

1 - Negligible to Low (not considered quality foraging habitat)

2 - Low (not considered quality foraging habitat)

6 - Low to Moderate

7 - Moderate

No	Description	Drawn	Approved	Date
A	Original issue	SC	CE	27/3/2026

NOTES:
Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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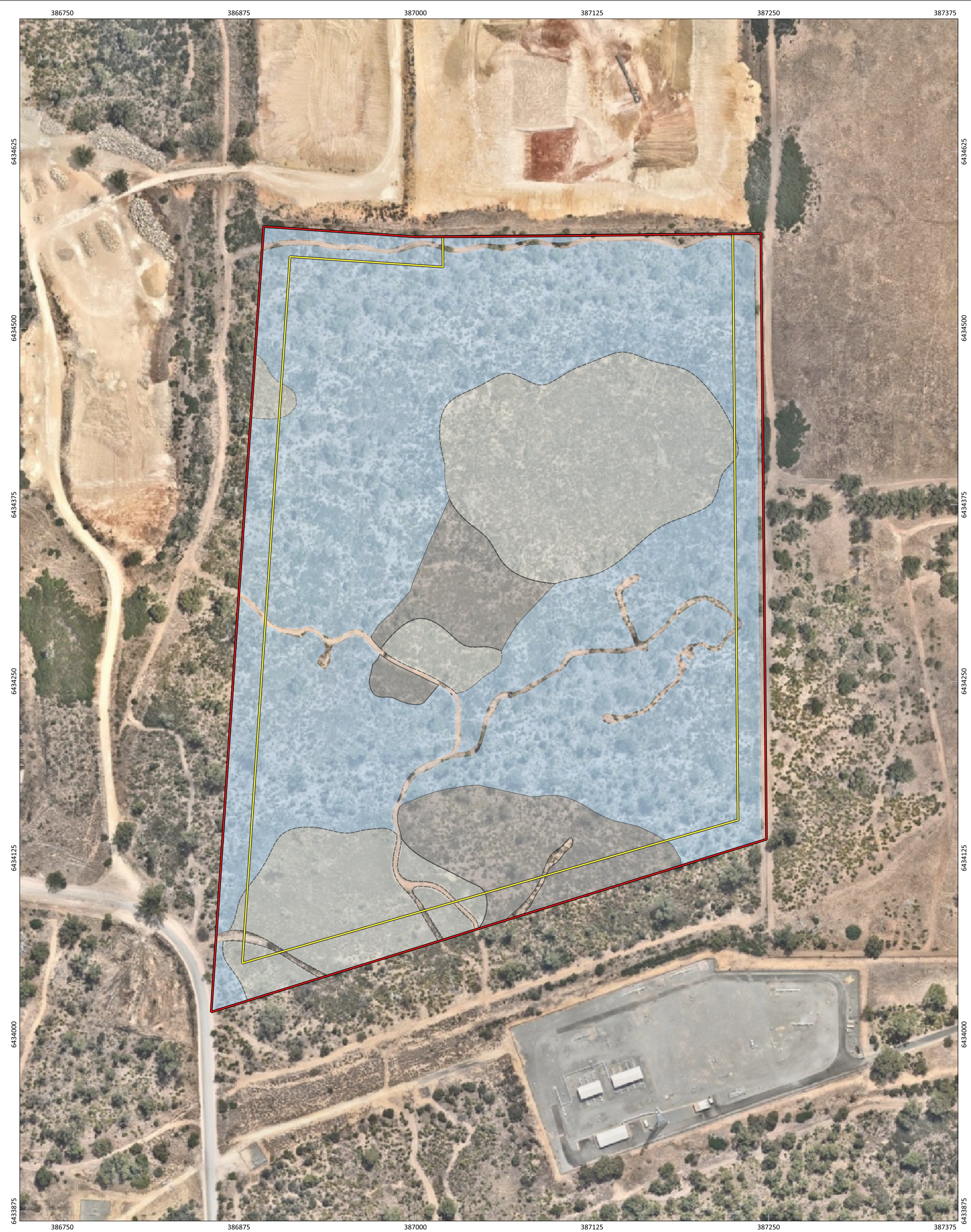


Figure 11: Forest Red-tailed Black Cockatoo Foraging Habitat Quality

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

Nearmaps, Image Date 3 February 2025

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Abercrombie Road, Postans, WA

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DATE

27/3/2026

Legend

Site

Proposed Clearing Footprint

Forest Red-tailed Black Cockatoo Foraging Habitat Quality (Total)

1 - Negligible to Low (not considered quality foraging habitat)

2 - Low (not considered quality foraging habitat)

6 - Low to Moderate

No	Description	Drawn	Approved	Date
A	Original issue	SC	CE	27/3/2026

NOTES:
Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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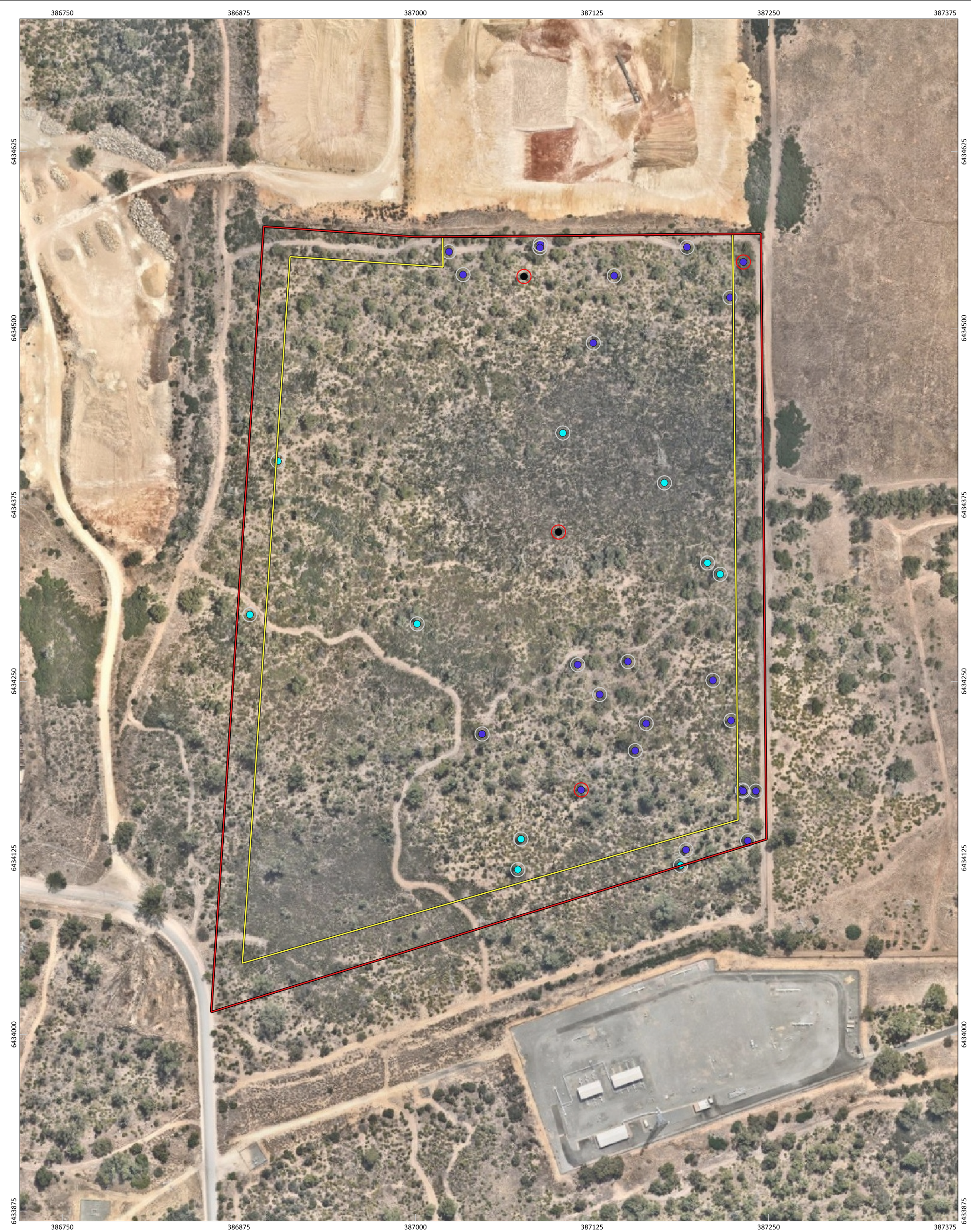


Figure 12: Black Cockatoo Potential Nesting Trees

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

Nearmaps, Image Date 3 February 2025

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Legend

Site

Proposed Clearing Footprint

Potential Nesting Trees (DBH > 50 cm) - Species

Dead

Jarrah

Tuart

Potential Nesting Trees (DBH > 50 cm) - Bamford Tree Class

4

5

No	Description	Drawn	Approved	Date
A	Original issue	SC	CE	27/3/2026

NOTES:

Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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2.9 Conservation Estate, Bush Forever, and Environmentally Sensitive Areas

The Site is not located within a conservation area. The nearest conservation area to the Site is Bush Forever Site 349, located approximately 300 m south of the Site, and separated by Thomas Road (DBCA-011) (Figure 15).

2.10 Heritage

A search of the DPLH InHerit database presented no State registered heritage sites within the Site or surrounds (DPLH-006).

The Aboriginal Cultural Heritage Inquiry System (ACHIS) shows no registered, historic or lodged places within the Site (DPLH-099, DPLH-100).



Figure 15: Conservation Estate and Environmentally Sensitive Areas

0

90

180

270

360 m

N

SCALE

1:10,000

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

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DATE

27/3/2026

Legend

Site

Proposed Clearing Footprint

Bush Forever Areas - 2000 (DPLH-019)

Clearing Regulations - Environmentally Sensitive Areas (DWER-046)

No	Description	Drawn	Approved	Date
A		SC	CE	27/3/2026

NOTES:

Cadastral (LGATE-002). boundary Label corresponds to the vegetation association number.

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3. Proposed Impacts and Mitigation

The proposed disturbance footprint is 15.15 ha in size, as shown on Figure 2, of which 14.68 ha is currently comprised of native vegetation. The proposed clearing will result in the loss of the following values:

- 14.68 ha of native vegetation mapped within the Cottesloe Complex - Central and South.
- 14.68 ha of native vegetation in 'Good' condition.
- 7.24 ha of vegetation representative of the Banksia TEC/PEC with a habitat quality score of 4/10.
- 5.18 ha of vegetation representative of the Tuart TEC/PEC (across two patches with a habitat quality score of 5/10).
- 10.47 ha foraging habitat for Carnaby's black cockatoo with a weighted average quality of 'Low to Moderate'.
- 9.53 ha of foraging habitat for Forest red-tailed black cockatoo with a weighted average quality of 'Low to Moderate'.
- 27 potential nesting trees (DBH > 50 cm), none of which contain suitable hollows for black cockatoos (comprising part of the foraging habitat described above).
- 161 trees that may constitute potential roosting habitat (comprising part of the foraging habitat described above).
- 14.68 ha of potentially suitable habitat for Priority fauna, including quenda, western brush wallaby, Perth slider, Graceful sunmoth and swan coastal plain shield-backed trapdoor spider.

4. Avoidance and Mitigation Measures

4.1 Consideration of Alternatives

The clearing footprint for the quarry expansion was determined to enable safe and economically viable extraction whilst retaining a vegetated buffer to neighbouring land uses. Given the small size of M 70/656 (18.03 ha), opportunities to reduce the quarrying footprint were highly limited.

WA Limestone reduced the clearing footprint as far as possible and elected to retain a vegetated border around the perimeter of the Site (20 m from lease boundary) to minimise visual impacts and provide a buffer to reduce the impacts of noise and dust on neighbouring land uses.

Siting the quarry expansion immediately adjacent to existing quarry operations by WA Limestone and others will facilitate sharing of:

- Waste Processing Facility.
- Weighbridge.

4.2 Avoidance Measures

There are no feasible alternative locations suitable for the quarry expansion for a number of reasons. Limestone is a critical construction material for the future development needs of Perth and the community. The nature of quarrying is principally constrained by geology and the occurrence of suitable limestone. A significant portion of limestone on the Swan Coastal Plain has now been sterilised by development and conservation. The Site remains one of few remaining sites suitable for extraction, and suitable to service the local market. As a result, avoidance options are extremely limited and due to the small scale of the limestone resource, and reducing the area of impact would render the project unfeasible.

The clearing footprint has been reduced as far as practicable, whilst allowing for safe and economically feasible extraction of the limestone resource.

A vegetated buffer surrounding the clearing footprint will retain the following values within the Site:

- 2.24 ha 'Low to Moderate' quality foraging habitat for Carnaby's black cockatoo.
- 1.89 ha 'Low to Moderate' quality foraging habitat for forest red-tailed black cockatoo.
- Included in the above, 36 trees with DBH $\geq$ 30 cm that comprise potential roosting habitat (not currently used).
- Included in the above, eight trees with DBH $\geq$ 50 cm that are classed as potential nesting trees (none of which contain suitable hollows for black cockatoo nesting).

- 1.86 ha of Banksia TEC.
- 2.33 ha of Tuart TEC.

4.3 Mitigation Measures

To mitigate impacts associated with the quarry expansion, a CEMP in consistence with DCCEEW (2024) Environmental Management Plan Guidelines. The EMP is provided as Appendix E and includes detail of how indirect impacts will be avoided and minimised. Key mitigation measures, as detailed in the EMP, will include:

- Fauna management measures:
 - Pre-clearance surveys (via trapping) for native fauna species will be undertaken for the purpose of avoiding direct impacts to any fauna present. Trapping will be undertaken for one night immediately prior to vegetation clearing with a potential of four traps per hectare, evenly distributed.
 - Pre-clearance walk throughs shall be undertaken to identify and displace any fauna present prior to clearing. The walk throughs shall be undertaken in the morning prior to clearing commencing, to displace individuals. Refugia sites shall be checked to minimise the presence of any fauna species within the clearing boundary.
 - Schedule clearing activities to ensure critical periods for flora and fauna are avoided. No clearing is to occur during Black Cockatoo breeding seasons (July to December [DAWE, 2022]).
 - A suitably experienced zoologist / environmental scientist will be onsite at all times during clearing, and must maintain radio communication with machinery operators.
 - Prior to felling, trees that are not being used by black cockatoos but contain potentially suitable hollows will be 'bumped gently' to displace any fauna in hollows.
 - Clearing will be undertaken progressively from the existing quarry moving towards the retained vegetation to allow maximum opportunity for any fauna present to move into adjacent vegetation.
 - A daily walkover will be undertaken daily to ensure no injured fauna are present.
 - If a sick or injured animal is found, the Environmental Supervisor shall be contacted who will attend to the scene. Sick or injured wildlife shall be taken to an approved wildlife rehabilitation centre.
 - Maintain a fauna interaction register to capture observations, interactions with, and injury to fauna.

-
- Weed and pathogen management:
 - Ensure vehicles are free of soil and vegetative material before entering or exiting the site. If vehicles are not clean on arrival they will be turned away from Site or directed to wash down facilities.
 - Ensure plants, soil, or fill brought into the site are from certified weed-free sources.
 - Infected material, including weeds and washdown debris, will be contained and buried on site.
 - Erosion sediment and surface water management:
 - Sediment dams to be constructed and bunding to be installed alongside retained vegetation to ensure sediment runoff is contained. Any potentially contaminated water will be captured in the sediment dams and bunds and settled out or treated prior to discharge to the environment.
 - Non-contaminated water will be directed around disturbance and construction areas.
 - Ensure that no works or structures cause obstructions to the free flow of drainage lines in rainfall events.
 - Dust management:
 - Implement dust suppression activities (water trucks) on unsealed roads and access tracks, cleared areas, locations of high dust risk (e.g. cutting machines), and where dust generation is visible.
 - Stockpiles will be hydromulched to avoid dust emissions.
 - All vehicles to travel on designated roads/tracks and comply with speed limits as per the Traffic Management Plan. Speed limits will be reduced where necessary to minimise dust emissions.
 - Noise and vibration:
 - Operate in accordance with Environmental Protection (Noise) Regulations 1997, Australian Standard 2436-1981: Guide to noise control on construction, maintenance and demolition sites, and all relevant occupational health and safety standards.
 - Ensure that equipment is fitted with appropriate noise reduction devices (where necessary) to comply with regulatory requirements.
 - Light emissions:
-

-
- Operating hours will be between 6am to 5pm, requiring minimal use of artificial lighting.
 - Position lights to directly focus on the intended target and not directed outward into surrounding vegetation
 - Use lighting with beam characteristics applicable to the specific task at hand and turn off non-essential lighting when not in use.
- Groundwater:
 - Mining will be undertaken to a depth of 5 m and depth to groundwater is >20 m across the Site. Therefore, mining will remain at least 4 m above the water table.

4.4 Rehabilitation

No rehabilitation of native vegetation is proposed. Given the Site is situated on Crown land (held under a mining lease), there is an expectation from the State government that the Site will be developed for urban purposes following sand extraction. Therefore, WA Limestone will stabilise the landform in preparation for its ultimate urban land use.

5. Assessment Against Clearing Principles

An assessment of the 14.68 ha of native vegetation clearing against the Ten Clearing Principles contained in Schedule 5 of the EP Act is provided in Table 12.

The results of the assessment indicate that the proposed clearing:

- May be at variance with principle a.
- Is likely to be at variance with principles b and d.
- Is not at variance with the remaining principles.

Should the Department consider the NVCP to result in significant residual impact to any of the biodiversity related clearing principles, an offset proposal will be provided.

Table 12: Assessment against Ten Clearing Principles

Principle (Schedule 5 of the EP Act)	Assessment	Outcome
(a) Native vegetation should not be cleared if it comprises a high level of biological diversity	There are three vegetation types within the clearing footprint, and all were assessed to be in good condition. A total of 73 native plant taxa were recorded during the Site survey, representing 82 genera and 41 families (PGV, 2020). In total, 36 introduced species were recorded. Species richness within the six quadrats sampled ranged from 21 to 28 species, with an average of 24. No Threatened or Priority Flora species were recorded during any of the surveys. The majority (96.9%) of vegetation within the clearing footprint is in Good condition, and the remaining 0.47 ha (3.1%) is Completely Degraded. Vegetation structure has been significantly altered through obvious signs of disturbance; however, retains basic vegetation structure. Weed incursion is the most significant degrading factor within the Site, with introduced species comprising approximately 33% of all plant species recorded (PGV, 2020). Based on a desktop assessment, 54 conservation significant fauna species have the potential to occur within the Site (two reptiles, 38 birds, four invertebrates and nine mammals). Of these, 11 species are expected to have a medium or high likelihood of occurrence. Carnaby's black cockatoo (Endangered) and Forest red-tailed black cockatoo (Vulnerable) were identified as occurring within the Site, based on the presence of foraging evidence. Quenda (Priority 4), western brush wallaby (Priority 4), Perth slider (Priority 3), Graceful sunmoth (Priority 4) and swan coastal plain shield-backed trapdoor spider (Priority 3) are expected to be residents or regular visitors to the Site. A further four conservation significant species may occur within the Site as less-regular visitors or vagrants. These includes black-striped snake (Priority 3), South-western brush-tailed phascogale (Conservation Dependant) and Chuditch (Vulnerable). Two conservation significant ecological communities are present within the Site, which are listed TECs under the EPBC Act and PECs by DBCA. These are Banksia TEC/PEC (Commonwealth-listed Endangered; State-listed Priority 3) and Tuart TEC/PEC (Commonwealth-listed Critically Endangered; State-listed Priority 3). DBCA database searches indicate that both Banksia TEC and Tuart TEC are present within surrounding remnant bushland to the north, south, and east and are not restricted to the Site. Despite signs of disturbance and weed incursion the fauna, flora and vegetation within the clearing footprint maintains a level of biological diversity and the proposed clearing may therefore be considered at variance with this principle.	Proposed clearing may be at variance with this Principle.

Principle (Schedule 5 of the EP Act)	Assessment	Outcome
(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	There are 11 conservation significant fauna species that may utilise habitat within the Site. Four of these are expected to be vagrants or irregular visitors and the clearing footprint is not considered to provide significant habitat for these species. The clearing footprint provides significant habitat for seven conservation significant fauna species. Quenda, western brush wallaby, Perth slider, Graceful sunmoth and swan coastal plain shield-backed trapdoor spider are expected to be residents or regular visitors to the Site and Carnaby's black cockatoo and forest red-tailed black cockatoo have been recorded (through foraging evidence) within the Site. The clearing footprint contains 10.47 ha of foraging habitat for Carnaby's black cockatoo with a weighted average quality of low to moderate, and 9.53 ha of Forest red-tailed black cockatoo, all of which is low to moderate quality. This habitat includes 27 potential nesting trees, and 161 potential roosting trees. There was no evidence of breeding or roosting observed within the Site and the nearest known breeding site for either species is 14 km to the south. Habitat values within the clearing footprint are likely to contribute to a network of foraging habitat within the local area. There is approximately 8,295.81 ha of potential Carnaby's black cockatoo foraging habitat and 7,919.54 ha of potential Forest red-tailed black cockatoo foraging habitat within 12 km of the Site. For both species foraging habitat within the clearing footprint represents an estimated 0.1% of potential foraging habitat within the surrounding area (12 km radius). Given the scale of impact, it is considered likely that the proposed clearing will be at variance with this principle.	Proposed clearing is likely to be variance with this Principle.
(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	No Threatened flora pursuant the Commonwealth EPBC Act or the State BC Act have been recorded (PGV, 2020; WEPL, 2024) or are expected to occur within the Site. Therefore, the proposed clearing is not at variance with this principle.	Proposed clearing is not at variance with this Principle.
(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.	The Site does not contain any TECs pursuant to the BC Act. There are two EPBC Act-listed TECs (Banksia TEC and Tuart TEC), within the Site, both of which are recognised as PECs at State level (both Priority 3). The clearing footprint contains 7.24 ha of Banksia PEC/TEC with a quality score of 4/10, within one patch. The remainder of the Patch will be fragmented into two linear patches that would no longer meet the minimum patch size and condition threshold to represent the PEC/TEC. There are two patches of Tuart PEC/TEC within the clearing footprint, totalling 5.18 ha. Both patches were assessed to have a quality score of 5/10.	Proposed clearing is likely to be at variance with this Principle.

Principle (Schedule 5 of the EP Act)	Assessment	Outcome
	Clearing of the PEC/TECs have been avoided as far as possible through the implementation of a vegetation buffer around the clearing footprint. Through this, impacts to 1.86 ha of Banksia PEC/TEC and 2.33 Tuart PEC/TEC has been avoided. However, given the scale of residual impacts to the PEC/TECs and the resulting fragmentation of the Banksia PEC/TEC, the proposed clearing is likely to be at variance with this principle.	
(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	The clearing footprint is located with the Cottesloe Complex - Central and South, of which an estimated 32.16% remains of its pre-European extent (GoWA, 2019). The National Objectives and Targets for Biodiversity Conservation 2001-2005 (DEH, 2001) recognises that the retention of 30% or more of the pre-clearing extent of each ecological community is necessary if Australia's biodiversity is to be protected. Below this level, species loss appears to accelerate exponentially. State Planning Policy 2.8: Bushland Policy for the Perth Metropolitan Region recognises a target of at least 10 per cent of the original extent of each vegetation complex (as representative of ecological communities at the regional scale) for the Swan Coastal Plain portion of the Perth Metropolitan Region, which is recognised as a constrained area. The proposed clearing of 14.68 ha of native vegetation considered to represent the Cottesloe Complex-Central and South comprises 0.1% of the current remaining extent (14,567.87 ha as per DBCA, 2019b). As such, the proposed clearing is not considered to impact a remnant of native vegetation that has been extensively cleared, and is therefore not at variance with this principle.	Proposed clearing is not at variance with this Principle.
(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	The proposed clearing area does not intersect any wetlands or watercourses. Therefore, no impacts are proposed to vegetation growing in, or in association with an environment associated with a water or wetland, and the proposed clearing is not at variance with this principle.	Proposed clearing is not at variance with this Principle.
(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The Site shows a relatively flat topography with only slight slopes across the area. It is located on the Spearwood S2a soils phase, which is characterised by moderately deep siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrops. WA Limestone is experienced in quarry operation and has soil stabilisation and erosion control measures in place within current quarry areas. Vegetation will be cleared at a single time within the Site, by pushing vegetation into windows to enable the limestone resource to be extracted. WA Limestone proposes to manage potential impacts associated with clearing and extraction, such as land degradation from erosion, sedimentation, and the spread of weeds, through an EMP that applies to both construction and operation of the quarry expansion (Appendix E).	Proposed clearing is not at variance with this Principle.

Principle (Schedule 5 of the EP Act)	Assessment	Outcome
	Given the above, the proposed clearing is not at variance with this principle.	
(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	The closest conservation area is Bush Forever Area 349, which is located approximately 380 m south of the clearing footprint and is separated by Thomas Road. Given this separation, the proposed clearing will not impact the environmental values within a conservation area, and is not at variance with this principle.	Proposed clearing is not at variance with this Principle.
(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	No wetlands or surface water features are present within or adjacent to the Site. Groundwater lies at least 20 m bgl within the Site. Water Quality Protection Note (WQPN) 15 requires two metres of vertical separation between the base of extraction and the highest groundwater level to protect groundwater quality and ensure evaporation does not occur, both during and after excavation. Further, WQPN 15 identifies that separation should allow for sufficient clearance to enable accidental fuel spills to be contained in the unsaturated zone for a reasonable period of time, ensure evaporation losses during mining are minimised, and ensure evapotranspiration losses from the rehabilitated mine site do not unacceptably reduce aquifer recharge (DWER, 2019). A minimum buffer of 15 m will be maintained between excavation and the water table to ensure there are no direct or indirect impacts to the quantity or quality of groundwater and avoid any consequential impacts to groundwater dependent vegetation. Importantly, limestone extraction has been deemed to have a low risk of impact to groundwater resources, which is recognised by DWER in allowing BRM extraction (conditions apply) within P1 Public drinking water source areas (PDWSAs). This further supports the conclusion that the proposed clearing (and associated activities) will not cause the deterioration of surface or underground water. Given the depth of groundwater, the low risk of limestone extraction and the absence of wetlands or surface water features, no significant impacts to surface or underground water will result from the proposed clearing, therefore clearing is not at variance with this principle.	Proposed clearing is not at variance with this Principle.
(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	There are no water bodies or permanently flowing drainage lines located within or around the Site. As described above the proposed clearing activities have no significant impact on the natural surface and groundwater processes. The underlying geology is comprised by limestone which is characterised by naturally high permeability and the pit will therefore be internally draining. Given the porosity and permeability of the limestone, all stormwater will collect on the porous floor of the pit and infiltrate into the ground, as per all limestone pits. The proposed clearing is therefore not likely to cause, or exacerbate, the incidence or intensity of flooding and is not at variance with this principle.	Proposed clearing is not at variance with this Principle.

6. Conclusions

The proposed expansion of the Abercrombie Road Quarry requires an NVCP under Part V of the EP Act for the clearing of 14.68 ha of native vegetation.

The proposed clearing will result in the loss of the following:

- 14.68 ha of native vegetation mapped within the Cottesloe Complex - Central and South.
- 14.68 ha of native vegetation in 'Good' condition.
- 7.24 ha of vegetation representative of the Banksia TEC/PEC with a habitat quality score of 4/10.
- 5.18 ha of vegetation representative of the Tuart TEC/PEC (across two patches with a habitat quality score of 5/10).
- 10.47 ha foraging habitat for Carnaby's black cockatoo with a weighted average quality of 'Low to Moderate'.
- 9.53 ha of foraging habitat for Forest red-tailed black cockatoo with a weighted average quality of 'Low to Moderate'.
- 27 potential nesting trees (DBH > 50 cm), none of which contain suitable hollows for black cockatoos (comprising part of the foraging habitat described above).
- 161 trees that may constitute potential roosting habitat (comprising part of the foraging habitat described above).
- 14.68 ha of potentially suitable habitat for Priority fauna, including quenda, western brush wallaby, Perth slider, Graceful sunmoth and swan coastal plain shield-backed trapdoor spider.

An EMP has been developed for the Site which will apply throughout clearing and operations (Appendix E) with the following key mitigation measures:

- Pre-clearance and clearance protocols.
- Fauna spotting and management measures to avoid impacts to individuals prior to and during clearing, vehicle strike, or entrapment within trenches.
- Weed and pathogen management.
- Erosion sediment and surface water management.
- Dust management.
- Noise and vibration management.

-
- Operating hours, lighting direction, and lighting forms to avoid uncontrolled light emissions.
 - Controls to avoid groundwater impacts.

As a result, the proposed clearing:

- May be at variance with principle a.
- Is likely to be at variance with principles b and d.
- Is not at variance with the remaining principles.

Should the Department consider the NVCP to result in significant residual impact to any of the biodiversity related clearing principles, an offset proposal will be provided.

7. References

Beard, J. S. (1990). Plant Life of Western Australia. Kangaroo Press, Kenthurst, NSW.

Birdlife. (2023). BirdLife/DBCA Great Cocky Count Database Search: 18 August 2023.

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Appendix A Black Cockatoo Habitat Assessment (Harewood, 2018)

Black Cockatoo Habitat Assessment



M 70/656

**Abercrombie Road
Postans**

July 2018
Version 2

On behalf of:
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SUMMARY

This report details the results of a black cockatoo habitat assessment of M 70/656 situated near Abercrombie Road, Postans (the subject site). The subject site has a total area of about 18 hectares and is mostly covered with remnant native vegetation that is required to be cleared to allow for a proposed extractive industry to proceed.

The assessment was undertaken to identify the extent of black cockatoo habitat present within the mining lease area and has included a daytime survey of the site, carried out on the 23 April and 3 July 2018.

The assessment identified a total of 119 “habitat trees” within the subject site. The majority (118, ~99.2%) of the trees were not observed to contain hollows considered suitable for black cockatoos to use for nesting purposes.

One hollow in one tree was found, when examined by drone, to contain a hollow showing some evidence of chewing possibly by black cockatoos (see Appendix B, Wpt 66). It is unclear if this was done by nesting or investigating birds. The location of this tree is shown in Figure 3.

The primary foraging resource present is represented by the areas mapped as jarrah and banksia woodland (see Figure 2) which makes up about ~8.5 ha (48.3%) of the site, though as indicated, the quality is variable. It should also be noted that some jarrah, banksia and sheoak trees also occur in areas mapped as open tuart woodland.

No existing roosting trees (trees used at night by black cockatoos to rest) were positively identified during the survey.

The results of this assessment should be provided to the relevant regulatory authorities for their consideration during the clearing permit assessment process.

1. INTRODUCTION

This report details the results of a black cockatoo habitat assessment of M 70/656 situated near Abercrombie Road, Postans (the subject site). The subject site has a total area of about 18 hectares and is mostly covered with remnant native vegetation (Figure 1).

It is understood that WA Limestone are proposing to clear vegetation from the site to allow for sand/limestone extraction operations to take place. Information obtained as part of this fauna assessment report will be used in conjunction with other environmental investigations to guide project planning and will also be used in the formulation of management plans, both of which will aim to minimise potential environmental impacts.

It is also anticipated that the information presented here will also be used by regulatory authorities to assess the potential impact of the proposal on fauna and fauna habitats at the site, during the project evaluation and clearing permit approval process.

2. SCOPE OF WORKS

The scope of works was:

1. Black cockatoo habitat assessment (habitat trees, existing and potential nest hollows, foraging and roosting habitat) over the mining lease area;
2. Report summarising methods and results.

Note: For the purposes of this proposal the term black cockatoo is in reference to Baudin's black cockatoo *Calyptorhynchus baudinii*, Carnaby's black cockatoo *Calyptorhynchus latirostris* and the forest red-tailed black cockatoo *Calyptorhynchus banksii naso*.

3. METHODS

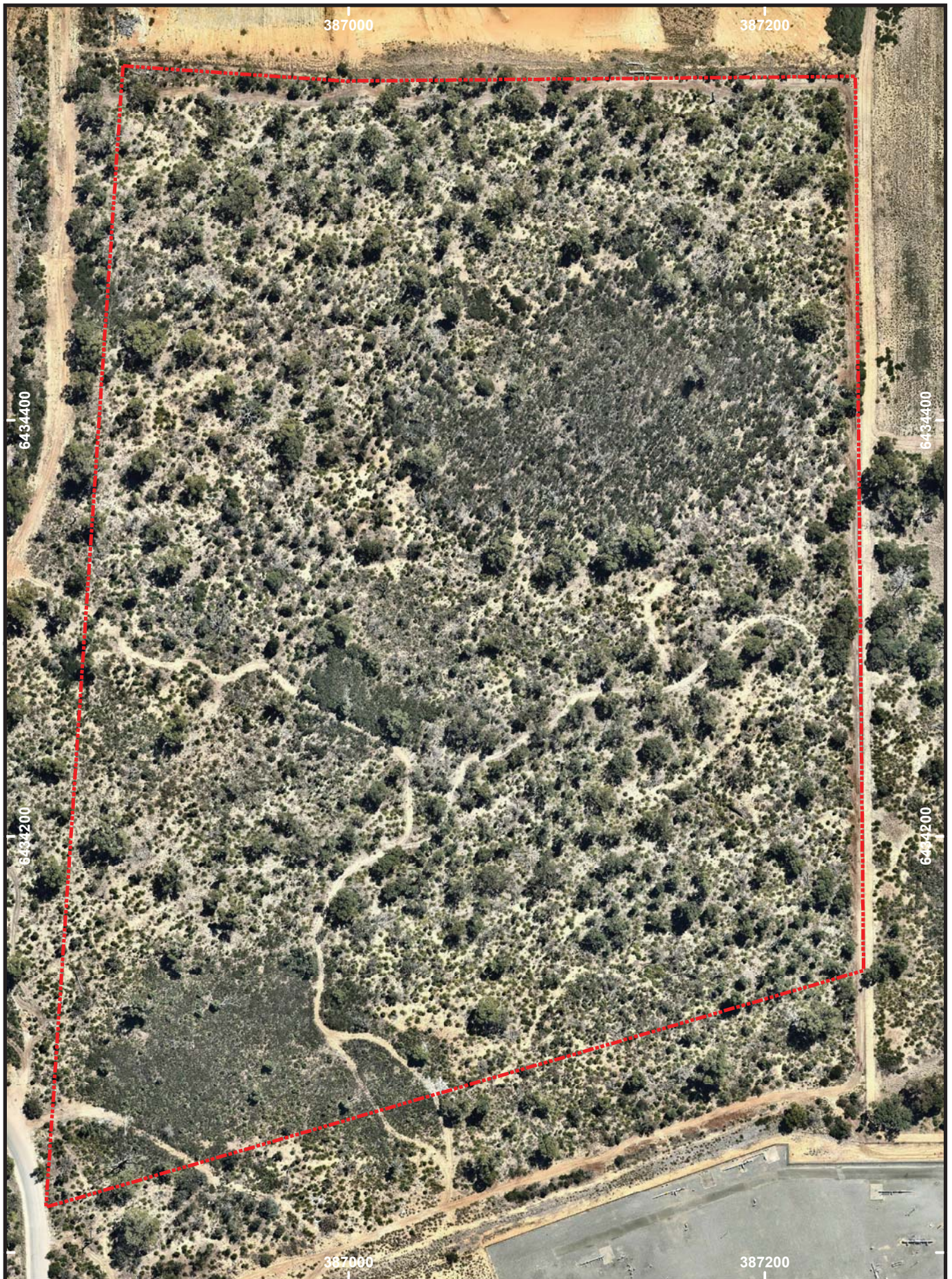
Daytime field survey work at the site was carried out on the 23 April and the 3 July 2018 by Greg Harewood (Zoologist).

3.1 VEGETATION ASSESSMENT

A level 2 flora and vegetation survey has been carried out at the site by Natural Area Holdings Pty Ltd (2018). A summary of this information is provided.

3.2 BLACK COCKATOO HABITAT ASSESSMENT

The following methods were employed to comply with the defined scope of works and are based on guidelines published by the federal Department of the Environment and



Legend

 Tenement Boundary



0 25 50 75 100
Metres



Drawn: G Harewood

Date: 26/04/2018

Scale: 1:2,500

Projection/Coordinate System: UTM/MGA Zone 50

M 70/656 - Abercrombie Road
Postans

Air Photo

Figure: 1

Energy (DotEE) (Commonwealth of Australia 2012) which states that surveys for Carnaby's, Baudin's and forest red-tailed black cockatoo habitat should:

- be done by a suitably qualified person with experience in vegetation or cockatoo surveys, depending on the type of survey being undertaken;
- maximise the chance of detecting the species' habitat and/or signs of use;
- determine the context of the site within the broader landscape—for example, the amount and quality of habitat nearby and in the local region (for example, within 10 km);
- account for uncertainty and error (false presence and absences); and
- include collation of existing data on known locations of breeding and feeding birds and night roost locations.

Habitat used by black cockatoos have been placed into three categories by the DotEE (Commonwealth of Australia 2012) these being:

- Breeding Habitat;
- Foraging Habitat; and
- Night Roosting Habitat.

3.2.1 Black Cockatoo Breeding Habitat

The black cockatoo breeding habitat assessment has involved the identification of all suitable breeding trees species within the subject site that had a DBH of equal to or over 50cm. The DBH of each tree was estimated using a pre-made 50 cm "caliper".

Target tree species included marri and jarrah and any other *Corymbia/Eucalyptus* species of a suitable size that are present. Peppermints, *banksia*, sheoak and melaleuca tree species (for example) were not be assessed as they typically do not develop hollows that are used by black cockatoos.

The location of each tree identified as being over the threshold DBH was recorded with a GPS and details on tree species, number and size of hollows (if any) noted. Trees observed to contain hollows (of any size/type) were marked with "H" using spray paint.

Potential hollows were placed into one of four categories, based on the size of the apparent hollow entrance, these being:

- Small = ~<5cm diameter (i.e. entrance too small for a black cockatoo);
- Medium = ~5cm-10cm diameter (i.e. entrance too small for a black cockatoo);

- Large = $\sim >10\text{cm}$ diameter (entrance large enough for a black cockatoo but possible hollow appears to be unsuitable for nesting i.e. wrong orientation, too small, too low or too shallow); or
- Large (cockatoo) = $\sim >10\text{cm}$ diameter (entrance appears big enough to provide access to a possible hollow that may be suitable for a black cockatoo to use for nesting).

Based on this assessment trees present within the survey area have then been placed into one of three categories:

- Tree $< 50\text{cm}$ DBH or an unsuitable species (not recorded);
- Tree $\geq 50\text{cm}$ DBH, no hollows suitable for a black cockatoo recorded;
- Tree $\geq 50\text{cm}$ DBH, one or more possible hollows seen, with at least one considered potentially suitable for black cockatoos to use for nesting.

For the purposes of this survey a tree containing a potential cockatoo nest hollow has been defined as:

Generally, any tree which is alive or dead that contains one or more visible hollows (cavities within the trunk or branches) suitable for occupation by black cockatoos for the purpose of nesting/breeding. Hollows that had an entrance greater than about 10cm in diameter and would allow the entry of a black cockatoo into a suitably orientated and sized branch/trunk, were recorded as a "potential nest hollow".

Identified hollows were examined using binoculars for evidence of actual use by black cockatoos (e.g. chewing around hollow entrance, scarring and scratch marks on trunks and branches).

Drones (DJI Mavic Pro and DJI Mavic Air) were used to examine and photograph each of the potential hollows (where possible) to assist in determining if they actually represented suitable hollows or if they showed any signs of current or previous use by black cockatoos (e.g. significant chew marks around hollow entrances).

It should be noted that the survey may have been conducted outside of the main breeding season of one or more of the three species of black cockatoo.

3.2.2 Black Cockatoo Foraging Habitat

The location and nature of black cockatoo foraging evidence (e.g. chewed fruits around base of trees) observed during the field survey was recorded. The nature and extent of potential foraging habitat present was also documented irrespective of the presence of any actual foraging evidence.

3.2.3 Black Cockatoo Roosting Habitat

Direct and indirect evidence of black cockatoos roosting within trees on site was noted if observed (e.g. branch clippings, droppings or moulted feathers).

4. SURVEY CONSTRAINTS

No seasonal sampling has been carried out as part of this fauna assessment. The conclusions presented are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of the field assessments. It should also be recognised that site conditions can change with time.

During the habitat survey trees with hollows were searched for. It should be noted that identifying hollows suitable for fauna species from ground level has limitations. Generally, the full characteristics of any hollow seen are not fully evident (e.g. internal dimensions). It is also difficult to locate all hollows within all trees as some are not observable from ground level.

The location of observations was recorded using a handheld GPS. The accuracy of the GPS cannot be guaranteed above a level of about 5 to 10 metres, though it should be noted that in some circumstance the accuracy can increase or decrease beyond this range.

5. RESULTS

5.1 VEGETATION ASSESSMENT

Descriptions and example images of the vegetation units identified within the subject site by Natural Area Holdings Pty Ltd (2018) are provided in Table 1. Figure 2 shows the extent of each unit.

Table 1: Main Vegetation Units within the Subject Site

Unit	Description	Example Images
1	Open Tuart Woodland <i>Eucalyptus gomphocephala</i> Open Woodland over <i>Xanthorrhoea preissii</i> and <i>Acacia pulchella</i> shrubland and an understorey of mixed weedy grasses and herbs. Area: ~5.9 ha (33.5%)	

Unit	Description	Example Images
2	<i>Acacia rostellifera</i> Tall Shrubland. A Tall Shrubland of <i>Acacia rostellifera</i> over a middle storey of <i>Grevillea vestita</i> and <i>Xanthorrhoea preissii</i> shrubs and a weedy grassland of <i>*Ehrharta calycina</i> and <i>*Briza maxima</i>. Stands of <i>Banksia sessilis</i> was also associated with this vegetation type. Area: ~3.2 ha (18.2%)	
3	Jarrah and <i>Banksia</i> Woodland Woodland of <i>Eucalyptus marginata</i> and <i>Banksia attenuata</i> over <i>Xanthorrhoea preissii</i> shrubland and a weedy understorey of <i>*Ehrharta calycina</i>. Area: ~8.5 ha (48.3%)	

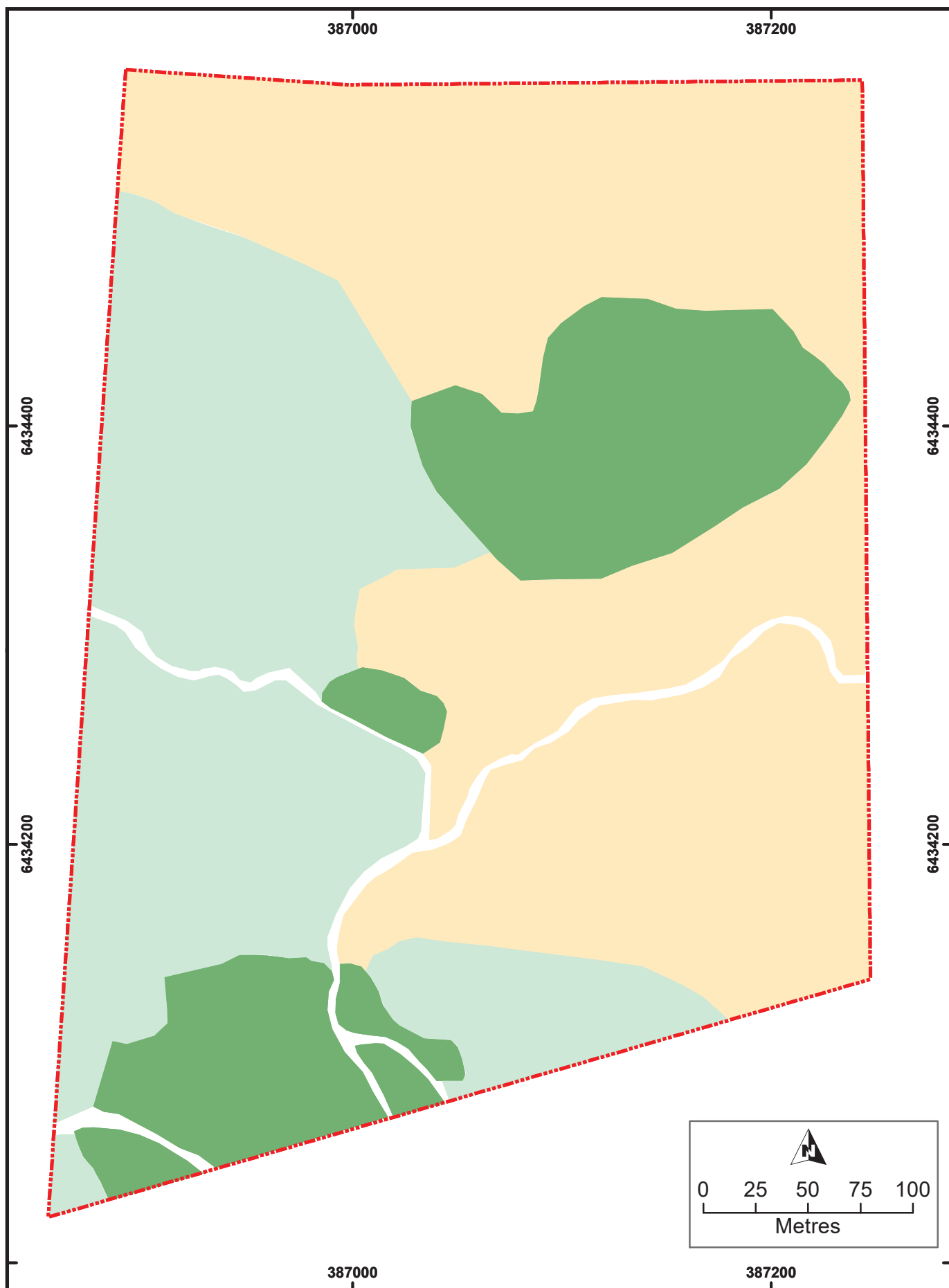
5.2 BLACK COCKATOO HABITAT ASSESSMENT

5.2.1 Black Cockatoo Breeding Habitat

Trees considered potentially suitable for black cockatoos to use as nesting habitat (using DotEE criteria (Commonwealth of Australia 2012), but ultimately subject to a suitable hollow being present or developing and a range of other factors) which were found within the subject site comprised the following species:

- Tuart – *Eucalyptus gomphocephala*;
- Jarrah - *Eucalyptus marginata*; and
- Dead unidentifiable species (most probably tuart or jarrah).

It should be noted that the likelihood of any one particular tree species developing hollows suitable for black cockatoos to use for breeding varies considerably. For example, available data suggests that jarrah (*Eucalyptus marginata*) rarely produces hollows large enough for black cockatoos. Kirkby (2009) reports that from a database of 109 confirmed black cockatoo nest trees throughout the jarrah forest only six were located in jarrah trees.



Legend

- | | | | |
|---|-------------------|---|------------------------------------|
|  | Tenement Boundary |  | Open Tuart Woodland |
| | |  | Acacia rostellifera Tall Shrubland |
| | |  | Jarrah and Banksia Woodland |



Drawn: G Harewood

Date: 26/04/2018

Scale: 1:2,500

Projection/Coordinate System: UTM/MGA Zone 50

M 70/656 - Abercrombie Road
Postans

Vegetation Units

(Mapped by Natural Area Holdings P/L)

Figure: 2

A summary of the potential black cockatoo habitat trees observed within the subject site is provided in Table 2 and their location shown in Figure 3. Additional details on each habitat tree observed can be found in Appendix A. A summary photographic assessment of those trees with possible large hollows examined by drone is provided in Appendix B.

Table 2: Summary of Habitat Trees (DBH $\geq$ 50cm) within the Survey Area

Total Number of Habitat (DBH $\geq$ 50cm) Trees	Number of Trees with <u>No Hollows</u> Considered <u>Unsuitable</u> for Nesting Black Cockatoos	Number of Trees with <u>Hollows</u> Considered <u>Possibly Suitable</u> for Nesting Black Cockatoos	Tree Species		
			Marri	Jarrah	Dead Unknown
119	118	1	37	75	7

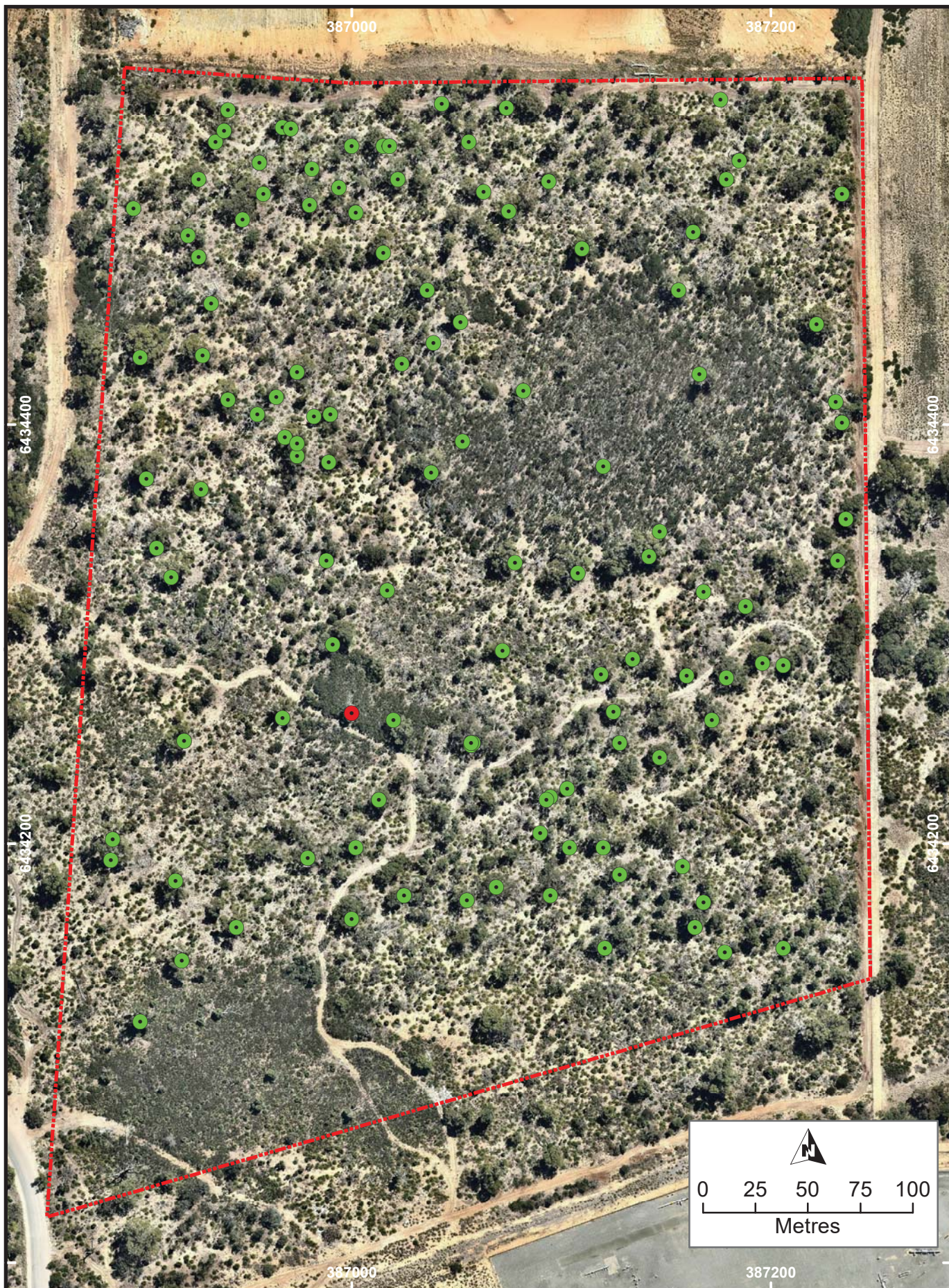
The assessment identified a total of 119 “habitat trees” within the subject site. The majority (118, ~99.2%) of the trees were not observed to contain hollows considered suitable for black cockatoos to use for nesting purposes.

One hollow in one tree was found, when examined by drone, to contain a hollow showing some evidence of chewing possibly by black cockatoos (see Appendix B, Wpt 66). It is unclear if this was done by nesting or investigating birds. The location of this tree is shown in Figure 3.

5.2.2 Black Cockatoo Foraging Habitat

Following is a list of the flora species recorded within the subject site during the course of the assessment that are known to be used as a food source by one or more species of black cockatoo:

- Jarrah - *Eucalyptus marginata*;
- Tuart - *Eucalyptus gomphocephala*;
- Sheoak – *Allocasuarina fraseriana* and *A. humilis*;
- Grey Stinkwood - *Jacksonia furcellata*;
- *Acacia* - *Acacia rostellifera* and *A. pulchella*;
- Banksia – *Banksia menziesii*, *B. sessilis*, *B. attenuata*, and *B. dallanneyi*; and
- Balga Bush - *Xanthorrhoea preissii*.



Legend



Tenement Boundary



Habitat Tree - One or more large hollows possibly suitable for black cockatoos



Habitat Tree - No hollows suitable for black cockatoos recorded.



Drawn: G Harewood

Date: 9/07/2018

Scale: 1:2,500

Projection/Coordinate System: UTM/MGA Zone 50

M 70/656 - Abercrombie Road Postans

**Habitat Trees
(DBH >50cm)**

Figure: 3

It should be noted that many of the above-mentioned species (e.g. tuart, *Acacia*, grey stinkwood and balga bush) are only foraged upon to a small degree compared to more favoured plant species (e.g. *banksia*) and therefore do not contribute significantly to the total foraging resource present.

Evidence of black cockatoos foraging onsite was observed during the field assessment at several locations though fresh evidence was not common. Old evidence of Carnaby's black cockatoos forging on banksia was found in the form of banksia cones. A small flock (~15) of Carnaby's black cockatoos were also observed forging on *Banksia sessilis*. No evidence of jarrah or sheoak (or any other plant species) being foraged upon was seen during the survey period.

The actual extent of foraging habitat is difficult to quantify as the density and distribution of favoured species (jarrah, *banksia* and to a lesser extent sheoak, in this case) varied considerably across the subject site. The primary foraging resource present is represented by the areas mapped as jarrah and banksia woodland (see Figure 2) which makes up about ~8.5 ha (48.3%) of the site, though as indicated the quality is variable. It should also be noted that some jarrah, banksia and sheoak trees also occur in areas mapped as open tuart woodland

5.2.3 Black Cockatoo Roosting Habitat

No existing roosting trees (trees used at night by black cockatoos to rest) were positively identified during the survey.

6. CONCLUSION

The assessment reported on here was undertaken to identify the extent of black cockatoo habitat present within M 70/656.

The assessment identified a total of 119 "habitat trees" within the subject site. The majority (118, ~99.2%) of the trees were not observed to contain hollows considered suitable for black cockatoos to use for nesting purposes.

One hollow in one tree was found, when examined by drone, to contain a hollow showing some evidence of chewing possibly by black cockatoos (see appendix B, Wpt 66). It is unclear if this was done by nesting or investigating birds. The location of this tree is shown in Figure 3.

The primary foraging resource present is represented by the areas mapped as jarrah and banksia woodland (see Figure 2) which makes up about ~8.5 ha (48.3%) of the site, though as indicated, the quality is variable. It should also be noted that some jarrah, banksia and sheoak trees also occur in areas mapped as open tuart woodland.

No existing roosting trees (trees used at night by black cockatoos to rest) were positively identified during the survey.

The results of this assessment should be provided to the relevant regulatory authorities for their consideration during the clearing permit assessment process.

7. REFERENCES

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APPENDIX A

HABITAT TREE DETAILS

Habitat Trees

DBH >50cm

Datum - GDA94

Entrance Size Ranges - Small = >5cm, Medium = 5 to 10cm, Large = >10cm

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt001	50H	386914	6434327	Tuart	20+	>50	2+	Small-Large	Galahs/Owl	No Signs	No	Examined with a drone- Unlikley to be suitable due to overhanging branches
wpt002	50H	386907	6434341	Jarraah	20+	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt003	50H	386902	6434374	Tuart	20+	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt004	50H	386899	6434432	Tuart	15-20	>50	0					
wpt005	50H	386929	6434433	Tuart	15-20	>50	0					
wpt006	50H	386933	6434458	Dead Tuart	20+	>50	2+	Small-Large	No Signs	No Signs	No	Examined with a drone - Hollows appear too shallow/small internally.
wpt007	50H	386927	6434480	Jarraah	10-15	>50	0					
wpt008	50H	386922	6434490	Jarraah	15-20	>50	0					
wpt009	50H	386896	6434503	Jarraah	15-20	>50	0					
wpt010	50H	386927	6434517	Jarraah	15-20	>50	0					
wpt011	50H	386935	6434535	Jarraah	15-20	>50	0					
wpt012	50H	386939	6434540	Jarraah	15-20	>50	0					
wpt013	50H	386941	6434550	Dead Jarraah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt014	50H	386967	6434542	Jarraah	15-20	>50	0					
wpt015	50H	386971	6434541	Jarraah	15-20	>50	0					
wpt016	50H	386981	6434522	Dead Jarraah	15-20	>50	2+	Large	No Signs	No Signs	No	Examined with a drone - Hollows appear too shallow/small internally.
wpt017	50H	387000	6434533	Jarraah	10-15	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt018	50H	387015	6434533	Jarraah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt019	50H	387018	6434533	Dead Jarraah	15-20	>50	2+	Small-Large	No Signs	No Signs	No	Examined with a drone - Hollows appear too shallow/small internally.
wpt020	50H	387022	6434517	Jarraah	10-15	>50	0					
wpt021	50H	387056	6434535	Tuart	10-15	>50	2+	Small	No Signs	No Signs	No	
wpt022	50H	387043	6434553	Jarraah	15-20	>50	0					
wpt023	50H	387074	6434551	Jarraah	15-20	>50	0					
wpt024	50H	387176	6434555	Dead Unknown	0-5	>50	1	Large	No Signs	No Signs	No	Appears too low and shallow
wpt025	50H	387185	6434526	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt026	50H	387179	6434517	Tuart	15-20	>50	0					
wpt027	50H	387163	6434492	Jarraah	15-20	>50	0					
wpt028	50H	387156	6434464	Tuart	15-20	>50	0					
wpt029	50H	387166	6434424	Tuart	20+	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt030	50H	387222	6434448	Tuart	15-20	>50	0					
wpt031	50H	387234	6434510	Jarraah	15-20	>50	0					
wpt032	50H	387231	6434411	Jarraah	15-20	>50	0					
wpt033	50H	387234	6434401	Jarraah	10-15	>50	0					
wpt034	50H	387236	6434355	Jarraah	15-20	>50	0					
wpt035	50H	387232	6434335	Jarraah	15-20	>50	0					
wpt036	50H	387206	6434285	Jarraah	15-20	>50	0					
wpt037	50H	387196	6434286	Jarraah	15-20	>50	0					
wpt038	50H	387179	6434279	Jarraah	15-20	>50	0					
wpt039	50H	387172	6434259	Jarraah	10-15	>50	0					
wpt040	50H	387206	6434150	Dead Unknown	5-10	>50	1	Large	No Signs	No Signs	No	Appears too low and shallow
wpt041	50H	387178	6434148	Jarraah	10-15	>50	2+	Small	No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt042	50H	387164	6434160	Jarrah	15-20	>50	0					
wpt043	50H	387168	6434172	Tuart	15-20	>50	0					
wpt044	50H	387158	6434189	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt045	50H	387128	6434185	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt046	50H	387120	6434198	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt047	50H	387104	6434198	Tuart	15-20	>50	1	Large	Bees	No Signs	No	Examined with a drone - Hollows appear too small internally and occupied by bees.
wpt048	50H	387090	6434205	Jarrah	10-15	>50	2+	Small	No Signs	No Signs	No	
wpt049	50H	387095	6434175	Jarrah	15-20	>50	2+	Small-Medium	No Signs	Galahs	No	
wpt050	50H	387121	6434150	Jarrah	10-15	>50	0					
wpt051	50H	387069	6434179	Jarrah	10-15	>50	0					
wpt052	50H	387055	6434173	Jarrah	15-20	>50	0					
wpt053	50H	387025	6434175	Jarrah	10-15	>50	0					
wpt054	50H	387000	6434164	Jarrah	15-20	>50	0					
wpt055	50H	387002	6434198	Jarrah	15-20	>50	0					
wpt056	50H	386979	6434193	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt057	50H	386945	6434160	Tuart	15-20	>50	0					
wpt058	50H	386919	6434144	Tuart	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt059	50H	386899	6434115	Tuart	15-20	>50	0					
wpt060	50H	386916	6434182	Tuart	20+	>50	0					
wpt061	50H	386885	6434192	Jarrah	15-20	>50	0					
wpt062	50H	386886	6434202	Tuart	15-20	>50	0					
wpt063	50H	386920	6434249	Tuart	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt064	50H	386967	6434260	Jarrah	10-15	>50	0					
wpt065	50H	386991	6434295	Tuart	15-20	>50	0					
wpt066	50H	387000	6434262	Tuart	20+	>50	2+	Small-Large (cockatoo)	No Signs	Yes	Yes	Examined with a drone - Evidence of possible use by black cocktoos - chew marks
wpt067	50H	387017	6434321	Dead Unknown	15-20	>50	2+	Small-Large	No Signs	No Signs	No	Appears too low and shallow
wpt068	50H	386988	6434335	Dead Jarrah	10-15	>50	0					
wpt069	50H	386989	6434382	Jarrah	15-20	>50	0					
wpt070	50H	386974	6434385	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt071	50H	386968	6434394	Tuart	15-20	>50	1	Large	No Signs	No Signs	No	Examined with a drone- Hollow too low and shallow
wpt072	50H	386974	6434391	Dead Unknown	20+	>50	2+	Small-Large	No Signs	No Signs	No	Examined with a drone -Too shallow and small internally
wpt073	50H	386982	6434404	Dead Tuart	10-15	>50	0					
wpt074	50H	386990	6434405	Jarrah	15-20	>50	0					
wpt075	50H	386964	6434413	Jarrah	15-20	>50	2+	Small-Large	No Signs	No Signs	No	Examined with a drone - Too shallow and small internally
wpt076	50H	386955	6434405	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt077	50H	386941	6434412	Tuart	15-20	>50	0					
wpt078	50H	386928	6434369	Tuart	5-10	>50	2+	Large	No Signs	No Signs	No	Appears too low and shallow
wpt079	50H	387038	6434377	Tuart	15-20	>50	0					
wpt080	50H	387053	6434392	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt081	50H	387082	6434416	Tuart	15-20	>50	0					
wpt082	50H	387052	6434449	Tuart	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt083	50H	387039	6434439	Jarrah	10-15	>50	0					
wpt084	50H	387024	6434429	Jarrah	10-15	>50	0					
wpt085	50H	386974	6434425	Jarrah	15-20	>50	0					
wpt086	50H	386980	6434505	Jarrah	15-20	>50	0					

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt087	50H	386948	6434498	Jarrah	15-20	>50	0					
wpt088	50H	386958	6434510	Jarrah	10-15	>50	0					
wpt089	50H	386956	6434525	Jarrah	10-15	>50	0					
wpt090	50H	386994	6434513	Jarrah	10-15	>50	0					
wpt091	50H	387002	6434501	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt092	50H	387015	6434482	Tuart	15-20	>50	0					
wpt093	50H	387036	6434464	Tuart	15-20	>50	0					
wpt094	50H	387063	6434511	Jarrah	10-15	>50	0					
wpt095	50H	387075	6434502	Tuart	15-20	>50	0					
wpt096	50H	387094	6434516	Jarrah	10-15	>50	0					
wpt097	50H	387110	6434484	Tuart	15-20	>50	0					
wpt098	50H	387120	6434380	Tuart	15-20	>50	0					
wpt099	50H	387147	6434349	Dead Unknown	10-15	>50	2+	Medium-Large	No Signs	No Signs	No	Examined with a drone - Too shallow and small internally
wpt100	50H	387142	6434337	Tuart	15-20	>50	0					
wpt101	50H	387168	6434320	Dead Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt102	50H	387188	6434313	Jarrah	15-20	>50	0					
wpt103	50H	387160	6434280	Jarrah	10-15	>50	1	Small	No Signs	No Signs	No	
wpt104	50H	387147	6434241	Jarrah	15-20	>50	0					
wpt105	50H	387128	6434248	Jarrah	15-20	>50	0					
wpt106	50H	387125	6434263	Jarrah	15-20	>50	0					
wpt107	50H	387103	6434226	Jarrah	10-15	>50	0					
wpt108	50H	387095	6434222	Jarrah	10-15	>50	0					
wpt109	50H	387093	6434221	Jarrah	10-15	>50	0					
wpt110	50H	387013	6434221	Jarrah	15-20	>50	0					
wpt111	50H	387020	6434259	Tuart	10-15	>50	1	Large	No Signs	No Signs	No	Appears too low and shallow
wpt112	50H	387057	6434247	Jarrah	10-15	>50	0					
wpt113	50H	387058	6434248	Jarrah	10-15	>50	0					
wpt114	50H	387057	6434248	Jarrah	10-15	>50	0					
wpt115	50H	387072	6434292	Tuart	10-15	>50	0					
wpt116	50H	387119	6434281	Jarrah	15-20	>50	0					
wpt117	50H	387134	6434288	Jarrah	10-15	>50	0					
wpt118	50H	387108	6434329	Tuart	15-20	>50	0					
wpt119	50H	387078	6434334	Tuart	10-15	>50	0					

APPENDIX B

PHOTOGRAPHS OF TREES INSPECTED BY DRONE

Plate 1: Habitat Tree 1

	Species: Tuart
	Wpt: 1 Coordinates: 386913 mE 6434327 mN
	Primary Hollow/s: Hollow 1: Vertical spout in branch with an opening of about 20cm. Several other smaller/unsuitably orientated hollows.
Comments: Hollow 1 could not be photographed with a drone due to overhanging branches obscuring the view. A picture taken from ground level is provided below. No evidence of use (e.g. chew marks around hollow entrances) are evident suggesting no black cockatoo activity. Overhanging branches lessen the likelihood that this hollow (if suitable) would be used by black cockatoos as they hinder approach and departure angles. Other smaller hollows were in use by galahs and an eastern barn owl. Observations made in the field indicate that possible hollows in this tree are unlikely to be used by black cockatoos for nesting purposes.	
Hollow 1 	



Plate 2: Habitat Tree 71

	Species: Tuart
	Wpt: 71 Coordinates: 386968 mE 6434394 mN
	Primary Hollow/s: Hollow 1: A single large (>30cm) spout
Comments: This tree contains one apparent large hollow in the form of a spout created by a broken trunk at about 4 metres height. The drone picture suggests this hollow is very shallow and unsuitable for black cockatoos. Its low height also reduces its suitability (even if it was deep enough). No evidence of use (e.g. chew marks around hollow entrance) seen. Observations made in the field indicate that this tree does not contain any hollows currently suitable for black cockatoos to use for nesting purposes.	

Hollow 1

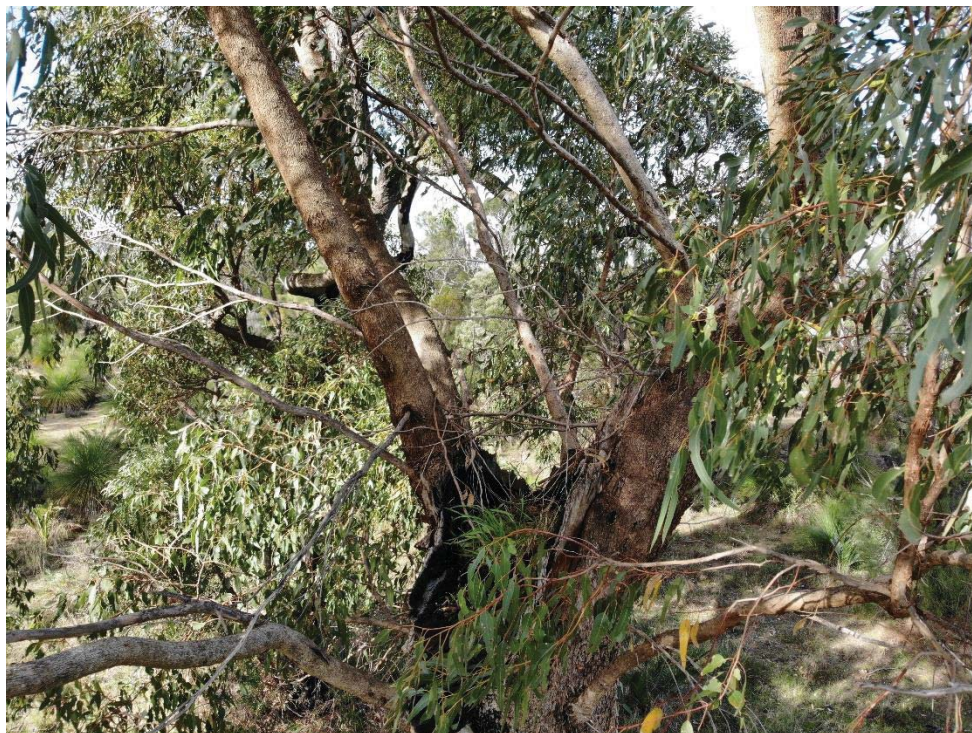


Plate 3: Habitat Tree 72

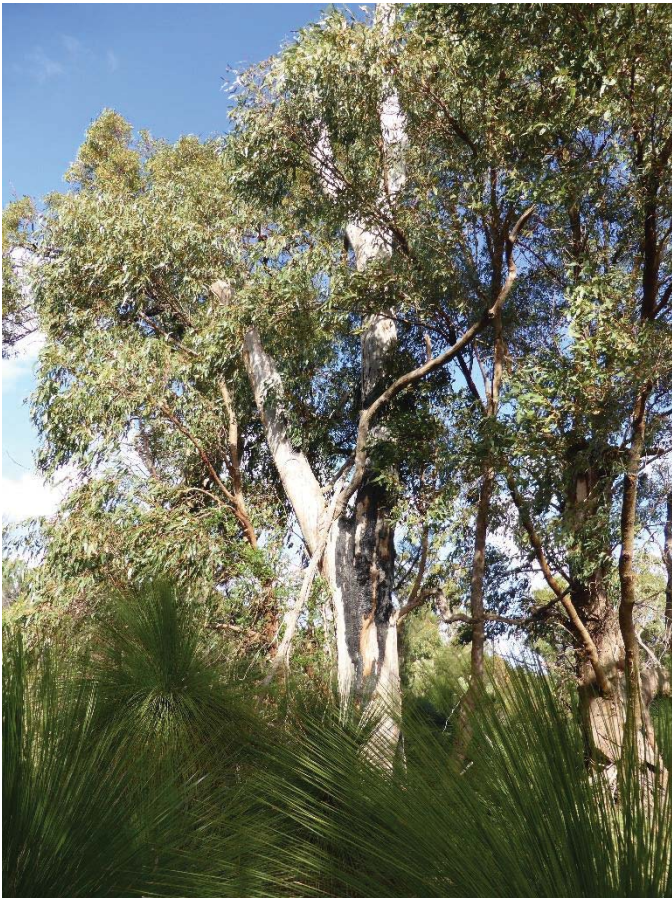
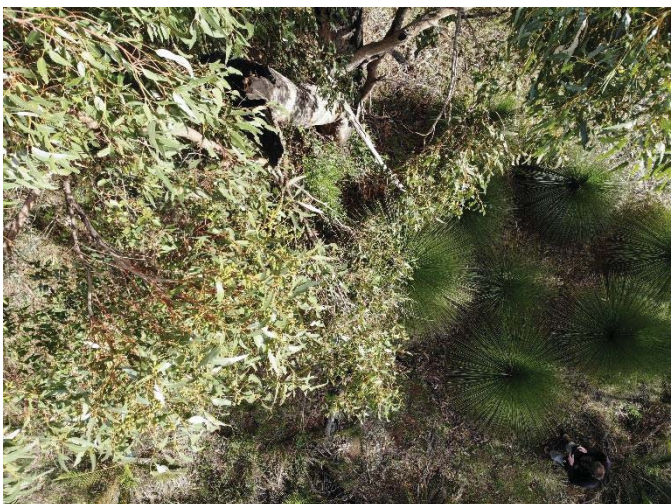
	Species: Dead Unknown Wpt: 72 Coordinates: 386974 mE 6434391 mN Primary Hollow/s: Three vertical broken off branches with small/medium (~ 10cm) openings. Comments: All three hollows appear to be very small and shallow and therefore unsuitable for black cockatoos. Overhanging branches hinder approach and departure angles to one hollow. No evidence of use (e.g. chew marks around hollow entrances) seen. Observations made in the field indicate that this tree does not contain any hollows currently suitable for black cockatoos to use for nesting purposes.
	Hollow 1 
Hollow 2 	Hollow 3 



Plate 4: Habitat Tree 75

	Species: Jarrah Wpt: 75 Coordinates: 386964 mE 6434413 mN Primary Hollow/s: Hollow 1 and 2: Large burnt, near horizontal branches with possible hollows. Comments: Inspection of these hollows with the drone revealed that neither branch contains a hollow of any depth. No evidence of use (e.g. chew marks around hollow entrances) seen. Observations made in the field indicate that this tree does not contain any hollows currently suitable for black cockatoos to use for nesting purposes.
Hollow 1	Hollow 1 
	Hollow 2 



Plate 5: Habitat Tree 6

	Species: Dead Tuart
	Wpt: 6 Coordinates: 386933 mE 6434458 mN
	Primary Hollow/s: Hollow 1: Vertical spout 20 to 30cm opening. Hollow 2: Vertical spout ~15cm opening. Several other smaller possible hollows (<10cm openings).
	Comments: Hollow 1 appears to be very shallow with a plant growing in its base. While the entrance to Hollow 2 appears large enough to allow entry of a black cockatoo the likely maximum internal diameter of the hollow at depth appears to unfavourable (< 20cm). No evidence of use (e.g. chew marks around hollow entrances) seen. Observations made in the field indicate that this tree is very unlikely to contain any hollows currently suitable for black cockatoos to use for nesting purposes.
Hollow 2 	
Hollow 1 	



Plate 6: Habitat Tree 19

	Species: Dead Jarrah Wpt: 19 Coordinates: 387018 mE 6434533 mN Primary Hollow/s: Hollow 1: Upward facing with ~10cm opening. Hollow 2: Upward facing with ~10cm opening. Hollow 3: Knot hole a ~20cm opening. Several other smaller possible hollows (<10cm openings). Comments: All the hollows within this tree appeared when examined with the drone to be too small internally to be suitable for black cockatoos to use for nesting purposes. No evidence of use by black cockatoos (e.g. significant chew marks around hollow entrances) seen. Observations made in the field indicate that this tree does not contain any hollows currently suitable for black cockatoos to use for nesting purposes.
	Hollow 1 
Hollow 2 	Hollow 3 



Plate 7: Habitat Tree 16

	Species: Dead Jarrah
	Wpt: 16 Coordinates: 386981 mE 6434522 mN
	Primary Hollow/s: Hollows 1-2: Vertical broken off/burnt branches/trunk with large (>30cm) openings. Comments: Hollows 1 was open at base and not suitable for black cockatoos. Hollow 2 was found to be a very shallow depression with no depth. No evidence of use (e.g. chew marks around hollow entrances) seen. Observations made in the field indicate that this tree does not contain any hollows currently suitable for black cockatoos to use for nesting purposes.
	Hollow 1
	Hollow 2



Plate 8: Habitat Tree 66

	Species: Tuart
	Wpt: 66 Coordinates: 387000 mE 6434262 mN
	Primary Hollow/s: Hollows 1 and 2: Near vertical broken off cut branches with a ~15 to 20cm openings. Several other smaller hollows.
	Comments: Hollow 1 appears to provide entry into a suitably sized tree trunk though no evidence of use seen (e.g. chew marks around hollow entrance). Hollow 2 shows numerous chew marks suggesting it may possibly have been used by black cockatoos. Other hollows appeared unsuitable for black cockatoos and showed no signs of use. Observations made in the field indicate that this tree may contain a hollow suitable for black cockatoos to use for nesting purposes with some signs of possible previous use.
Hollow 2 	Hollow 1 



Plate 9: Habitat Tree 47

	Species: Tuart
	Wpt: 47 Coordinates: 387104 mE 6434198 mN
	Primary Hollow/s: Hollow 1: Near vertical branch with a ~20cm opening.
	Comments: While the entrance to Hollow 1 appears large enough the internal diameter of the hollow appears too small for actual nesting. In addition, this hollow was in use by feral bees and therefore would not be used even if suitable. Observations made in the field indicate that this tree does not contain any hollows currently suitable for black cockatoos to use for nesting purposes.
	



Plate 10: Habitat Tree 99

	Species: Tuart Wpt: 99 Coordinates: 387147 mE 6434349 mN Primary Hollow/s: Hollow 1: Knot hole with >30m opening. Hollows 2 & 3: Vertical broken/burnt branches/trunk with >30cm openings. Comments: Hollow 1 appear too shallow/small to be suitable for black cockatoos. Hollow 2 & 3 were found to be very shallow and did not represent actual hollows. No evidence of use (e.g. chew marks around hollow entrances) seen. Observations made in the field indicate that this tree does not contain any hollows currently suitable for black cockatoos to use for nesting purposes. Hollow 1 
Hollow 2 	Hollow 3 



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The conclusions are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of preparing the report. Also, it should be recognised that site conditions, can change with time.

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Date:	7 November 2022
Subject:	Fire damaged hollow bearing tree

Greg Harewood (Harewood 2018) consulting zoologist was contracted by WA Limestone to undertake a targeted black cockatoo habitat assessment of mining lease M 70/656 near located next to Thomas Road, Postans, WA.

The surveys were completed on the 23 April 2018 and 3 July 2018. The assessment identified 119 “habitat trees” of which 118 did not contain hollows suitable for black cockatoos. Only 1 was identified as containing a hollow with chew marks that was suitable for black cockatoo nesting.

The tree is located at coordinates 50H 387000 mE 6434262 mN (Map 1). As described by Harewood (2018) the species is *Eucalyptus gomphocephala* (Tuart). Two hollows were identified with 15 to 20cm openings. Hollow 1 was unused and Hollow 2 had chew marks around the entrance which indicated signs of previous use.

During December 2020 a bush fire burnt through the tenement, impacting the vegetation and destroying the only identified hollow bearing tree suitable for black cockatoos.

WA Limestone inspected the tree on the 9 February 2022 from the air via drone and the ground which showed extensive fire damage.

Photos 1 to 3 show the tree pre fire damage with the two hollows. The hollows were located near the crown of the tree. Photos 4 to 9 show significant fire damage to the tree which has destroyed the crown and the hollows.



Photo 1: Base of tree pre fire (Harewood ,2018).



Photo 2: Hollow 1 no signs of use (Harwood, 2018)



Photo 3: Hollow 2 showing signs of use (Harewood, 2018)



Photo 4: Tree looking north



Photo 5: Tree looking south east



Photo 8: Tree from above looking south east



Photo 6: Tree looking south. Note extensive charring observed.



Photo 9: Tree looking south west

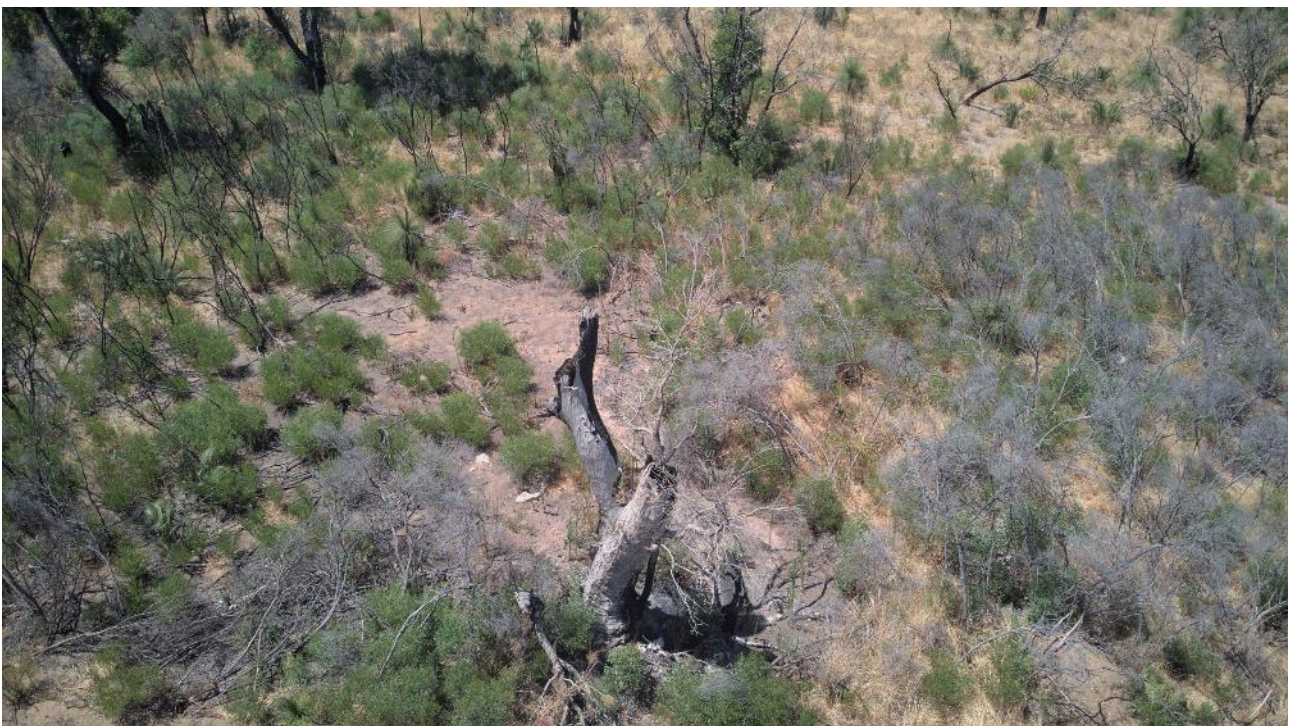
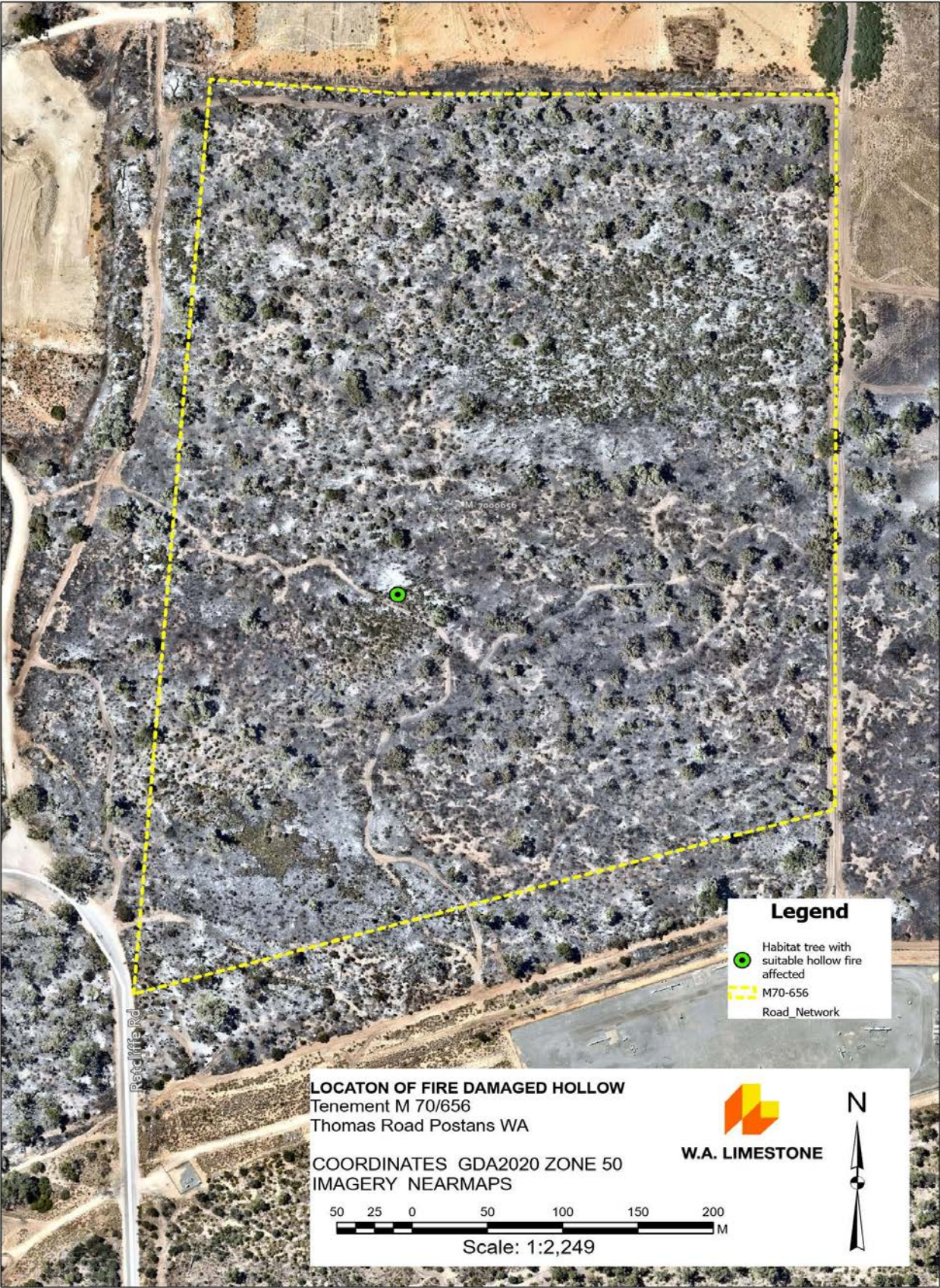


Photo 7: Tree looking north west



Map 1 Location of identified hollow

Appendix B Flora and Vegetation Survey (PGV, 2020)

M70/656 ABERCROMBIE ROAD, POSTANS

FLORA AND VEGETATION SURVEY

Prepared for: WA Limestone
Report Date: 9 December 2020
Version: 1
Report No. 2020-543



pgv ENVIRONMENTAL

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Plate 2:	Aerial Photograph 1953
Plate 3:	Aerial Photograph 1989
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Plate 5:	Tuart TEC Patch boundaries
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Figure 1:	Site Location
Figure 2:	Site Boundary and Topography
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- Appendix 1: DBCA Flora Database Searches
- Appendix 2: Naturemap Report
- Appendix 3: Protected Matters Search Tool Report
- Appendix 4: Conservation Codes
- Appendix 5: DBCA TEC/PEC Database Search
- Appendix 6: Flora Species List
- Appendix 7: Quadrat Data

1 INTRODUCTION

1.1 Background

Mining Tenement M70/656 (the site) is located on the southern part of Lot 313 Abercrombie Road, Postans in the City of Kwinana, approximately 30km south of the Perth Central Business District (Figure 1). The tenement is 18.02ha and is bounded by mostly cleared rural land to the east, Ratcliffe Road and native vegetation to the south-west, a quarry to the north and other large mostly cleared land to the west (Figure 2).

The owners of the tenement, WA Limestone, plan to expand the existing quarry to the north into the tenement. A preliminary flora and vegetation survey was undertaken on the site in late spring 2017 (Natural Area Holdings, 2018). PGV Environmental was commissioned by WA Limestone to undertake a flora and vegetation survey of the tenement in mid-spring and to assess the conservation significance of flora and vegetation communities to assist the applications for future mining of the site.

1.2 Scope of Works

A Detailed Flora and Vegetation Survey was undertaken in accordance with EPA Technical Guidance *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016). The survey included the following:

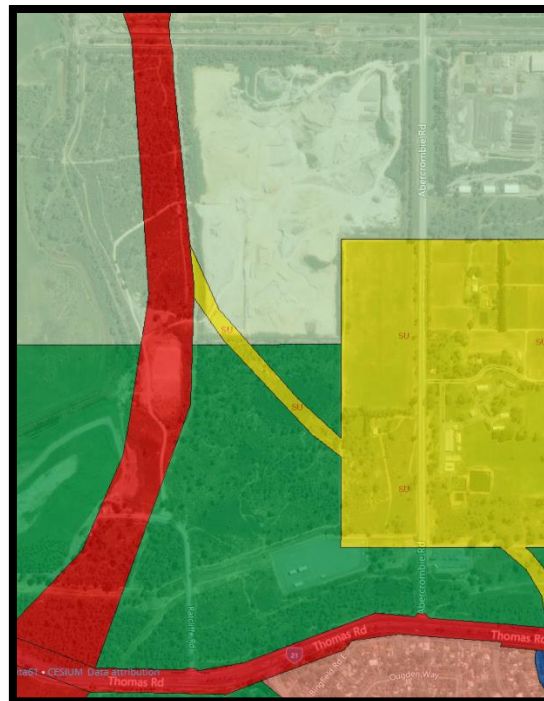
- Desktop search and review of the Department of Biodiversity, Conservation and Attractions (DBCA) Threatened and Priority flora and ecological community Databases;
- A search of the Naturemap website (DBCA, 2020);
- A search of the Commonwealth Government's Protected Matters Search Tool (DAWE, 2020) to identify species potentially occurring within the area that are protected under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*;
- Examination of historic and recent aerial photography and contour and soil maps to provisionally identify vegetation types and condition;
- Field survey using quadrats to record native and introduced species as well as a thorough site walkover of any areas of native vegetation;
- Recording of any significant plant species using a hand-held GPS;
- Description and mapping of vegetation types and vegetation condition; and
- Compilation of a flora list.

2 EXISTING ENVIRONMENT

2.1 Land Use

The site is currently zoned 'Parks and Recreation' and contains a corridor zoned 'Public purposes - special uses' under the Metropolitan Region Scheme (National Map, 2020) (Plate 1). Zoning under the City of Kwinana Local Planning Scheme No. 2 (WAPC, 1992) reflects the zoning under the MRS.

Plate 1: Zoning under the MRS



The earliest available historic aerial photograph on-line from 1953 (Landgate, 2020) shows that the site contains native vegetation (Plate 2). The site remains completely vegetated in 1989 (Plate 3) apart from a few tracks through the site.

Plate 2: Aerial Photograph 1953

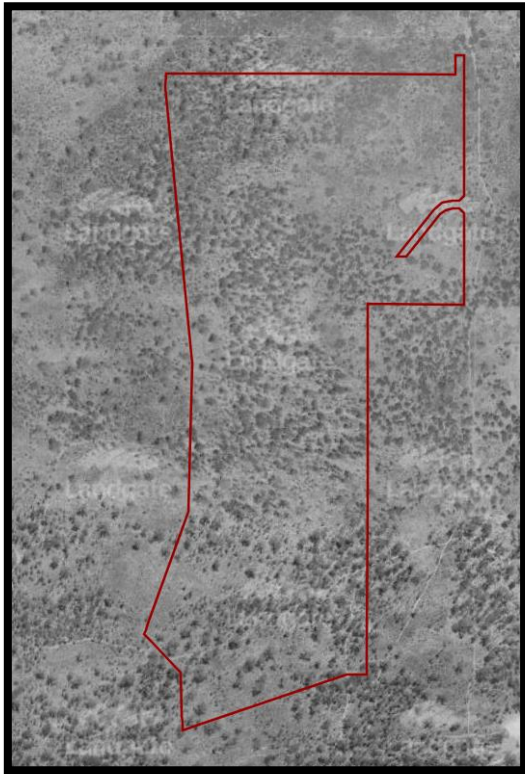
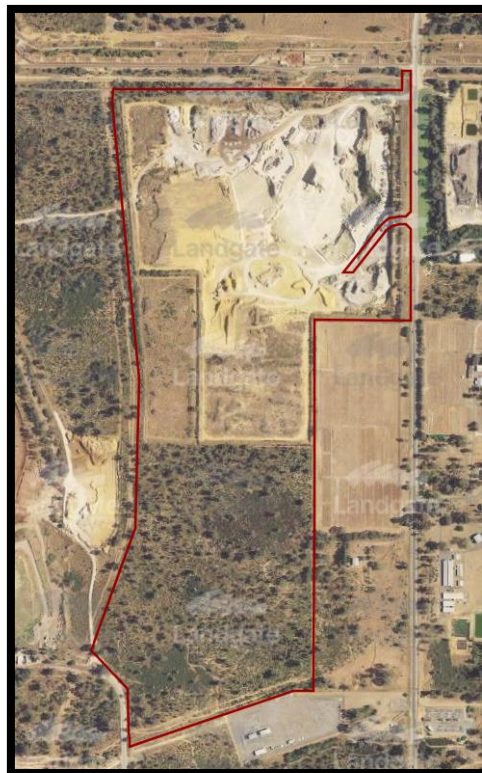


Plate 3: Aerial Photograph 1989



The 2013 aerial photo shows the extent of quarrying activity on the northern half of the lot and shows the tenement as uncleared native vegetation (Plate 4).

Plate 4: Aerial Photograph 2013 (Landgate, 2020)



The site remains vegetated to the present (Figure 2).

2.2 Topography

The site is gently undulating with a south-west/north-east trending ridge at an elevation of around 31m Australian Height Datum (AHD) in the central western part of the site which slopes down gently to the north, east and south. The lowest part of the site has an elevation of around 18m along the eastern boundary (Figure 2).

2.3 Geology and Soils

2.3.1 Geology

The site is mapped as part of the Spearwood System which has the highest relief of the dune systems on the Swan Coastal Plain (Bolland, 1998). The Spearwood system consists of slightly calcareous Aeolian sand remnant from leaching of the underlying Pleistocene Tamala limestone (Davidson, 1995).

2.3.2 Soils

Two Spearwood soil units are mapped on the site and are described as follows:

- Spearwood S2a Phase (211Sp_S2a) – lower slopes of dune ridge with moderately deep to deep siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrop (DPIRD, 2020), mapped over the majority of the site; and
- Spearwood Wet, Swamp Phase (211SpW_SWAMP) which are soils that occur with swamps (DPIRD, 2020). This soil phase is located in a very small area on the western boundary.

2.4 Hydrology

Groundwater is at approximately 1m AHD, which is 17m to 30m below the surface level, and generally flows to the north-west (DWER, 2020). There are no wetlands mapped on the site (National Map, 2020).

3 METHODOLOGY

3.1 Database Searches

Searches of the following databases were undertaken for a 10km radius around the central point of the site prior to the site survey:

- Department of Biodiversity, Conservation and Attractions (DBCA) Declared Rare and Priority Flora database and Threatened Ecological Communities database (Appendix 1);
- DBCA Naturemap Database (DBCA, 2020) (Appendix 2); and
- The Commonwealth Government's Protected Matters Search Tool to identify species potentially occurring within the area that are protected under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* (DAWE, 2020). A radius of 5km was used for this database (Appendix 3).

3.2 Site Survey

A flora and vegetation survey of the site was conducted by Dr Paul van der Moezel of PGV Environmental on 13 September 2020.

The site was thoroughly walked to record all species in the survey area. The site was walked in parallel transects spaced 20m apart in order to maximise the recording of small plants, particularly orchid species. The dense stands of *Acacia rostellifera* were harder to walk through and had a lower site coverage.

Information on flora composition and vegetation structure was recorded in six 10m x 10m non-permanent quadrats in representative vegetation types.

Most plant species were identified in the field. Some specimens were photographed or taken for identification at the Perth Reference Herbarium or office using standard reference guides.

3.3 Survey Conditions

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

Table 1: Statement of Botanical Survey Conditions

Issue	Constraints (Y/N)*	Comment
Competency/experience of the consultant conducting the survey	No	Dr Paul van der Moezel has extensive botanical survey experience in the Perth Metropolitan Region.
Proportion of the flora identified^	No	The timing of the survey in mid-September was optimal to identify most flora species on the site including all potential Threatened and Priority Flora. No follow-up survey required.
Sources of information (historic/recent or new data)	No	The flora in the Perth Metropolitan Region is well documented.

Issue	Constraints (Y/N)*	Comment
Proportion of the task achieved and further work that may need to be undertaken	No	No follow-up survey required as no Threatened Flora expected to occur in other seasons.
Timing/weather/season/cycle	No	The spring survey was optimal for most flora species. 2020 was a good year for ephemeral species, including orchids.
Disturbances (Fire)	No	The fire age of the vegetation was mostly greater than 5 years.
Intensity of survey (e.g. In retrospect was the intensity adequate)	No	The time spent on the small site and ease of access made for a full coverage.
Completeness (e.g. was relevant area fully surveyed)	No	
Resources (e.g. degree of expertise available for plant identification)	No	Experienced botanist undertook most plant identifications on site.
Remoteness and/or access problems	No	Easily accessible site in the Perth Metropolitan Region.
Availability of contextual (e.g. bioregional) information for the study area.	No	Bush Forever

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

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

4 RESULTS

4.1 Flora Database Searches

A search of the DBCA Threatened Flora Databases: the WA Herbarium database (WAHerb), the Threatened (Declared Rare) and Priority Flora Species List (TFPL) (Appendix 1) and Naturemap Database (Appendix 2) indicates that a number of species that are listed as Endangered, Threatened or Priority have been located within a 10km radius of the site. The and the EPBC Act Protected Matters Search Tool (Appendix 3) indicates species that may have habitat within 5km radius of the site. The results from these database searches are shown in Table 2. None of the species has been recorded from the survey area.

Table 3 lists the likelihood that any of these species could occur on the site based on the soil types and vegetation condition.

Table 2: Conservation Significant Flora Identified in Database Searches

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act
<i>Caladenia huegelii</i>	King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid	Schedule 1	Endangered
<i>Drakaea elastica</i>	Glossy-leafed Hammer Orchid	Schedule 1	Endangered
<i>Synaphea</i> sp. Serpentine (G.R Brand 103)		Schedule 1	Critically Endangered
<i>Diuris purdiei</i>	Purdie's Donkey-orchid	Schedule 2	Endangered
<i>Drakaea micrantha</i>	Dwarf Hammer-orchid	Schedule 2	Vulnerable
<i>Andersonia gracilis</i>	Slender Andersonia	Schedule 3	Endangered
<i>Diuris drummondii</i>	Tall Donkey Orchid	Schedule 3	Vulnerable
<i>Diuris micrantha</i>	Dwarf Bee-orchid	Schedule 3	Vulnerable
<i>Eleocharis keigheryi</i>	Keighery's Eleocharis	Schedule 3	Vulnerable
<i>Acacia lasiocarpa</i> var. bracteolata long peduncle variant (G.J. Keighery 5026)		Priority 1	
<i>Acacia</i> sp. Binningup (G. Cockerton et al. WB 37784)		Priority 1	
<i>Boronia jucunda</i>		Priority 1	
<i>Lachnagrostis nesomytica</i> subsp. <i>paralia</i>		Priority 1	
<i>Tetraria</i> sp. Chandala (G.J. Keighery 17055)		Priority 2	
<i>Thelymitra variegata</i>	Queen of Sheba	Priority 2	
<i>Amanita preissii</i>	Cinnamon-ring Lepidella	Priority 3	
<i>Amanita wadjukiorum</i>	Wadjuk Lepidella	Priority 3	
<i>Austrostipa mundula</i>		Priority 3	

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act
<i>Babingtonia urbana</i>	Coastal Plain Babingtonia	Priority 3	
<i>Cyathochaeta teretifolia</i>		Priority 3	
<i>Hibbertia spicata</i> subsp. <i>leptotheca</i>		Priority 3	
<i>Jacksonia gracillima</i>		Priority 3	
<i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i>		Priority 3	
<i>Pimelea calcicola</i>		Priority 3	
<i>Pithocarpa corymbulosa</i>		Priority 3	
<i>Sphaerolobium calcicola</i>		Priority 3	
<i>Stylidium paludicola</i>		Priority 3	
<i>Styphelia filifolia</i>		Priority 3	
<i>Aponogeton hexatepalus</i>	Stalked Water Ribbons	Priority 4	
<i>Dodonaea hackettiana</i>	Hackett's Hopbush	Priority 4	
<i>Grevillea olivacea</i>		Priority 4	
<i>Jacksonia sericea</i>	Waldjumi	Priority 4	
<i>Kennedia becxiana</i>	Cape Arid Kennedia	Priority 4	
<i>Lepidium puberulum</i>		Priority 4	
<i>Microtis quadrata</i>	South Coast Mignonette Orchid	Priority 4	
<i>Myosotis australis</i>	Southern Forget-me-not	Priority 4	
<i>Stylidium ireneae</i>		Priority 4	
<i>Stylidium longitubum</i>	Jumping Jacks	Priority 4	
<i>Stylidium striatum</i>	Fan-leaved Triggerplant	Priority 4	
<i>Tripterococcus</i> sp. <i>Brachylobus</i> (A.S. George 14234)		Priority 4	
<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>		Priority 4	

Conservation Codes are shown in Appendix 4

Table 3: Likelihood of Identified Significant Flora Species Occurring on the Site

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Caladenia huegelii</i>	King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid	The Grand Spider-orchid prefers sand or clay loam. This species generally does not survive in disturbed areas.	Unlikely – Shallow sand over limestone not typical habitat for the species
<i>Drakaea elastica</i>	Glossy-leafed Hammer Orchid	The Glossy-leafed Hammer Orchid prefers low-lying situations adjoining winter-wet swamps. This species does not survive in disturbed areas.	No – not swampy habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Synaphea</i> sp. Serpentine (G.R Brand 103)		<i>Synaphea</i> sp. Serpentine occurs in greybrown sandy loams or clay in seasonally wet areas (DPaW, 2017).	No – not seasonally wet habitat
<i>Diuris purdiei</i>	Purdie's Donkey-orchid	Purdie's Donkey Orchid occurs in grey-black sand in moist winter-wet swamps.	No – not swampy habitat
<i>Drakaea micrantha</i>	Dwarf Hammer-orchid	Dwarf Hammer-orchid occurs in grey sands over dark, grey to blackish, sandy clay-loam substrates in winter wet depressions or swamps.	No – not swampy habitat
<i>Andersonia gracilis</i>	Slender Andersonia	Slender Andersonia occurs in white/grey sand, sandy clay, gravelly loam in winter-wet areas, near swamps.	No – not winter-wet habitat
<i>Diuris drummondii</i>	Tall Donkey Orchid	The Tall Donkey Orchid grows in low-lying depressions, swamps, in areas that contain surface water well into summer (Brown <i>et al.</i> , 2013).	No – not swamp habitat
<i>Diuris micrantha</i>	Dwarf Bee-orchid	The Dwarf Bee-orchid is usually found on cleared firebreaks or open sandy patches that have been disturbed with Jarrah Banksia woodland or thickets of Spearwood (<i>Kunzea ericifolia/ glabrescens</i>) (Williams <i>et al.</i> , 2001).	Highly Unlikely – not suitable habitat
<i>Eleocharis keigheryi</i>	Keighery's Eleocharis	Keighery's Eleocharis occurs in clay, sandy loam and is emergent in freshwater: creeks, claypans.	No – not wetland habitat
<i>Acacia lasiocarpa</i> var. bracteolata long peduncle variant (G.J. Keighery 5026)		This variant of <i>Acacia lasiocarpa</i> occurs in grey or black sand over clay in swampy areas, winter wet lowlands.	No – not swamp habitat
<i>Acacia</i> sp. Binningup (G. Cockerton et al. WB 37784)		<i>Acacia</i> sp. Binningup grows in sand in Tuart Woodland on the Quidalup dune system (ALA, 2020).	No – not in the Quidalup system
<i>Boronia jucunda</i>		<i>Boronia jucunda</i> prefers quartzite in rocky areas in open eucalypt woodland.	No – not suitable quartzite habitat
<i>Lachnagrostis nesomytica</i> subsp. <i>paralia</i>		<i>Lachnagrostis nesomytica</i> subsp. <i>paralia</i> occurs in calcareous sands on coastal dunes and swales.	Unlikely – not coastal dune habitat
<i>Tetraria</i> sp. Chandala (G.J. Keighery 17055)		<i>Tetraria</i> sp. Chandala is recorded from a mound spring in peaty sand (Western Australian Herbarium, 2005).	No – not mound spring habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Thelymitra variegata</i>	Queen of Sheba	The Queen of Sheba orchid grows on sandy clay, sand and laterite.	No – not suitable habitat
<i>Amanita preissii</i>	Cinnamon-ring Lepidella	Cinnamon-ring Lepidella is found under shrubs and <i>Eucalyptus</i> in West Australia (Amanitaceae Org, 2015) in sandy soil and lateritic gravel, associated with <i>Allocasuarina fraseriana</i> , <i>Acacia pulchella</i> , <i>Corymbia calophylla</i> , <i>Callitris</i> sp., <i>Eucalyptus gomphocephala</i> , <i>E. marginata</i> , <i>Macrozamia fraseri</i> and <i>Pinus pinaster</i> (Davidson <i>et al.</i> , 2017).	Unlikely – not suitable habitat
<i>Amanita wadjukiorum</i>	Wadjuk Lepidella	Wadjuk Lepidella is solitary to gregarious, in sandy soil in degraded native vegetation with <i>Allocasuarina fraseriana</i> , <i>Corymbia calophylla</i> , <i>C. citriodora</i> and <i>Brachychiton</i> sp (Davidson <i>et al.</i> , 2013).	Unlikely – not suitable habitat
<i>Austrostipa mundula</i>		<i>Austrostipa mundula</i> occurs on plains in grey sand (Western Australian Herbarium, 2001).	Unlikely – not suitable habitat
<i>Babingtonia urbana</i>	Coastal Plain Babingtonia	Coastal Plain Babingtonia occurs in orange sand, brown loam, white sandy clay on low flats, winter-wet swamps	Highly Unlikely – not lowland habitat
<i>Cyathochaeta teretifolia</i>		<i>Cyathochaeta teretifolia</i> occurs in grey sand, sandy clay on swamps, creek edges.	Highly Unlikely – not swamp or creek habitat
<i>Hibbertia leptotheca</i>		<i>Hibbertia leptotheca</i> grows near-coastal limestone ridges, outcrops and cliffs in coastal heaths and thickets usually dominated by species of <i>Melaleuca</i> and <i>Acacia</i> (Thiele, 2019).	Highly Unlikely – not coastal habitat
<i>Jacksonia gracillima</i>		<i>Jacksonia gracillima</i> occurs in grey and brown well-drained sand.	Highly Unlikely – not suitable habitat
<i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i>		<i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i> grows in white or grey sand with lateritic gravel.	No – not suitable habitat
<i>Pimelea calcicola</i>		<i>Pimelea calcicola</i> occurs in sand on coastal limestone ridges.	Possible
<i>Pithocarpa corymbulosa</i>		<i>Pithocarpa corymbulosa</i> occurs in gravelly or sandy loam amongst granite outcrops.	No – not suitable habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Sphaerolobium calcicola</i>		<i>Sphaerolobium calcicola</i> grows in white-grey-brown sand, sandy clay over limestone, black peaty sandy clay on tall dunes, winter-wet flats, interdunal swamps, low-lying areas.	No – not wetland habitat
<i>Stylidium paludicola</i>		<i>Stylidium paludicola</i> prefers peaty sand over clay in winter wet habitats in Marri and Melaleuca woodland, Melaleuca shrubland.	No – not suitable habitat
<i>Styphelia filifolia</i>		<i>Styphelia filifolia</i> occurs in sandy soils of the coastal plain (with one known occurrence from the northern Darling Scarp), usually in Banksia or Jarrah woodland and in low-lying situations (Hislop and Lelièvre, 2017).	Highly Unlikely – not low-lying habitat
<i>Aponogeton hexatepalus</i>	Stalked Water Ribbons	Stalked Water Ribbons grow in freshwater: ponds, rivers, claypans	No – no permanent water habitat
<i>Dodonia hackettiana</i>	Hackett's Hopbush	Hackett's Hopbush occurs in sand with outcropping limestone.	Possible
<i>Grevillea olivacea</i>		<i>Grevillea olivacea</i> grows in white or grey sand on coastal dunes, limestone rocks.	Highly Unlikely – not coastal habitat
<i>Jacksonia sericea</i>	Waldjumi	Waldjumi grows in calcareous and sandy soils.	Possible
<i>Kennedia becxiana</i>	Cape Arid Kennedia	Cape Arid Kennedia occurs in sand, loam on granite hills and outcrops.	No – not granitic habitat
<i>Lepidium puberulum</i>		<i>Lepidium puberulum</i> grows in sandy soils in coastal habitats.	Highly Unlikely – not coastal habitat
<i>Microtis quadrata</i>	South Coast Mignonette Orchid	South Coast Mignonette Orchid occurs on clay based coastal flats (Brown <i>et al.</i> , 2013).	No – not clay habitat
<i>Myosotis australis</i>	Southern Forget-me-not	Southern Forget-me-nots grow in grey sand over limestone	Highly Unlikely – thought to be extinct
<i>Stylidium ireneae</i>		<i>Stylidium ireneae</i> occurs in sandy loam in valleys near creek lines, woodland, often with <i>Agonis</i> .	Highly Unlikely – not creekline habitat
<i>Stylidium longitubum</i>	Jumping Jacks	Jumping Jacks prefer sandy clay, clay in seasonal wetlands.	No – not wetland habitat
<i>Stylidium striatum</i>	Fan-leaved Triggerplant	The Fan-leaved Triggerplant grows in brown clay loam over laterite on hillslopes in Jarrah/Marri forest, Wandoo woodland.	No – not lateritic habitat

Scientific Name	Common Name	Habitat*	Likelihood to occur on the site
<i>Tripterococcus</i> sp. <i>Brachylobus</i> (A.S. George 14234)		<i>Tripterococcus</i> sp. <i>Brachylobus</i> occurs in grey, black or peaty sand winter-wet flats	No – not wetland habitat
<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>		<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i> prefers sand, sandy clay in winter-wet depressions.	No – not winter-wet habitat

* sourced from Florabase (DBCWA, 2017) and SPRAT Database (DoEE, 2016) as well as the DBCWA database searches unless otherwise denoted

4.2 TEC and PEC Desktop Search

A search of DBCWA's Threatened (TEC) and Priority Ecological Communities (PEC) database was conducted within a radius of 5km around the site (14-0920EC) (Appendix 5). Two TECs and four Priority 3 PECs at State level were identified in the database search. One of these is also listed as a TEC under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Three of the State listed PECs are listed under the EPBC Act as TECs. The communities identified in the database searches are outlined in Table 4.

Table 4: Threatened and Priority Ecological Communities likely to occur within 5km of the Site

Ecological Community	Description	Conservation Status WA	Status under the EPBC Act
SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered (Listed as FCT19)
SCP26a	<i>Melaleuca huegelii</i> - <i>Melaleuca systema</i> shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994))	Endangered	
SCP24	Northern Spearwood shrublands and woodlands	Priority 3	
SCP25	Southern <i>Eucalyptus gomphocephala</i> - <i>Agonis flexuosa</i> woodlands	Priority 3	Critically Endangered as part of Tuart Woodland TEC
Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered
Tuart woodlands	Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered

4.3 Flora

A total of 109 plant species were recorded during the survey (Appendix 6). The total consisted of 73 native and 36 introduced species. The percentage of introduced species (33%) is high considering the site does not appear to have been cleared in the past. The number of native species is considered moderate compared to the that which would be similar vegetation types in better condition.

Natural Area Holdings (NAH) (2018) recorded 63 species including 49 native and 14 introduced. NAH undertook their survey in mid-November which is past the peak flowering period to survey on Spearwood dune soils in the Perth Metropolitan Region. The addition of 46 more species, including 24 native species, in the mid-September survey of this report reflects the earlier survey period.

The plant Families with the highest representation of species were the Fabaceae (Pea and Wattle family – 13 species, including 10 native and 3 introduced), Proteaceae (Banksia family - 10 species, all native), Asparagaceae (Lily family – 10 species, 9 native and 1 introduced) and the Cyperaceae (Sedge family – 7 species, all native). Unusually, the Myrtaceae (Eucalyptus, Melaleuca and others) was only represented by two species, Tuart and Jarrah. This outcome was recorded in both NAH and the PGV Environmental survey. There does not seem to be any obvious reason for the absence of any *Melaleuca*, *Calothamnus*, *Calytrix* and other genera that might normally be expected to occur on the site.

There were no Threatened (Declared Rare) or Priority plant species recorded on the site in either the NAH 2017 survey (NAH, 2018) or this 2020 survey.

Quadrat Data are provided in Appendix 7.

Species richness in the six quadrats ranged from 21-28 species. The percentage of introduced species in all quadrats was very high with the highest values for the *Acacia rostellifera* dense heath vegetation (average 62%) and the lower values in Tuart and Jarrah/Banksia woodlands with 58% and 38%, respectively.

4.4 Vegetation

4.4.1 Vegetation Complex

Vegetation Complexes are a broad level of vegetation description which is based on the underlying geomorphology and rainfall (Heddl *et al.*, 1980). The areas of remnant native vegetation on the site is part of the Cottesloe Complex– Central and South vegetation complex which is described as:

Mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest of *E. gomphocephala* – *E. marginata* (Jarrah) – *Corymbia calophylla* (Marri), closed heath on the limestone outcrops' (Heddl *et al.*, 1980).

The general description of the vegetation complex matches the vegetation types recorded on the site.

4.4.2 Vegetation Type

For small scale sites, such as the survey area, vegetation mapping can be further refined by using vegetation types which are described by the composition and structure of the dominant species rather than based on geomorphology.

Three native vegetation types were described and mapped on the site. The vegetation type is described in Table 5 and mapped in Figure 3.

4.4.3 Floristic Community Types

Floristic Community Types (FCT) are based on the whole floristic composition of the vegetation rather than being determined by soil type and geomorphology (Vegetation Complex) or the nature of the dominant species (Vegetation Types).

The FCT on the site was determined using the spreadsheet method which compares the species in the quadrats to the species found in each FCT (Table 12 in Gibson *et al.* 1994).

The low native species richness values and high proportion of introduced species makes a definitive match with known FCTs difficult. However using the method above, the vegetation on the site was found to be most similar to FCT28 'Spearwood *Banksia attenuata* or *B. attenuata* – *Eucalyptus* woodland'.

Table 5: Vegetation Types on the Site

Vegetation Type	Description	Photograph
Ar <i>Acacia rostellifera</i> Closed Heath to Tall Open Scrub over weeds	Two large and two smaller stands of this vegetation type were recorded on the site. <i>Acacia rostellifera</i> is dense (50-75% cover) and up to 2m high. Occasional Tuart trees occur in the unit. The understorey is sparse and consists mostly of grassy weed species such as Perennial and Annual Veldtgrass (<i>Ehrharta calycina</i>, <i>E. longiflora</i>), Blowfly Grass (<i>Briza maxima</i>) and Hare's Tail Grass (<i>Lagurus ovatus</i>). Common native species include <i>Xanthorrhoea preissii</i>, <i>Macrozamia riedlei</i>, <i>Conostylis aculeata</i> and <i>Hardenbergia comptoniana</i>. The soils were orange-brown sands with some surface limestone. Quadrats AR1 and AR4 are representative of this vegetation type.	
Eg <i>Eucalyptus gomphocephala</i> Low Open Woodland over <i>Banksia attenuata</i> / <i>Allocasuarina fraseriana</i> Low Open Woodland over <i>Acacia pulchella</i> / <i>Grevillea vestita</i> / <i>Xanthorrhoea preissii</i> Open Low Heath	Tuart (<i>Eucalyptus gomphocephala</i>) woodland occurred on the upper slopes and top of the low ridge that occurs on the central western part of the site. The Tuart trees are up to 10m high and low density (average 5-10% cover) with a sparse lower tree canopy of <i>Banksia attenuata</i> and in some places <i>Allocasuarina fraseriana</i>. The understorey is an open low heath with common native species <i>Xanthorrhoea preissii</i>, <i>Macrozamia riedlei</i>, <i>Hibbertia subvaginata</i>, <i>Acacia pulchella</i>, <i>Conostylis aculeata</i> and <i>Hardenbergia comptoniana</i>. <i>Grevillea vestita</i> was common in patches. The soils were orange-brown sand with no surface limestone. Quadrats AR2 and AR6 are representative of this vegetation type.	

Vegetation Type	Description	Photograph
EmBa <i>Eucalyptus marginata</i> / <i>Banksia attenuata</i> Low Woodland to Low Open Woodland over <i>Xanthorrhoea</i> <i>preissii</i> Open Low Heath	The Jarrah (<i>Eucalyptus marginata</i>)/<i>Banksia</i> woodland vegetation type occurred on lower slopes in the north and south-east parts of the site. Jarrah was up to 8m high and low density (5-10% cover) with a secondary tree canopy of <i>Banksia attenuata</i> around 3-4m high and less than 10% cover. Common understorey species in the open low heath include <i>Xanthorrhoea preissii</i>, <i>Macrozamia riedlei</i>, <i>Dianella revoluta</i> var. <i>divaricata</i>, <i>Conostylis aculeata</i>, <i>Drosera stolonifera</i>, <i>Drosera erythrorhiza</i> and <i>Hardenbergia comptoniana</i>. The soils were orange-brown sand with no surface limestone. Quadrats AR3 and AR5 are representative of this vegetation type.	

4.4.4 Vegetation Condition

The condition of the vegetation was assessed according to the system of Keighery as described in Bush Forever (Government of Western Australia, 2000) (Table 6).

Table 6: Vegetation Condition Rating Scale

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

The condition of the vegetation is shown in Figure 4. All areas of native vegetation on the site were assessed as being in Good condition. The low condition rating is due to the abundance of weeds, particularly grassy weeds, most likely the result of frequent fires. No areas were assessed in Very Good condition or better due to the abundance of weeds.

4.5 Conservation Significance of Flora and Vegetation

4.5.1 Flora

No Threatened or Priority flora species were recorded on the site. No other species of conservation significance were recorded.

4.5.2 Vegetation

4.5.2.1 Vegetation Complex

The vegetation on the site is part of the Cottesloe Complex - Central and South (Hedde *et al.*, 1980). Approximately 32% of the pre-European vegetation extent of this complex remains, of which 14% is currently managed by DBCA (DBCA, 2018).

The percentage retention is above EPA's target for minimum 30% retention of vegetation complexes State-wide in the Perth and Peel Region Constrained Areas and the area in protection is above the 10% minimum criteria for vegetation complexes.

4.5.2.2 Threatened and Priority Ecological Communities

The FCT on the site was determined to be most similar to FCT28 'Spearwood *Banksia attenuata* or *B. attenuata* – *Eucalyptus* woodland'. FCT 28 is not a TEC or PEC at State level. FCT 28 occurs in the upland areas of the nearby Bush Forever Site 269 'The Spectacles' as well as Site 268 'Mandogalup Road Bushland, Mandogalup' and Site 349 'Leda Reserve and Adjacent Bushland'.

The Tuart woodland vegetation type has potential to be FCT 25 'Southern *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands' however the understorey composition was very similar to the Jarrah/Banksia woodland and matched more closely with FCT28.

The vegetation types containing Tuart trees have has potential to be part of the Tuart Woodlands and Forests of the Swan Coastal Plain TEC. An assessment of the TEC is provided below.

The vegetation types containing *Banksia attenuata* trees have has potential to be part of the Banksia Woodlands of the Swan Coastal Plain TEC. An assessment of the TEC is provided below.

4.5.2.3 Tuart Woodlands and Forests of the Swan Coastal Plain

Description

The Tuart Woodlands and Forests of the Swan Coastal Plain was listed as a Threatened Ecological Community (TEC) with a rating of Critically Endangered under the Commonwealth EPBC Act on 4 July 2019 (for brevity the community will be called the Tuart Woodland TEC in this report). A description of the Tuart Woodland TEC is available through the EPBC Act listing and more specifically the *Approved Conservation Advice (incorporating listing advice) for the Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain ecological* released by the Commonwealth Government (Commonwealth of Australia, 2019). According to the Conservation Advice the diagnostic characteristics of the TEC are:

Key diagnosis characteristics

- The ecological community is limited to patches of vegetation (with their associated biota) that meet all of the following key diagnostic characteristics:
- Occurs in the Swan Coastal Plain Bioregion, Western Australia (IBRA v7. Department of the Environment 2012).
- Primarily occurs on the Spearwood and Quindalup dune systems but can also occur on the Bassendean dunes and Pinjarra Plain. It can occur on the banks of rivers and wetlands.
- The primary defining feature is the presence of at least two living established *Eucalyptus gomphocephala* (Tuart) trees in the uppermost canopy layer, although they may co-occur with trees of other species. There is a gap of no more than 60 m between the outer edges of the canopies of adjacent Tuart trees. These trees may occur either as single stemmed trees or as a mallee growth form.
- Most often occurs as a woodland but can occur in other structural forms, For example, forest, open forest, woodland, open woodland, and various mallee forms.

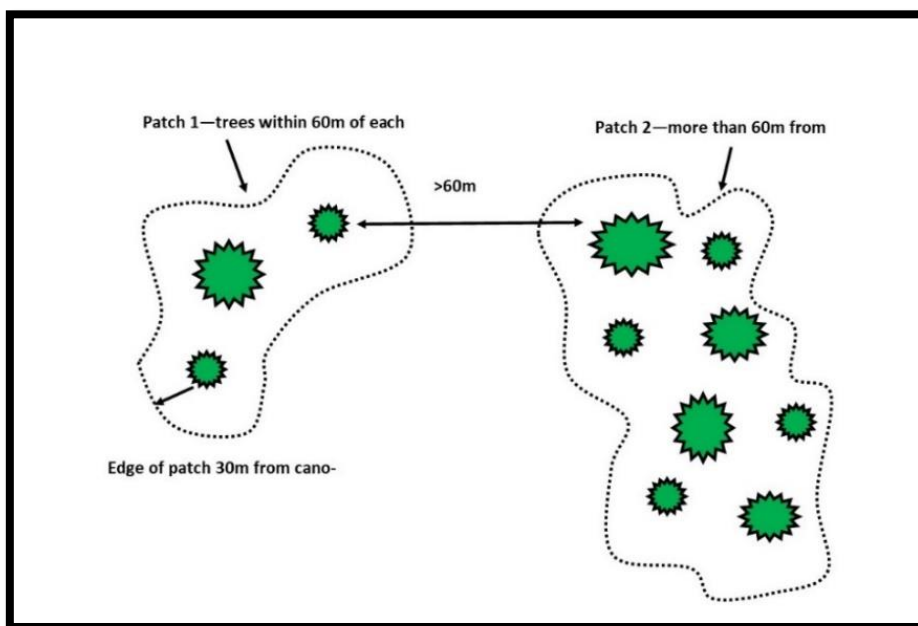
- Other tree species may be present in the canopy or sub-canopy. They commonly include: *Agonis flexuosa* (Peppermint) and *Banksia grandis* (Bull Banksia) (both in the southern part of the range), *Banksia attenuata* (Candlestick Banksia), *Eucalyptus marginata* (Jarrah); and less commonly, *Corymbia calophylla* (Marri), *Banksia menziesii* (Firewood Banksia) and *Banksia prionotes* (Acorn Banksia).
- An understorey of native plants is typically present, which may include grasses, herbs and shrubs, although this is often modified by disturbance. Some understorey plant species that are most commonly present are listed in Section 2.3.3 of the Conservation Advice.
- Native fauna species that are most commonly present are noted in Section 2.4 of the Conservation Advice (Commonwealth of Australia, 2019).

Defining a patch of the ecological community

- A patch of the ecological community is a discrete and mostly continuous area of vegetation that meets the key diagnostic characteristics.
- Boundaries for a patch can extend beyond a site or property boundary, or potential area of impact for a proposed action.
- The patch boundary is 30 m beyond the outer canopy of the established Tuart trees (≥ 15 cm diameter at breast height (DBH)), including dead Tuart trees (stags). See Plate 5
- Where a dead Tuart tree (stag) is being considered for inclusion in a patch of the ecological community, the vertical projection of its outermost remaining branches is used to define the edge of its canopy. If the species of a stag tree is unclear, if the edge of its canopy is within 60 m of an identified Tuart tree the stag is presumed to be a Tuart.
- Patches of Tuart woodlands and forests may contain areas that vary in structural or biological complexity. One part of a patch may have a larger number of mature trees and more ecological diversity, whereas another part of the same patch may demonstrate fewer mature trees and less groundcover. Areas with soil exposed and/or plant litter can also be expected within this ecological community.
- Variation in quality or condition of vegetation across a patch should not necessarily be considered to be evidence of multiple patches. Patches of the ecological community can be spatially variable and are often characterised by one or more areas within a patch that meet higher condition thresholds amongst areas of lower condition.
- If an area meets the key diagnostic characteristics but the average condition across that area falls below the minimum condition thresholds, the largest area or areas of at least 0.5 ha that meet minimum condition thresholds on average, should be specified as the patch or patches of the nationally listed ecological community. This may result in multiple patches of the ecological community being identified within the overall area first identified as meeting the key diagnostics.
- A patch may include small areas without understorey vegetation, such as bare ground, as well as waterbodies or hardscape (e.g. roads, paths, car parks, or buildings) that do not significantly alter the overall function of the ecological community. These small areas do not break up a patch, or divide a patch into multiple patches, as long as there are some parts of the canopy within 60 m of the outer edges of the canopies of adjacent Tuart trees (as per Plate 5). However, existing buildings and other human-made structures and gardens are not

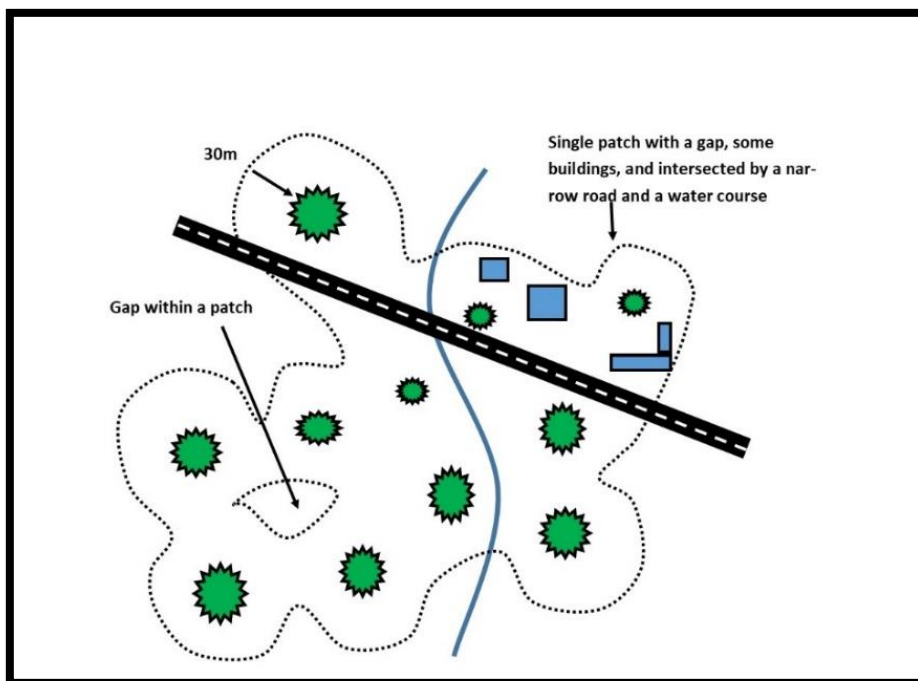
part of the nationally protected ecological community and should be excluded from the calculation of patch size and condition. See Plate 6 (Commonwealth of Australia, 2019).

Plate 5: Tuart TEC Patch boundaries



Source: Commonwealth of Australia, 2019

Plate 6: Variation within a patch, including small areas without understorey vegetation, and a small gap within a patch due to part of the Tuart canopy being >60 m apart



Source: Commonwealth of Australia, 2019

Condition thresholds and categories

For confirmed patches of the ecological community, following the key diagnostic characteristics and patch definition above (Step 1), determine the following requirements for information on condition to indicate if they are part of the nationally protected ecological community:

- If the patch is smaller than 0.5 ha it is **not** part of the nationally protected ecological community.
- If the patch is at least 0.5 ha and up to 5 ha in size, conduct on ground surveys. Patches in this size range are presumed to be part of the nationally protected ecological community unless surveys indicate they do not meet the minimum condition required for national protection. For patches in this size range inclusion in the nationally protected ecological community is determined by surveyed characteristics such as native plant species richness and contribution to cover, habitat values, evidence of regeneration and landscape characteristics.
- **All patches of 5 ha or greater** that meet the key diagnostic characteristics **are part of the nationally protected ecological community**. It is not necessary to conduct additional surveys to confirm that they meet biotic condition thresholds (Table 7) and that they are protected.

Table 7: Tuart TEC Condition Categories and Thresholds

All patches ≥ 5 ha is part of the nationally protected ecological community, regardless of their understorey condition. That is, thresholds in this table do not apply to patches ≥ 5 ha, but the key diagnostic characteristics and patch definition must be met.

Patch size	≥ 2 ha <5 ha	≥ 0.5 ha <2 ha
Biotic thresholds		
Very high condition ≥ 80 % of all understorey^ vegetation cover is native# Or At least 12 native understorey^ species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	Medium sized patches with very high condition understorey. PART OF THE PROTECTED ECOLOGICAL COMMUNITY	Smaller patches with very high condition understorey. PART OF THE PROTECTED ECOLOGICAL COMMUNITY
High condition ≥ 60 % of all understorey^ vegetation cover is native# Or At least 8 native understorey^ species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	Medium sized patches with high condition understorey. PART OF THE PROTECTED ECOLOGICAL COMMUNITY	Smaller patches with high condition understorey. AND That either: have an important landscape role (≤ 100 m to native vegetation)* OR have a habitat role (≥ 2 very large trees per 0.5 ha)* OR show regeneration (≥ 15 seedlings and/or saplings per 0.5 ha)* PART OF THE PROTECTED ECOLOGICAL COMMUNITY

Patch size	≥2 ha <5 ha	≥0.5 ha <2 ha
Biotic thresholds		
Moderate condition ≥50 % of all understorey^ vegetation cover is native# Or At least 4 native understorey^ species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	Medium sized patches with moderate condition understorey. AND That either: have an important landscape role (≤100 m to native vegetation)* OR have a habitat role (≥2 very large trees per 0.5 ha)* OR show regeneration (≥15 seedlings and/or saplings per 0.5 ha)* PART OF THE PROTECTED ECOLOGICAL COMMUNITY	NOT PART OF THE PROTECTED ECOLOGICAL COMMUNITY (but may be a focus for local protection or restoration)
Poor Has minimal or no native cover and species richness. That is: <50 % of all understorey^ vegetation cover is native# And Less than 4 native understorey^ species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	NOT PART OF THE PROTECTED ECOLOGICAL COMMUNITY (but may be a focus for local protection or restoration)	NOT PART OF THE PROTECTED ECOLOGICAL COMMUNITY (but may be a focus for local protection or restoration)

Tuart Woodland TEC Assessment

The key diagnostic characteristics of the Tuart Woodland TEC are contained in the Approved Conservation Advice for the TEC published at the time of the listing on 16 September 2016.

The Conservation Advice contains the following step-wise approach to use in determining if the TEC occurs on a site:

- Step 1: Is the Tuart Woodlands and Forests ecological community in your proposed project site? Is it in other adjacent or off-site areas that may be impacted (for example, by introducing weeds)?
- Step 2: What is the patch size and condition category of the Tuart Woodlands and Forests in the proposed project site and in the surrounding area?
- Step 3: What further information can assist in identifying patches of the Tuart Woodlands and Forests and avoiding significant adverse impacts?
- Step 4: Will your proposed action have a significant impact on Tuart Woodlands and Forests

Assessment

The assessment of the Tuart Woodland TEC on the site is outlined in Table 8 and Table 9.

The definition of the Tuart Woodland TEC resulted in two separate patches of potential TEC on the site with Patch 1 extending off-site to the west.

As the definition of the Tuart Woodland TEC is based on the location of Tuart trees and extending 30m beyond the outermost canopy the boundary of the Tuart Woodland ecological community does not match the boundary of the Tuart Low Open Woodland which is based on vegetation structure and floristics. As a result, the boundary of the two Tuart Woodland patches overlaps vegetation types that do not contain Tuart woodland or Tuart woodland understorey.

The area of each Tuart woodland patch was calculated as 4.52ha for Patch 1 (3.06ha inside the lot and 1.46ha on the lot to the west) and 2.96ha for Patch 2 (2.91ha on the lot and 0.05ha on the lot to the east).

The conclusion of the assessment is that the two patches of Tuart vegetation are part of the Tuart Woodlands and Forests TEC. The total area of Tuart Woodland TEC on the site is calculated to be 5.97ha (Figure 5).

Step 1: Is the Tuart Woodlands and Forests ecological community in your proposed project site? Is it in other adjacent or off-site areas that may be impacted (for example, by introducing weeds)?

Table 8: Tuart Woodland TEC Step 1 Diagnostics

Key diagnostic characteristics [†]	Information	Key diagnostic questions* (Refer to Section 3.2 of the Approved Conservation Advice for a complete explanation of these diagnostic features – other sections of the Approved Conservation Advice are referenced where relevant)	Response (yes/no/possibly) and detailed comments. Use as much space as you need to fully answer the question [#]
Location and physical environment	Bioregion	Is the proposal site within the Swan Coastal Plain IBRA bioregion?	Yes
Soils and Landform	Soil type	Is the soil type consistent with where the Tuart Woodlands and Forests may occur? (see Section 2.2.1 [†])	Yes, Spearwood Dune soil type
	Location in the landscape, topography	Is the topography/physical environment consistent with where the Tuart Woodlands and Forests may occur? Is the site associated with any hydrology (groundwater/surface water)?	Yes, Tuarts commonly found in the Postans area. Not associated with any hydrology
Structure	Presence of Tuart trees	How many Tuart trees are present and are they consistent with the characteristics set out in the Approved Conservation Advice? Note: Please present this information in terms of total number of trees (dead, established, seedlings etc.) and trees per hectare of the footprint. Diagrams/maps should also be provided.	At least 50 established Tuarts on the site including 38 with a dbh >50cm
	Structural form	What structural form is the vegetation?	Low Woodland
Composition	Dominant tree species, emergent tree layer, understory	Is the composition of the community consistent with the characteristics set out in the Approved Conservation Advice? What other tree species are present? How many native understorey species are present and what is the number of weedy species/proportion of weeds?	Tuarts mostly in pure stands but sometimes with Jarrah and Banksia trees. Native understorey low with a range of 10-15 in quadrats (average 12.5) and with abundant weed species and cover. Refer to quadrat data.

Key diagnostic characteristics [†]	Information	Key diagnostic questions* (Refer to Section 3.2 of the Approved Conservation Advice for a complete explanation of these diagnostic features – other sections of the Approved Conservation Advice are referenced where relevant)	Response (yes/no/possibly) and detailed comments. Use as much space as you need to fully answer the question [#]
Defining a patch of Tuart Woodlands and Forests	Patch definition	What is the extent of the patch? Note: Descriptions of patch extent must include analysis of canopy extent and associated understorey vegetation (see Section 3.2.2 [†]). Patches may extend beyond the project area or include areas of infrastructure (i.e. road, powerline). The referral should make clear how, and how much of the patch will be directly or indirectly impacted.	Two patches mapped within the boundary of the site With Patch 1 extending to the west and south-west outside the boundary of the site. Area of Patch 1 (on and off-site) = 4.52ha Area of Patch 2 (on and off-site) = 2.96ha
Relationship with other ecological communities	Other vegetation communities	Are other vegetation communities present? What are they and how do they intergrade and/or interact with the Tuart Woodlands and Forests TEC? (see Section 3.2.3 [†])	Native Jarrah, Banksia and <i>Acacia rostellifera</i> occurs to the north, east and south of the patch.

The complete key diagnostic characteristics are provided in the Approved Conservation Advice.

* The Tuart Woodlands and Forests may include restored, planted or revegetated flora. Do not exclude vegetation from being classed as the Tuart Woodlands and Forests because it is a planted, restoration or revegetation site (unless it is a garden).

[#] Comments should include references to appropriate supporting information and data.

Step 2: What is the patch size and condition category of the Tuart Woodlands and Forests in the proposed project site and in the surrounding area?

Table 9: Tuart Woodland TEC Step 2 Diagnostics

Size and condition [†]	Information	Relevant content to be discussed in the referral (Refer to Section 3.3 of the Approved Conservation Advice for a complete explanation of these diagnostic features)	Detailed comments. Use as much space as you need to fully answer the question [#]
Patch Size	Patch size in hectares	Is the patch size large enough to meet the minimum patch size in this section? (Section 3.3 [†]) Note: Patch boundaries are not limited to the proposal site. You must make clear that the patch boundary is consistent with Section 3.2.2 [†] .	Both patch sizes are larger than the 0.5ha minimum

Size and condition [*]	Information	Relevant content to be discussed in the referral (Refer to Section 3.3 of the Approved Conservation Advice for a complete explanation of these diagnostic features)	Detailed comments. Use as much space as you need to fully answer the question [#]
Patch condition	Condition thresholds	Using the condition categories in this section, what is the patch condition? (Section 3.3.1[*]) What is the quality and size (hectares) of the vegetation community in and around the site where the proposed action will occur? Is the patch expected to improve in condition (e.g. after appropriate fire management) or is there a threatening process underway that will reduce the current size and/or condition? Note: Refer to Section 3.4 – Step 3 – Further information to assist in identifying patches of the protected ecological community and avoiding significant adverse impacts If patch quality varies over the site; characterisation of the variation should be provided. Patch condition includes consideration of thresholds for characteristics such as plant species richness, landscape features, Tuart tree age and size and other habitat roles of the vegetation. Other vegetation condition measures (e.g. Keighery scale) do not necessary reflect the condition thresholds and both should be provided, where relevant. Where threats are identified (i.e. those listed in Appendix C of the Approved Conservation Advice) please provide further information on what these are and how they have impacted the condition.	Condition category with an average of 12.5 native understorey species is rated as Very High. Both patches are above the 0.5ha minimum for an area of Tuart woodland in Very High category to be the TEC.

♦ Further information on the key diagnostic characteristics is provided in the Approved Conservation Advice.

Comments should include references to appropriate supporting information and data. The response which includes the information does not need to be presented in table form.

(Commonwealth of Australia, 2019)

4.5.2.4 Banksia Woodland TEC Assessment

The Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community (Banksia Woodland TEC) is listed as an Endangered TEC under the Commonwealth EPBC Act. The Banksia Woodland community is a conglomerate of a number of Banksia-dominated FCTs recognised at State level. FCT 23a is one of the FCTs that form part of the Banksia Woodland TEC. However, the identification of one of the relevant FCTs on a site is not of itself sufficient to assign the vegetation to the Banksia Woodland TEC. The vegetation needs to meet specific criteria to be considered the TEC.

The *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Commonwealth of Australia, 2016) (Conservation Advice) describes the Banksia Woodland TEC as:

The ecological community is a woodland associated with the Swan Coastal Plain of southwest Western Australia. A key diagnostic feature is a prominent tree layer of Banksia, with scattered eucalypts and other tree species often present among or emerging above the Banksia canopy. The understorey is a species rich mix of sclerophyllous shrubs, graminoids and forbs. The ecological community is characterised by a high endemism and considerable localised variation in species composition across its range (Commonwealth of Australia, 2016).

Table 10 assesses the vegetation type on the site against the Banksia Woodland TEC criteria contained in the Conservation Advice.

In summary, the Jarrah/Banksia (EmBa) vegetation type was considered to meet all the requirements of the Banksia Woodland TEC, listed as Priority 3 in Western Australia. While the density of Banksia trees was not high (average around 10%) they were considered to form a distinctive tree layer with the more dominant Jarrah trees. The size of the patch of Jarrah/Banksia, around 9.1ha, is well over the minimum 2ha required for vegetation in Good condition.

A total of around 9.1ha of Banksia Woodland TEC is mapped on the site (Figure 5).

The area containing Tuart woodland (Eg vegetation type) were not considered to meet the definition of the Banksia Woodland TEC. While *Banksia attenuata* was present as a secondary tree layer with the Tuarts, the density of Banksia trees was very low (2% average) and was not considered a distinctive upper layer of trees as the Banksia Woodland TEC requires. No young Banksia saplings or seedlings were observed on the site, indicating that the Tuart woodland will not regenerate over time to have a more distinctive Banksia tree cover.

Table 10: Assessment of the Banksia Woodland of the Swan Coastal Plain TEC.

Feature	Characteristic	Vegetation Type	
		Eg	EmBa
		<i>Eucalyptus gomphocephala</i> Low Open Woodland over <i>Banksia attenuata</i> / <i>Allocasuarina fraseriana</i> Low Open Woodland over <i>Acacia pulchella</i> / <i>Grevillea vestita</i> / <i>Xanthorrhoea preissii</i> Open Low Heath	<i>Eucalyptus marginata</i> / <i>Banksia attenuata</i> Low Woodland to Low Open Woodland over <i>Xanthorrhoea preissii</i> Open Low Heath
Banksia Species	The patch must include at least one of the following diagnostic species: • <i>Banksia attenuata</i> (Candlestick Banksia) • <i>Banksia menziesii</i> (Firewood Banksia) • <i>Banksia prionotes</i> (Acorn Banksia) • <i>Banksia ilicifolia</i> (Holly-Leaved Banksia).	<i>Banksia attenuata</i> present	<i>Banksia attenuata</i> present.
Vegetation Structure	• A distinctive upper sclerophyllous layer of low trees (occasionally large shrubs more than 2 m tall), typically dominated or codominated³ by one or more of the <i>Banksia</i> species (<i>B. attenuata</i>, <i>B. menziesii</i>, <i>B. ilicifolia</i>, <i>B. prionotes</i>); • An emergent tree layer of medium or tall (>10 m) height <i>Eucalyptus</i> or <i>Allocasuarina</i> (Sheoak) species may sometimes be present above the <i>Banksia</i> canopy. • An understory that is often highly species-rich consists of: – A layer of sclerophyllous shrubs of various heights; and, – A herbaceous ground layer of cord rushes, sedges and perennial and ephemeral forbs, that sometimes includes grasses. The development of a ground layer may vary depending on the density of the shrub layer and disturbance history.	• Banksia trees do not form a distinctive upper layer of low trees. Where present they represent about 2% canopy cover mixed with Tuart trees • Tuart (<i>Eucalyptus gomphocephala</i>) is always emergent in this vegetation type. • Understorey of shrubs, sedges, herbs in Good condition have a low diversity of native species including shrubs, sedges, climbing plants and ephemerals.	• Banksia trees range from sparse to common with an average canopy cover of around 10% forming a reasonably distinctive upper layer of trees. • Jarrah (<i>Eucalyptus marginata</i>) is always emergent in this vegetation type • Understorey of shrubs, sedges, herbs, in Good condition have a low diversity of native species including shrubs, sedges, climbing plants and ephemerals. Completely Degraded areas have very few native species.
Vegetation Condition	An area of Banksia woodland needs to be at least in Good condition to be considered the TEC.	Vegetation type is all Good	Vegetation type is all Good
Patch Size	The Banksia woodland TEC needs to meet a minimum ‘patch’ size depending on its condition to qualify as the TEC, as follows: • ‘Pristine’ – no minimum patch size • ‘Excellent’ – 0.5ha • ‘Very Good’ – 1ha • ‘Good’ – 2ha	One patch of Tuart vegetation occurs on the site with an area of around 3.9ha	One patch of EmBa on site with an area of around 9.1ha.
Conclusion		Banksia trees do not form a distinctive upper layer of low trees. The Tuart woodland vegetation type is therefore not considered part of the Banksia Woodland TEC.	Meets the definition of the Banksia Woodland TEC.

(Commonwealth of Australia, 2016)

5 SUMMARY AND CONCLUSIONS

The Flora and Vegetation survey of the site resulted in the following findings:

- A total of 109 plant species were recorded during the 2020 flora survey. This total consisted of 73 native species and 36 (33%) introduced species;
- No Threatened (Declared Rare) or Priority flora species were recorded on the site;
- Three vegetation types were described and mapped on the site: *Acacia rostellifera* Closed Heath to Tall Open Scrub, Tuart Low Woodland, and Jarrah/Banksia Low Open Woodland;
- The vegetation was all rated in Good condition with a relatively low number of native species and a high proportion of weeds in the understorey;
- The vegetation is part of the Cottesloe – Central and South Vegetation complex which is well retained in the Perth Metropolitan Region;
- The vegetation was assessed as being part of FCT28 ‘Spearwood *Banksia attenuata* or *B. attenuata* – *Eucalyptus* woodland’;
- The vegetation is not a Threatened Ecological Community at State level;
- Two patches of Tuart woodland ecological community as defined under the EPBC Act were assessed as occurring on the site, with one patch extending onto the site to the west. Both patches were rated as being in Very Good condition and were large enough (>0.5ha) to meet the criteria for the Tuart Woodlands and Forests TEC which is listed as Critically Endangered under the Commonwealth EPBC Act and Priority 3 in Western Australia. The total area of Tuart Woodland TEC on the site is calculated to be 5.97ha;
- The Jarrah/Banksia vegetation type (EmBa) was assessed as meeting the criteria for the Banksia Woodlands of the Swan Coastal Plain TEC which is listed under the EPBC Act and Priority 3 in Western Australia. A total of 9.1ha of the Banksia Woodland TEC is mapped on the site in one large patch; and
- Any proposed clearing of the Tuart Woodland TEC or Banksia Woodland TEC will require a Referral under the EPBC Act and likely Controlled Action assessment.

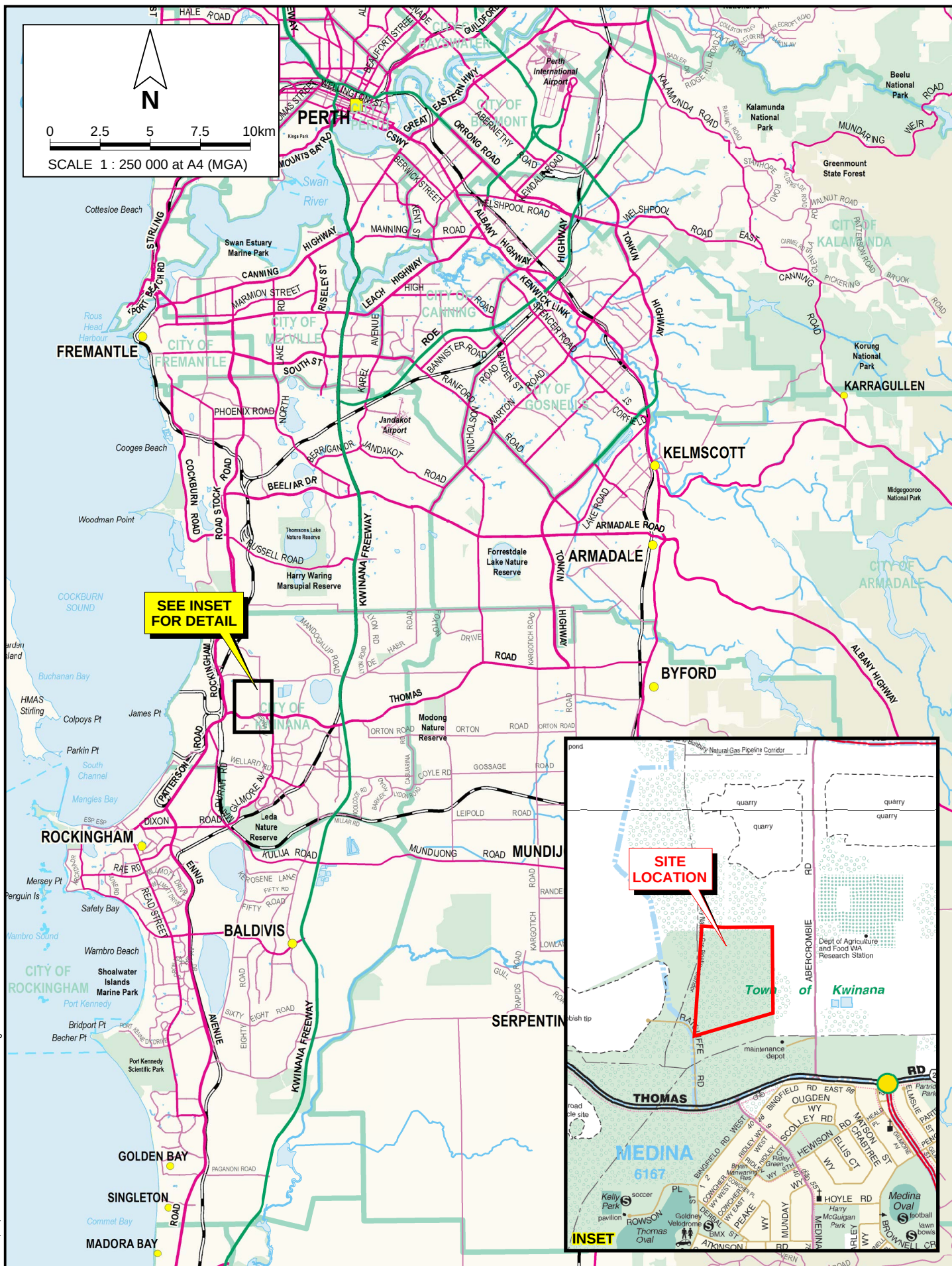
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FIGURES



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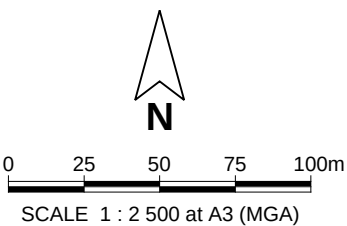
pgv ENVIRONMENTAL

WA Limestone
FLORA AND VEGETATION SURVEY
M70/656 ABERCROMBIE ROAD, POSTANS

Drawn: P. van der Moezel Date: 7 Dec 2020
Job: 10399 Rpt: 2020-543 Revision: A

SITE LOCATION

Figure 1

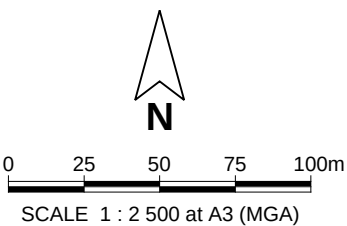
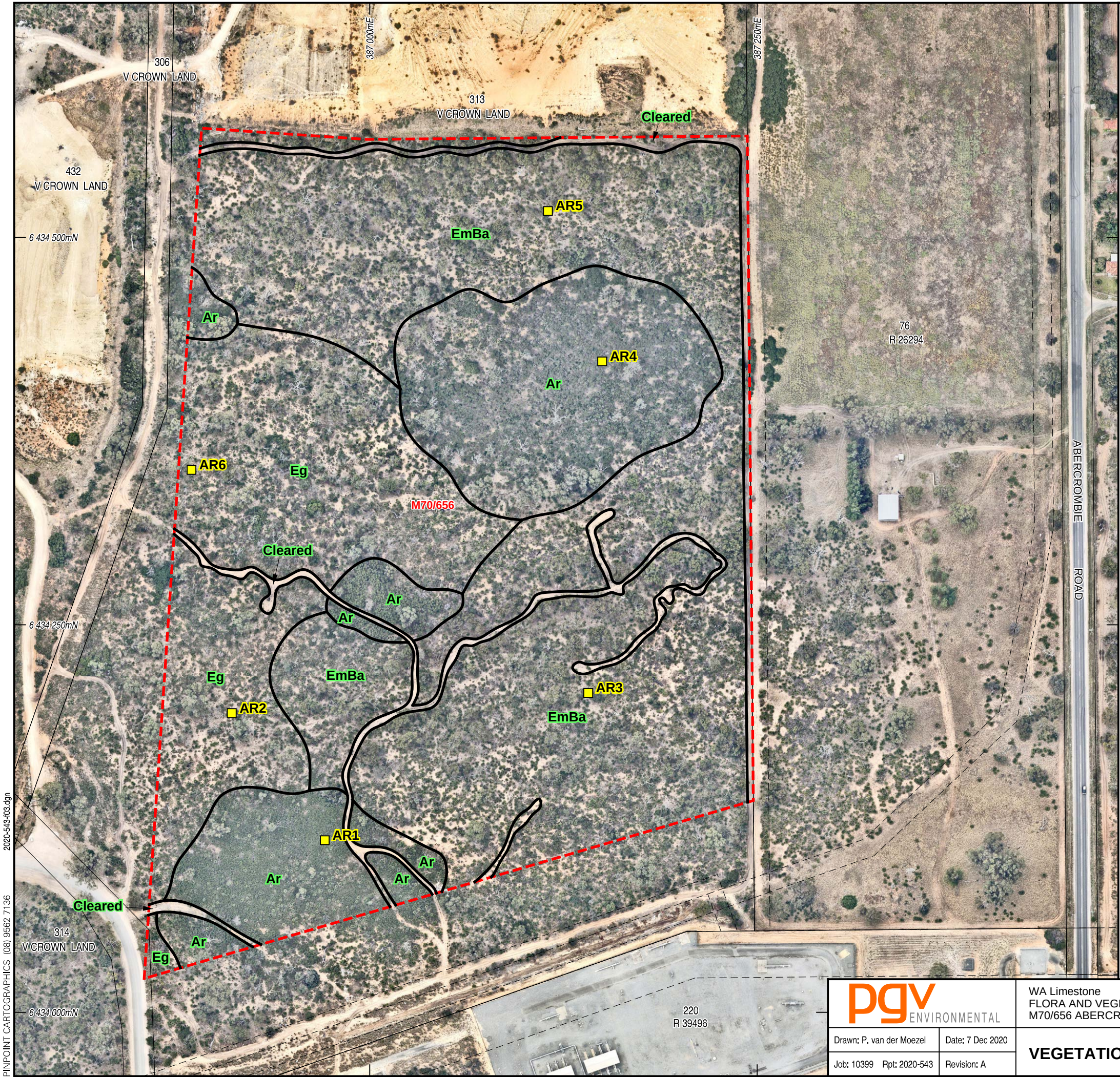


- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary
 - Topographic Contour

TENEMENT SOURCE: DMIRS, March 2020.
CONTOURS SOURCE: Dept. of Agriculture, 2000.
CADASTRAL SOURCE: Landgate, December 2020.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown November 2020.

		WA Limestone FLORA AND VEGETATION SURVEY M70/656 ABERCROMBIE ROAD, POSTANS	
Drawn: P. van der Moezel		Date: 7 Dec 2020	
Job: 10399 Rpt: 2020-543		Revision: A	
		SITE BOUNDARY AND TOPOGRAPHY	

Figure 2



- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary
 - Quadrat Location
 - Vegetation Type Boundary
 - Ar** Vegetation Type

Vegetation Types

Ar
Acacia rostellifera Closed Heath to Tall Open Scrub over weeds

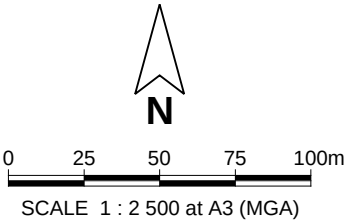
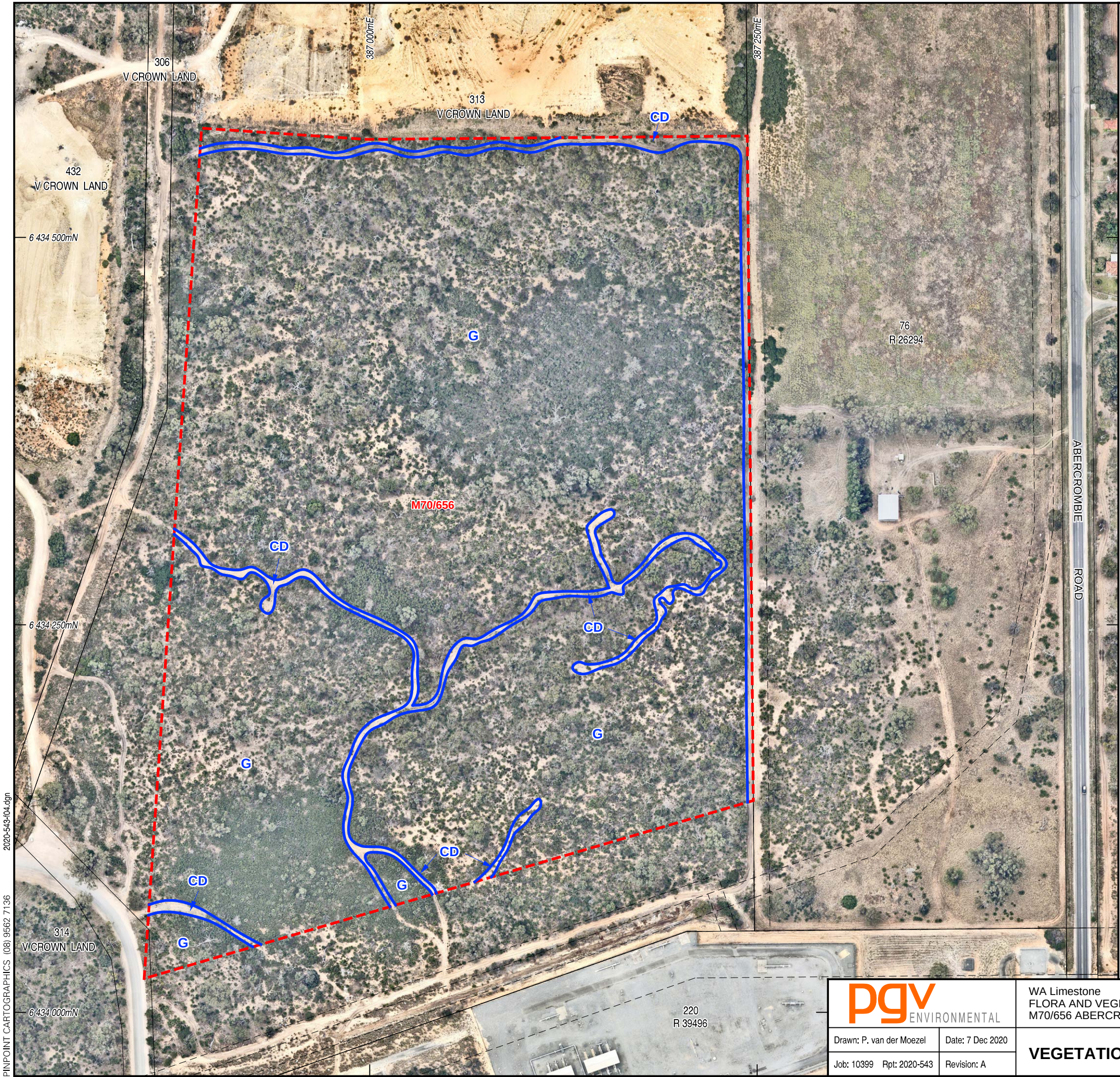
Eg
Eucalyptus gomphocephala Low Open Woodland over *Banksia attenuata/Allocasuarina fraseriana* Low Open Woodland over *Acacia pulchella/Grevillea vestita/Xanthorrhoea preissii* Open Low Heath

EmBa
Eucalyptus marginata/Banksia attenuata Low Woodland to Low Open Woodland over *Xanthorrhoea preissii* Open Low Heath

TENEMENT SOURCE: DMIRS, March 2020.
CADASTRAL SOURCE: Landgate, December 2020.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown November 2020.

		WA Limestone FLORA AND VEGETATION SURVEY M70/656 ABERCROMBIE ROAD, POSTANS	
Drawn: P. van der Moezel		Date: 7 Dec 2020	
Job: 10399 Rpt: 2020-543		Revision: A	
		VEGETATION TYPES AND QUADRAT LOCATIONS	

Figure 3



- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary
 - Vegetation Condition Boundary
 - VG** Vegetation Condition

Vegetation Condition
(SOURCE: Bush Forever, Govt. of W.A., 2000)

P - Pristine
Pristine or nearly so, no obvious signs of disturbance.

Ex - Excellent
Vegetation structure intact, disturbance affecting individual species and weeds are non aggressive species.

VG - Very Good
Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.

G - Good
Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.

D - Degraded
Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.

CD - Completely Degraded
The structure of the vegetation is no longer intact and the areas is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora composing weed or crop species with isolated native trees or shrubs.

CI - Cleared
No native vegetation remaining.

TENEMENT SOURCE: DMIRS, March 2020.
CADASTRAL SOURCE: Landgate, December 2020.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown November 2020.

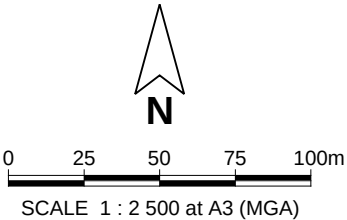
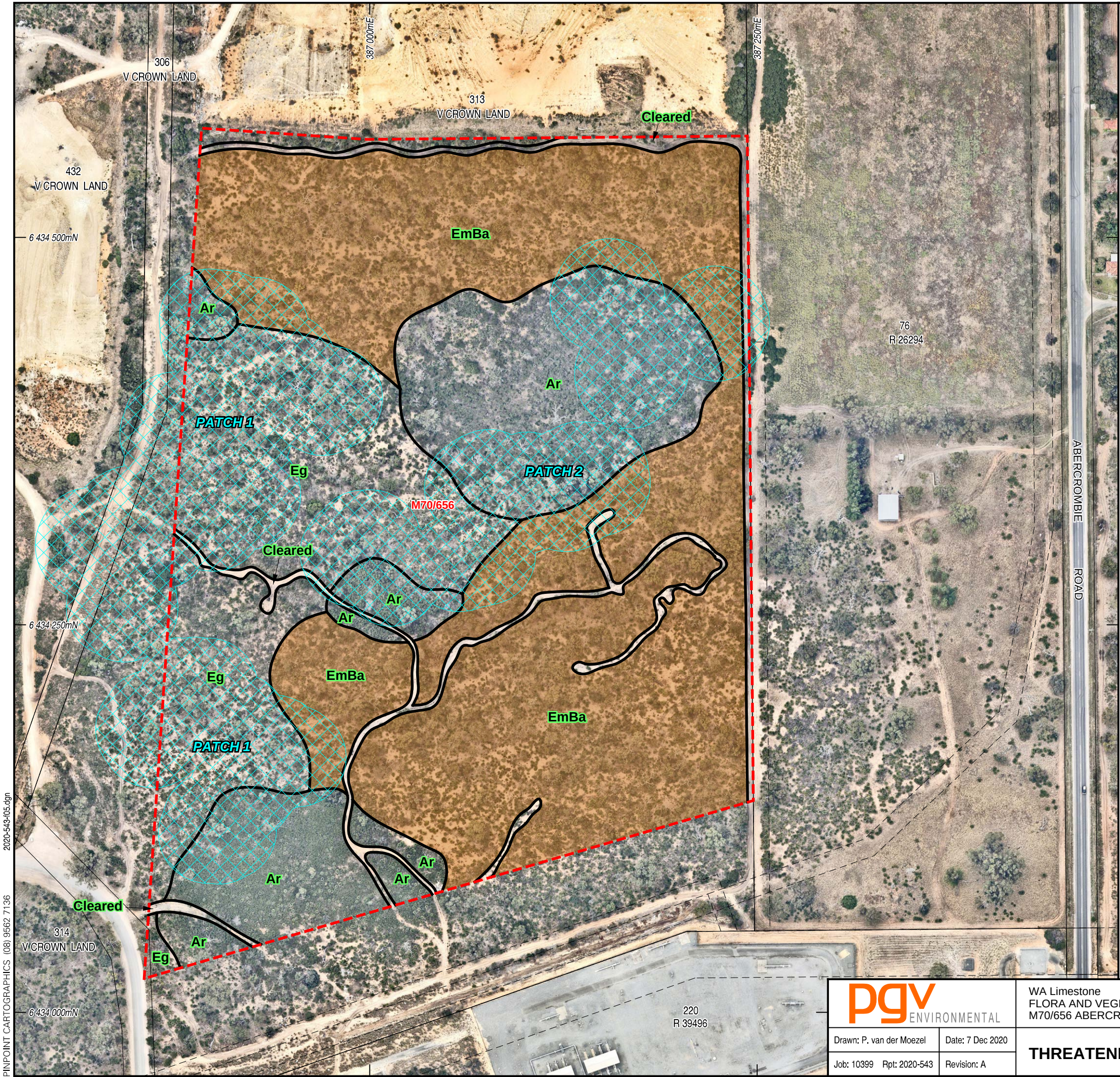
pgv ENVIRONMENTAL

WA Limestone
FLORA AND VEGETATION SURVEY
M70/656 ABERCROMBIE ROAD, POSTANS

Drawn: P. van der Moezel Date: 7 Dec 2020
Job: 10399 Rpt: 2020-543 Revision: A

VEGETATION CONDITION

Figure 4



- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary
 - Vegetation Type Boundary
 - Ar** Vegetation Type
- Threatened Ecological Communities**
- Tuart Woodland TEC
 - Banksia Woodland TEC

- Vegetation Types**
- Ar**
Acacia rostellifera Closed Heath to Tall Open Scrub over weeds
- Eg**
Eucalyptus gomphocephala Low Open Woodland over *Banksia attenuata*/*Allocasuarina fraseriana* Low Open Woodland over *Acacia pulchella*/*Grevillea vestita*/*Xanthorrhoea preissii* Open Low Heath
- EmBa**
Eucalyptus marginata/*Banksia attenuata* Low Woodland to Low Open Woodland over *Xanthorrhoea preissii* Open Low Heath

TENEMENT SOURCE: DMIRS, March 2020.
CADASTRAL SOURCE: Landgate, December 2020.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown November 2020.

		WA Limestone FLORA AND VEGETATION SURVEY M70/656 ABERCROMBIE ROAD, POSTANS	
Drawn: P. van der Moezel	Date: 7 Dec 2020	THREATENED ECOLOGICAL COMMUNITIES	
Job: 10399 Rpt: 2020-543	Revision: A		

APPENDIX 1

DBCA Flora Database Searches

FID	Sheet	NameID	Taxon	Cons_Cod e	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Met hod	Precision	Date
2684	190705	14932	Acacia lasiocarpa var. bracteolata long peduncle variant (G.J. Keighery 5026)	1		Black sandy swampy area.	Jarrah.			AUTO	3	26/08/1957
2687	619884	14932	Acacia lasiocarpa var. bracteolata long peduncle variant (G.J. Keighery 5026)	1	Low spreading, sparsely branched shrub, to 1 m x 1 m. Flowers yellow.	Low lying sand over clay. Winter wet, open.				AUTO	3	5/08/1982
3965	9047905	48762	Acacia sp. Binningup (G. Cockerton et al. WB 37784)	1	Suckering clumping shrubs to 1.5 m.	Sand.	Tuart woodland. Associated species: Acacia saligna, Xanthorrhoea preissii, Rhagodia baccata, Spyridium globosum, Acacanthocarpus preissii and annual grasses.	c. 200 in 20 m x 20 m.		GPS	1	24/10/2017
5796	9004637	48332	Amanita preissii	3	Pileus 83 mm diameter, cream (C, pale 3A2), plane with decurved margin and slightly raised centre, margin not striate, appendiculate. Universal veil on pileus crustose, thin, as small soft floccose warts, adnate, white. Lamellae cream (D, 3A2-4A2), narro		Banksia/eucalypt woodland with Kunzea ericifolia, Acacia pulchella, Eucalyptus marginata.	one.		GPS	1	4/06/2018
5809	8942137	43542	Amanita wadjukiorum	3	Pileus 90 mm diameter, milky coffee (5D4-6D4), plane with depressed centre and upturned margin, dry, margin not striate, appendiculate. Universal veil on pileus as large straight sided warts in centre of disc, vinaceous buff (6B2), adnate. Lamellae cream		Jarrah/marri/banksia woodland. Eucalyptus marginata, Corymbia calophylla.	one.		GPS	1	18/06/2017

FID	Sheet	NameID	Taxon	Cons_Cod e	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Met hod	Precision	Date
7121	4095251	141	Aponogeton hexatepalus	4	Aquatic bulbous herb 15 cm high.	Seasonal wetland on Pinjarra Plain. Red loam.	Open Melaleuca viminea scrub over Leptocarpus coangustatus dense low sedges.		common.	GPS	1	7/08/1992
7768	567426	35317	Austrostipa mundula	3	Caespitose perennial grass. Erect open shrub, 40 cm high.	In sand over limestone.				MAN	3	30/08/1967
7923	3377962	45402	Babingtonia urbana	3	Flowers white and pink centres.	Dry summer swamp. Sandy white clay soil.	Heath type vegetation.			MAN	0	23/03/1981
11310	7332025	16633	Boronia juncea subsp. juncea	1	Shrub to 1 m high x 0.5 m wide. Pink and purple flowers.	Gentle slope with a north aspect. Surface soil is dark brown sandy loam and sub surface soil is dark brown sandy loam. Drainage is poor and wet during winter and spring only with soil being waterlogged at present.	Melaleuca preissiana, M. rhapsiophylla low open woodland over Astartea scoparia closed heath over Centella asiatica herbland. Excellent to pristine vegetation condition with some weed species affecting the herb layer.	a couple.		GPS	1	2/12/2005
12519	908622	1596	Caladenia huegelii	T	To 80 cm tall, one with two flowers, no odour.	In grey sand on gently undulating terrain.	Low woodland - low forest over scrub and heath; Banksia attenuata, B. menziesii, B. ilicifolia, Allocasuarina fraseriana, Eucalyptus todtiana, E. marginata over Adenanthos.	Abundanc e: four plants in full flower.		MAN	3	9/09/1985
12527	256021	1596	Caladenia huegelii	T		In sandy soil.	Jarrah - Banksia woodland.			MAN	3	7/09/1958
12531	4421213	1596	Caladenia huegelii	T	Up to 60 cm high.	Coastal plain. Grey sand.	Closed Banksia woodland. Banksia sp., Stirlingia latifolia, Hibbertia spp., Hypocalymma robustum, Conostephium pendulum	Abundanc e: 23 plants flowering. Plants found only in 'depressio n' ca 50 m x 75 m.		GPS	1	20/09/1996

FID	Sheet	NameID	Taxon	Cons_Code	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Method	Precision	Date
12532	4421205	1596	Caladenia huegelii	T	Up to 60 cm high.	Coastal plain. Grey sand.	Closed Banksia woodland. Banksia sp., Stirlingia latifolia, Hibbertia spp., Hypocalymma robustum, Conostephium pendulum		Abundance: 23 plants flowering. Plants found only in 'depression' ca 50 m x 75 m.	GPS	1	20/09/1996
12537	6752624	1596	Caladenia huegelii	T	Ca 30 cm tall. Linear hairy leaf 15 cm x 1 cm.	Grey sand.	Low open woodland of Melaleuca preissiana over Low Open Shrubland of Melaleuca thymoides over Dasypogon sp. and Desmocladius sp. herbland on lower slopes.	2 mature plants, one dead over 2 sq m.	Condition of population: healthy.	GPS	1	30/10/2003
12542	7439938	1596	Caladenia huegelii	T		Private land. Flat. White / grey sand.		452 mature plants.	Healthy population but at risk from disturbance given location and proximity to sand.	GPS	1	21/10/2004
16310	7332149	16245	Cyathochaeta teretifolia	3	Tufty sedge with height of 1.5 m and width of 1 m.	Gentle slope with a north aspect. Surface soil is dark brown sandy loam and sub surface soil is dark brown sandy loam. Drainage is poor and wet during winter and spring only with soil being waterlogged at present.	Melaleuca preissiana, M. raphiophylla low open woodland over Astartea scoparia closed heath over Centella asiatica herbland. Excellent to pristine vegetation condition with some weed species affecting the herb layer.	locally common.	Outside quadrat.	GPS	1	2/12/2005
16322	7858736	16245	Cyathochaeta teretifolia	3		Black peat.	Melaleuca preissiana, Eucalyptus rudis subsp. rudis, Pteridium esculentum			GPS	0	24/10/2007

FID	Sheet	NameID	Taxon	Cons_Code	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Method	Precision	Date
16335	6534163	16245	Cyathochaeta teretifolia	3						MAN	3	10/12/1995
18776	9012524	10796	Diuris drummondii	T						MAN	4	1/11/1959
18785	8891451	10796	Diuris drummondii	T						MAN	3	6/12/1959
18800	4981588	12938	Diuris micrantha	T						AUTO	3	24/09/1984
18802	8063621	12938	Diuris micrantha	T	Plants tall, flowers very small, yellow with red-brown markings.	Swamp. Black peaty soil.	Miscellaneous rushes and sedges.			UNK	3	23/09/1985
18804	8649731	12938	Diuris micrantha	T	Orchid.	Swamp. Inundated black clay peat. Burnt in 2009.	Open scrub over dense low sedges. Lepidosperma longitudinale, Wurmbea sp., Burchardia sp., Romulea rosea, Trifolium sp., cape tulip.	7 plants.	Area occupied is c. 2.5 m x 1.5 m. Population 1a.	GPS	1	22/09/2009
18812	7500971	1637	Diuris purdiei	T		Burnt winter wet swamp on N side (private land). Burnt last summer.	Low heath of Homalospermum, Pericalymma ? etc. over sedges and many herbaceous species, Drosera, Stylidium etc. Paperbarks (Melaleuca preissiana).	30+ plants.		UNK	3	11/10/1987
18907	4260171	4763	Dodonaea hackettiana	4						AUTO	2	28/11/1993
18911	1157663	4763	Dodonaea hackettiana	4	Shrub 2.5 m high. Fruit red/green.	Grey sand.				MAN	3	20/12/1980
18912	1157566	4763	Dodonaea hackettiana	4						MAN	3	11/11/1981
18913	1157655	4763	Dodonaea hackettiana	4					2159/62/2.	MAN	3	/09/1962

FID	Sheet	NameID	Taxon	Cons_Cod e	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Met hod	Precision	Date
18915	1157132	4763	Dodonaea hackettiana	4	Erect shrub, 2 m high, variable age structure.	Disturbed area, in sandy paddock.	Eucalyptus marginata open forest, with grasses, Carpobrotus sp.		Abundanc e: large populatio n, dominant shrub. (Within populatio n 3262- 3267). Abundanc e: large populatio n, dominant shrub. (Within populatio n 3262- 3267). (Within populatio n 3268- 3271).	MAN	3	5/12/1978
18916	1157124	4763	Dodonaea hackettiana	4	Erect shrub, 1 m high, variable age structure.	Disturbed area, in sandy paddock.	Eucalyptus marginata open forest, with grasses, Carpobrotus sp.		Abundanc e: large populatio n, dominant shrub. (Within populatio n 3262- 3267). (Within populatio n 3268- 3271).	MAN	3	5/12/1978
18918	1157612	4763	Dodonaea hackettiana	4	Erect shrub, of small tree, 4 - 5 m high.	Sand with outcropping limestone.	Tall danse Banksia forest.		Abundanc e: large populatio n, dominant shrub. (Within populatio n 3262- 3267). (Within populatio n 3268- 3271).	MAN	3	5/12/1978
18920	1157647	4763	Dodonaea hackettiana	4	Erect shrub, ca 1.5 m high.	Level, but disturbed sand.		rare.		MAN	4	22/04/1986
18921	4594711	4763	Dodonaea hackettiana	4	Tall shrub 3 m high x 1-1.5 m wide.	Flat, leaf litter, grey sand over limestone.	Eucalyptus rudis, Banksia sp.	rare, localised.		AUTO	3	10/12/1996
18926	7104588	4763	Dodonaea hackettiana	4	Perennial, erect shrub, 4 m high x 3 m wide. Orange flowers. Reproductive method: seeds.	Plain. Reserve. Lake upland. Beeliar Regional Park. Grey dry sand. Soil disturbed 20 years ago.	Tall trees with Eucalyptus rudis and paperbarks.	6-20 plants in 10 m x 10 m area.	Populatio n structure: 50% in bud, 100% flowering. With many alien species.	GPS	1	16/10/2003

FID	Sheet	NameID	Taxon	Cons_Cod e	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Met hod	Precision	Date
18930	6097774	4763	Dodonaea hackettiana	4	Slender tall shrub 4/5 m high. In fruit.	Dune, grey sand.	Acacia rostellifera tall shrubland over Melaleuca systema.	scattered.		GPS	1	28/10/2001
18995	231282	1639	Drakaea elastica	T		In deep grey sand on gradual slopes in undulating plain.	Low woodland of Banksia attenuata, B. menziesii, B. ilicifolia, and Jarrah over scrub of Adenanthos cygnorum and Kunzea over herbs.	ca 60 plants.	Abundanc e: ca 60 plants.	MAN	3	28/10/1982
29317	3358232	2054	Grevillea olivacea	4	Open erect shrub 1-2 m, style red; perianth green-red.	Coastal dunes. White sand.	Coastal Acacia shrubland.		Self seeding from plantings.	MAN	3	13/07/1993
33821	4463781	20462	Jacksonia gracillima	3	Swamp Form. Low spreading shrub.	Soil: Grey sand. Topography/drainage: Well drained flat. Geomorphology: Bassendean sands.	Vegetation: Banksia attenuata, B. ilicifolia Low Forest A over Melaleuca thymoides, Kunzea ericifolia Scrub over Patersonia occidentalis, Dasypogon bromilifolius Herbs over Lepidosperma angustatum Very Open Low Sedges.			GPS	1	27/11/1992
33827	6836445	20462	Jacksonia gracillima	3	Low spreading shrub to 30 cm x 120 cm. Standard yellow- orange with red band close to base and yellow eye; wings yellow-orange in distal half, red basally, keel red.	Coastal plain, low flat. Dry, but in area of high water table. Grey sand.	Open heath over dense herbs. Kunzea glabrescens, Melaleuca thymoides, Dasypogon bromeliifolius, Phlebocarya ciliata.	occasiona l.		GPS	1	12/11/2003
33828	7127499	20462	Jacksonia gracillima	3	Decumbent shrub - 20 cm high and 50 cm wide. Flowers standard orange-yellow; eye yellow with red halo; wings/keel red, in full flower.	Winter wet flats; brown clay.	Melaleuca uncinata tall shrubland over low shrubland of Calothamnus, Verticordia spp over sedges.			UNK	2	5/11/2004

FID	Sheet	NameID	Taxon	Cons_Code	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Method	Precision	Date
33838	9076557	20462	Jacksonia gracillima	3	Spreading low shrub, 50 cm high.	Very gentle lower slope of dune on edge of broad swale. Grey sand. > 7 years since fire.	Corymbia calophylla and Eucalyptus marginata subsp. marginata open forest, over Allocasuarina fraseriana, Banksia ilicifolia, B. menziesii and B. attenuata scattered low trees to low woodland, over Xanthorrhoea preissii high open shrubland, over Daviesia	6 plants.		GPS	1	25/10/2010
33842	8415331	20462	Jacksonia gracillima	3	Decumbent perennial to 0.3 m high x 1.4 m diam.	Flat, well-drained but adjacent to winter-wet swamp; pale grey sand.	Banksia woodland.	infrequent.		GPS	1	14/11/2010
33989	6511570	4027	Jacksonia sericea	4	Prostrate shrub, buds and orange flowers.					TOPO	2	1/12/1995
34157	8873712	4035	Kennedia becxiana	4	Vigorous climbing shrub with twining stems climbing up a Melaleuca preissiana tree to a height of about 4 m. Glabrous leaves divided into 3 leaflets. Inflorescence stalked with obvious amplexicaule bract. Showy orange-red flowers, most still in bud but s	Poorly drained flat at edge of lake. Black loamy sand. Litter cover 20%, depth <1 cm. Moss cover 50%. Bare ground cover 20%.	Melaleuca preissiana Low Woodland, over an Open Tall Shrubland of Acacia longifolia and Kunzea glabrescens, over an Open Shrubland of Solanum nigrum, Climbers of Kennedia becxiana and Fumaria sp., a Fernland of Pteridium esculentum, an Open Grassland of	Two plants present.	Plant is to be removed as it is invading native bushland where it is not a local native.	GPS	1	19/08/2016
34386	296015	30334	Lachnagrostis nesomytica subsp. paralia	1	Small upright grass 30 cm high.		Callitris forest.			AUTO	3	20/10/1978
34387	6706711	30334	Lachnagrostis nesomytica subsp. paralia	1	Annual grass, 50 mm high x 150 mm wide.	Disturbed soil. Plain. Reserve. Dry grey/brown sand. Dune beside sea.	Medium trees. With scattered Melaleuca lanceolata, Parapholis incurva, Trachyandra divaricata, Geranium molle, Cotula and Euphorbia spp., and grasses.	2-5 plants.		GPS	1	11/11/2003

FID	Sheet	NameID	Taxon	Cons_Code	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Method	Precision	Date
34388	6706738	30334	Lachnagrostis nesomytica subsp. paralia	1	Grass, 0.15 m high x 0.03 m wide.	Reserve. Dune swale. Dry white soil.	With Nicotiana glauca, Callitris preissii and Solanum symonii.	over 50 plants in 11-100 sq m.		GPS	1	23/11/2002
35525	2159341	3043	Lepidium puberulum	4			Burnt area, regenerating. Melaleuca/Acacia communities.			AUTO	3	17/09/1991
35543	6750400	3043	Lepidium puberulum	4	Annual herb 0.2 m high x 0.1 m wide.	Dune. Recent soil disturbance. Dry, white sand.	Medium trees, Melaleuca lanceolata, Trachyandra, Acanthocarpus.	21-50 plants.		GPS	1	13/10/2002
35544	6756751	3043	Lepidium puberulum	4	Erect herb. Height: 150 mm and width: 100 mm. Flower colour: green.	Topography: lawn on sand bench. Collection site: enclosure. Soil colour: brown. Soil: sand.	Associated vegetation: lawn like area with weeds. Characteristic species: Stenotaphrum, Euphorbia, Erodium, Anagallis, Hypochaeris, Trachymene.	2-5 plants.		GPS	1	24/08/2003
35545	7815603	3043	Lepidium puberulum	4	Erect annual herb. Flowers greenish - white; in fruit and flower.	Mossy black sand.	Callitris preissii low woodland.	locally very common.	GARD Q3.	GPS	1	17/10/2006
35546	7810717	3043	Lepidium puberulum	4	Delicate herb to <0.05 m; clusters of tiny flowers.	Site slopes gently to the W; dark brown sand; well drained.	Heath A/B of Acacia rostellifera and Leucopogon australis over Low Heath C/D of Acanthocarpus preissii and Eremophila glabra; Very Open Herbs of Zantedeschia aethiopica, Trachymene coerulea; Very Open Low Sedges of Carex preissii.	Vegetation noted as being in excellent condition with some mature Acacia deaths.		GPS	1	2/10/2007
38799	282235	33742	Microtis quadrata	4		In black peaty soil.	Under paperbarks.			AUTO	3	11/11/1960
39142	3461688	6722	Myosotis australis	4	Flowers white.					AUTO	3	/10/1901
39143	4400267	6722	Myosotis australis	4	Erect annual herb 20 cm. Flowers white.					AUTO	2	20/10/1978

FID	Sheet	NameID	Taxon	Cons_Cod e	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Met hod	Precision	Date
39147	8775249	6722	Myosotis australis	4	Leafy annual herb 10 - 30 cm, with small white flowers.	On narrow flat between coastal vegetated, stabilised dunes and limestone breakaway.	Associated vegetation: coastal woodland of tall Melaleuca lanceolata trees over mid-dense layer of Eremophila glabra, Acanthocarpus preissii and Trachyandra divaricata, over dense ground layer of Galium sp., small grasses and mosses.	few - several plants.	Heavily grazed by wallabies and being displaced by Trachyandra divaricata.	GPS	1	16/09/2016
40843	1084135	11557	Phlebocarya pilosissima subsp. pilosissima	3		Sand ridge.	In Banksia woodland.			MAN	2	23/05/1978
41077	3409112	5237	Pimelea calcicola	3	Low spreading shrub 20-30 cm high. Flowers pale pink.	Low rises. Grey sand, calcareous/limestone.	Low heath.		Abundance: very common.	AUTO	3	13/11/1983
41092	5592224	5237	Pimelea calcicola	3	Erect, perennial, dwarf shrub.	Brown sand and protruding limestone.	Melaleuca/Acacia rostellifera patches. Associated vegetation: Dryandra sessilis, Phyllanthus calycinus, Hibbertia hypericoides, Ehrharta calycina.			MAN	0	10/11/1997
41096	9172173	5237	Pimelea calcicola	3	Erect, compact, perennial shrub, 80 cm high x 80 cm wide. Flowers white.	Plain. Reserve. Dry, white sand.	Tall shrubland with Acacia rostellifera.	2-5 plants.	Population structure: 100% flowering.	GPS	1	20/10/2014
44887	3464008	20348	Sphaerolobium calcicola	3	Erect multi-stemmed shrub 20-30 cm tall. In full flower. Flowers yellow-red.	Tall dunes, grey-white sand over white sand.	Low open heath of Jacksonia/Olearia axillaris and Acacia lasiocarpa.	rare in area.		MAN	0	23/10/1993
45997	7746865	17850	Stylidium ireneae	4						UNK	3	2/12/2004
46152	3172805	7756	Stylidium longitubum	4	Ephemeral herb, flowers pink.					AUTO	3	22/11/1973
46340	2857685	25800	Stylidium paludicola	3	0.5 m tall, flowers pink.	Near edge of swamp.	Amongst Juncus.			MAN	0	4/12/1974

FID	Sheet	NameID	Taxon	Cons_Cod e	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Met hod	Precision	Date
46346	7332416	25800	Stylidium paludicola	3	Small herb to 400 mm high. Just finished flowering.	Gentle slope with a south east aspect. Surface soil is a very dark brown sandy loam and the subsurface soil is a very dark brown sandy loam/loam. Wetland - winter wet. Litter cover 90% with 10% bare ground.	Melaleuca preissiana woodland over Astartea scoparia open heath over Lepidosperma longitudinale open sedgeland.	occasional.		GPS	1	7/12/2005
46347	7279906	25800	Stylidium paludicola	3	Herb to 0.4 m high. Flowers pink/red.	Gentle slope, south aspect, surface soil is dark grey loamy sand and sub surface soil is very dark grey brown sandy loam, drainage is poor and wet during winter and spring only.	Melaleuca preissiana, Kunzea glabrescens low open forest over Astartea scoparia, Hypocalymma angustifolium open shrubland over Lepidosperma longitudinale open sedgeland. Vegetation is in a pristine to excellent condition with some rabbit diggings and pot	scattered.		GPS	1	22/11/2005
46348	6239404	25800	Stylidium paludicola	3		In swampy area.				MAN	3	/11/1965
47189	6443044	48297	Styphelia filifolia	3	Erect shrub to 60 cm high and 60 cm wide. Flowers white, strictly pendulous.	Sandy rise. Dry littered. Grey sand.	Banksia woodland. B. attenuata, B. menziesii, Allocasuarina humilis, Stirlingia latifolia.	scattered.		GPS	2	21/04/2002
48263	4622316	28354	Synaphea sp. Serpentine (G.R. Brand 103)	T	Low shrub 20 cm high x 50 cm wide, flowers yellow.	Pinjarra Plain, sumpland. Red brown loam.	Marri Woodland with Eucalyptus calophylla, Phyllanthus calycinus, Mesomelaena tetragona.			MAN	0	15/08/1991

FID	Sheet	NameID	Taxon	Cons_Cod e	Plant_Desc	Site	Vegetation	Frequency	Notes	Geo_Met hod	Precision	Date
48971	9076492	35581	Tetraria sp. Chandala (G.J. Keighery 17055)	2	Erect sedge, 70 cm high.	Dampland on edge of open water, wetland on plain. Black peat. > 10 years since fire.	Eucalyptus rudis subsp. rudis open forest, over Melaleuca preissiana and M. rhopiophylla open woodland, over Taxandria linearifolia scattered tall shrubs, over Cyathochaeta teretifolia high closed sedgeland with Pteridium esculentum high fernland. Assoc		Excellent vegetatio n condition (low weed cover), though disturban ce nearby (transmiss ion lines).	GPS	1	2/11/2010
49482	279188	1717	Thelymitra variegata	2		In yellow sand.	With Banksia attenuata, Casuarina fraseri, Hibbertia hypericoides, etc.			AUTO	3	16/08/1959
51095	2521296	44444	Tripterococcus sp. Brachylobus (A.S. George 14234)	4	Slender erect multi-stemmed shrub to 40 cm. Flowers orange-yellow, in full flower.	Winter wet flats, peaty sand over clay.	Hypocalymma angustifolium low heath.	scattered groups of 5-15 plants.		MAN	3	21/02/1992
52364	1057251	14714	Verticordia lindleyi subsp. lindleyi	4	Compact erect shrub, 36 cm high, flowers pink.	Dry summer swamp. Sandy white clay soil.	Heath type.			MAN	3	23/03/1981

FID	PopId	NameId	Taxon	ConsStatus	WArank	PopNumbr	SubPopCode	PopStatus	District	Vesting	Purpose1	CountDate	Method	MatCount	JuvCount	SeedCount	LiveTotal	CountType	AreaOccupied	InFlower	PopCondit	HabCondit	HabNotes	SoilCondit	Landform	RockType	Gravel	SoilType	SoilColor	Drainage
907	92883	14932	Acacia lasiocarpa var. bracteolata long peduncle variant (G.J. Keighery 5026)	1		1			SWAN COASTAL	LGA		5/08/1982 0:00		0		0				N				MOIST				CLAY_SND		
2452	84412	141	Aponogeton hexatepalus	4		7			SWAN COASTAL	UNKNOWN		10/08/1992 0:00	ESTMT	150			150			Y					OD_SWAMP			LOAM	RED	PERMINUN
2490	84399	141	Aponogeton hexatepalus	4		22			SWAN COASTAL	NON	UCL	16/09/1993 0:00	ESTMT	0			100			N										
2496	84405	141	Aponogeton hexatepalus	4		28			SWAN COASTAL	PRI		5/11/1997 0:00		0		0				N					OD_SWAMP			CLAY	GREY	SEASINUN
2688	95084	45402	Babingtonia urbana	3		2			SWAN COASTAL	LGA	VER	23/03/1981 0:00		0		0				N								SAND	WHITE	
4604	84970	1596	Caladenia huegelii	T	CR	9			SWAN COASTAL	RDL	UCL	1/10/2004 0:00		0		0				N				DRY	RI_DUNE			SAND	GREY	
4606	84932	1596	Caladenia huegelii	T	CR	12		X	SWAN COASTAL	PRI		15/10/1997 0:00	ACT_IND	0		0				N				DRY	FL_PLAIN			SAND	GREY	
4635	84944	1596	Caladenia huegelii	T	CR	41		X	SWAN COASTAL	MRD	VER	23/10/2006 0:00		0		0				N				DRY	FLAT			SAND	GREY	

FID	PopId	NameId	Taxon	Con sSta tus	WA Ran k	Pop Nu mbe r	Sub Pop Cod e	Pop Stat us	District	Vesting	Purpo se1	CountDate	Method	Mat Cou nt	JuvC ount	Seed lCou nt	LiveT otal	Cou ntTy pe	Area Occu py	InFlo wer	PopCon diti	HabCo nditi	HabNotes	SoilCon dit	Landfo rm	RockTy pe	Gravel	SoilTyp e	SoilCol or	Draina ge
4636	97288	1596	Caladenia huegelii	T	CR	42	A		SWAN COASTAL	SPC	GVT	23/09/2011 0:00	ACT_IND	447		0		PLA NTS	####	Y	HEALTH Y	VRY_G OOD	Low open woodland over low open shrubland and herbland on lower slopes. Banksia Woodland. The overall condition of the vegetation due to drought conditions is declining. Recentfire (April 2011?) in NE edge of Lot 820, NW edge of Lot 4 (42F) & SE edge o	MOIST	SLOPE			SAND	WHITE	WLL_D RND
4637	97289	1596	Caladenia huegelii	T	CR	42	B		SWAN COASTAL	PRI		2/10/2013 0:00	ACT_IND	15		0		PLA NTS	262	Y	HEALTH Y	GOOD	Vegetation away from the edges within the wider remnants were in Excellent condition; the more narrow remnants were Good to Completely Degraded. This site contains a high diversity of flora species.	MOIST	FL_PLA IN			SAND	GREY	WLL_D RND
4638	97290	1596	Caladenia huegelii	T	CR	42	C		SWAN COASTAL	PRI		9/10/2004 0:00		5		5				Y			Low open woodland over low open shrubland and herbland on lower slopes. Banksia Woodland.		SLOPE			SAND	GREY	

FID	PopId	NameId	Taxon	Cons Status	WArank	Pop Number	Sub Pop Code	Pop Status	District	Vesting	Purpose1	CountDate	Method	Mat Count	Juv Count	Seed Count	Live Total	Count Type	Area Occupied	In Flower	Population	Conservation	Habitat Code	Habitat Notes	Soil Condition	Landform	Rock Type	Gravel	Soil Type	Soil Color	Drainage
4639	97291	1596	Caladenia huegelii	T	CR	42	D		SWAN COASTAL	LGA	VER	23/09/2011 0:00		0		0				N			DEGRADED	Low open woodland over low open shrubland and herbland on lower slopes. Banksia Woodland. Lowerslope to drainage line. Undulating topography. Habitat condition: Good to degraded. The road reserve is declining in condition due to the impacts of rubbish	MOIST	SLOPE			SAND	GREY	WLL_D RND
4640	106241	1596	Caladenia huegelii	T	CR	42	E		SWAN COASTAL	PRI		14/10/2005 0:00	ACT_IND	0		0			Y		MODERATE			Low open woodland over low open shrubland and herbland on lower slopes. Banksia Woodland.		SLOPE			SAND	GREY	
4641	106242	1596	Caladenia huegelii	T	CR	42	F		SWAN COASTAL	PRI		14/10/2005 0:00	ACT_IND	0		0			Y		MODERATE			Low open woodland over low open shrubland and herbland on lower slopes. Banksia Woodland.		SLOPE			SAND	GREY	
4660	97306	1596	Caladenia huegelii	T	CR	59	A		SWAN COASTAL	CC	CFF	21/09/2004 0:00		1		1			N					Banksia woodland.		FLAT			SAND	GREY	
4661	97307	1596	Caladenia huegelii	T	CR	59	B		SWAN COASTAL	CC	CFF	21/09/2004 0:00		1		1			Y					Banksia woodland.	DRY	FLAT			SAND	GREY	
4662	97308	1596	Caladenia huegelii	T	CR	59	C		SWAN COASTAL	CC	CFF	4/10/2010 0:00	ACT_IND	0		0				N				Banksia woodland. *Erharta calycina at densities >70%.	DRY	SLOPE			SAND	WHITE	

FID	PopId	NameId	Taxon	Con sSta tus	WA Ran k	Pop Nu mber	Sub Pop Code	Pop Stat us	District	Vesting	Purpo se1	CountDate	Method	Mat Cou nt	JuvC ount	Seed ICou nt	LiveT otal	Cou ntTy pe	Area Occu py	InFlo wer	PopCon diti	HabCo nditi	HabNotes	SoilCon dit	Landfo rm	RockTy pe	Gravel	SoilTyp e	SoilCol or	Draina ge
4663	97309	1596	Caladenia huegelii	T	CR	59	D		SWAN COASTAL	CC	CFF	4/10/2011 0:00	ACT_IND	1			0	PLANTS	1	Y	HEALTHY	VERY_GOOD	Presence of perrenial veldt grass (highly invasive weed species) is the factor downgrading condition from excellent to very good. Intact native species structure and diversity	DRY	SLOPE			SAND	GREY	WLL_D RND
4664	97310	1596	Caladenia huegelii	T	CR	59	E		SWAN COASTAL	CC	CFF	25/09/2012 0:00	ACT_IND	29			0	PLANTS	500	Y	HEALTHY	VERY_GOOD		DRY	SLOPE			SAND	GREY	WLL_D RND
4665	114909	1596	Caladenia huegelii	T	CR	59	F		SWAN COASTAL	RDL	PAR	25/09/2012 0:00	ACT_IND	8			0	PLANTS	475	Y	HEALTHY	EXCELLENT	Located in small patch of excellent bush adjacent to a more disturbed area		HILL			SAND	GREY	WLL_D RND
4666	97312	1596	Caladenia huegelii	T	CR	60	A		SWAN COASTAL	PRI		11/10/2005 0:00	ACT_IND	6		6				Y			Banksia Woodland		FLAT			SAND	GREY	
4667	97313	1596	Caladenia huegelii	T	CR	60	B		SWAN COASTAL	PRI		11/10/2005 0:00	ACT_IND	11		0				Y										
4668	97314	1596	Caladenia huegelii	T	CR	60	C		SWAN COASTAL	PRI		16/10/2005 0:00	ACT_IND	3		3				Y										
4669	106221	1596	Caladenia huegelii	T	CR	60	D		SWAN COASTAL	PRI		10/10/2005 0:00	ACT_IND	5		0				Y										
4670	84954	1596	Caladenia huegelii	T	CR	61			SWAN COASTAL	PRI		5/10/2005 0:00		1		1				Y			Banksia wookland, understorey of a variety of grasses of Hibbertia.		FLAT			SAND	GREY	

FID	Popld	Nameid	Taxon	ConsStatus	WArank	PopNumber	SubPopCode	PopStatus	District	Vesting	Purpose1	CountDate	Method	MatCount	JuvCount	SeedCount	LiveTotal	CountType	AreaOccupied	InFlow	PopCondit	HabitatCode	HabitatNotes	SoilCondit	Landform	RockType	Gravel	SoilType	SoilColor	Drainage
4671	84955	1596	Caladenia huegelii	T	CR	62			SWAN COASTAL	LGA	REC	27/09/2013 0:00	ACT_IND	12			0	PLANTS	514	Y	HEALTHY	VRY_GOOD	Low Open Forest of Banksia attenuata, B. menziesii, B. ilicifolia, Allocasuarina fraseriana and Nuytsia floribunda over Tall Shrubland of Adenanthos cygnorum and Kunzea glabrescens over Open Low Heath of Xanthorrhoea preissii, Melaleuca thymoides, Calytri	MOIST	FLAT			SAND	GREY	WLL_D RND
4676	84960	1596	Caladenia huegelii	T	CR	67			SWAN COASTAL	NON	GVT	10/10/2011 0:00	ACT_IND	13			0	PLANTS	2890	Y	HEALTHY	EXCELNT		MOIST	FLAT			SAND	GREY	WLL_D RND
4682	84964	1596	Caladenia huegelii	T	CR	72			SWAN COASTAL	PRI		19/09/2007 0:00	ACT_IND	1		1				Y				DRY	FLAT			SAND		
4687	84968	1596	Caladenia huegelii	T	CR	76			SWAN COASTAL	PRI		1/10/2009 0:00	ACT_IND	1		0	1			Y			Banksia woodland. Kunzea ericifolia, Lepidosperma spp, Xanthorrhoea preisii,	DRY				SAND	GREY	
4689	106981	1596	Caladenia huegelii	T	CR	78	A		SWAN COASTAL	PRI		25/09/2012 0:00	ACT_IND	1	1		0	PLANTS	1	Y	HEALTHY	GOOD	Tall Open Scrub of Kunzea glabrescens and Adenanthos cygnorum	DRY	SLOPE			SAND	GREY	WLL_D RND
4690	107683	1596	Caladenia huegelii	T	CR	78	B		SWAN COASTAL	PRI		25/09/2013 0:00	ACT_IND	3			0	PLANTS		Y	HEALTHY									
4692	110509	1596	Caladenia huegelii	T	CR	80			SWAN COASTAL	PRI		20/10/2011 0:00	ACT_IND	4			0	PLANTS	370	Y	HEALTHY	EXCELNT		MOIST	FLAT			SAND	GREY	WLL_D RND
6309	93196	16245	Cyathochaeta teretifolia	3		12			SWAN COASTAL	PRI		24/10/2007 0:00		0		0				N			Woodland.	INUNDATED	OD_SWAMP			PEAT	BLACK	
6322	93210	16245	Cyathochaeta teretifolia	3		25			SWAN COASTAL	PRI		2/12/2005 0:00		0		0				N					SLOPE			LOAM_SND	BROWN	SEASON UN
7198	101444	12938	Diuris micrantha	T	VU	1	A		SWAN COASTAL	NON	UCL	20/09/2010 0:00	ACT_IND	6			0	PLANTS	3.75	Y	HEALTHY	VRY_GOOD	[soil type additional]: clay [additional veg class]: open scrub over dense low sedges	DRY	OD_SWAMP			PEAT	BLACK	

FID	Popld	Nameid	Taxon	Con sSta tus	WA Ran k	Pop Nu mbe r	Sub Pop Cod e	Pop Stat us	District	Vesting	Purpo se1	CountDate	Method	Mat Cou nt	JuvC ount	Seed ICou nt	LiveT otal	Cou ntTy pe	Area Occu py	InFlo wer	PopCon diti	HabCo nditi	HabNotes	SoilCon dit	Landfo rm	RockTy pe	Gravel	SoilTyp e	SoilCol or	Draina ge
7199	101445	12938	Diuris micrantha	T	VU	1	B		SWAN COASTAL	NON	UCL	24/09/2002 0:00		0			0			N										
7220	85052	1637	Diuris purdiei	T	EN	5			SWAN COASTAL	PRI		14/01/2004 0:00		0			0			N				MOIST	OD_S WAMP			CLAY	GREY	
7252	99183	4763	Dodonaea hackettiana	4		4	A		SWAN COASTAL	PRI		15/10/1980 0:00		0			0			N										
7253	99184	4763	Dodonaea hackettiana	4		4	B		SWAN COASTAL	LGA	VER	15/10/1980 0:00		0			0			N										
7254	99185	4763	Dodonaea hackettiana	4		4	C		SWAN COASTAL	NON	OTH	15/10/1980 0:00		0			0			N										
7255	99186	4763	Dodonaea hackettiana	4		4	D		SWAN COASTAL	NON	OTH	15/10/1980 0:00		0			0			N										
7256	99187	4763	Dodonaea hackettiana	4		4	E		SWAN COASTAL	CC	NRE	15/10/1980 0:00		0			0			N										
7257	99189	4763	Dodonaea hackettiana	4		5	A		SWAN COASTAL	LGA	VER	15/10/1980 0:00	ACT_IND	27			27			N			Sand with outcropping limestone.		OUTCR OP	LIMEST N		SAND		
7258	99190	4763	Dodonaea hackettiana	4		5	B		SWAN COASTAL	CC	CFF	15/10/1980 0:00	ACT_IND	13			13			N										
7259	99191	4763	Dodonaea hackettiana	4		5	C		SWAN COASTAL	LGA	NRE	15/10/1980 0:00		0			0			N										
7260	99192	4763	Dodonaea hackettiana	4		5	D		SWAN COASTAL	CC	CFF	15/10/1980 0:00	ESTMT	700			1750			N										
7261	99193	4763	Dodonaea hackettiana	4		5	E		SWAN COASTAL	CC	CFF	15/10/1980 0:00	ESTMT	15			23			N										
7262	99194	4763	Dodonaea hackettiana	4		5	F		SWAN COASTAL	PRI		15/10/1980 0:00		0			0			N										
7263	87266	4763	Dodonaea hackettiana	4		6			SWAN COASTAL	PRI		11/11/1981 0:00		0			0			N					SLOPE	LIMEST N		SAND		
7277	87256	4763	Dodonaea hackettiana	4		15			SWAN COASTAL	PRI		5/01/1987 0:00	ESTMT	3			3			N					FLAT			SAND		
7278	87257	4763	Dodonaea hackettiana	4		16			SWAN COASTAL	LGA	REC	15/06/1987 0:00		0			0			N										
7283	87261	4763	Dodonaea hackettiana	4		20			SWAN COASTAL	PRI		28/10/2001 0:00		0			0			N						RI_DU NE		SAND	GREY	
7285	87263	4763	Dodonaea hackettiana	4		22			SWAN COASTAL	NON	UCL	16/10/2003 0:00	UNKNOW N	12			12			Y				DRY		CD_LK BED		SAND	GREY	
7286	87264	4763	Dodonaea hackettiana	4		23			SWAN COASTAL	PRI		1/12/2005 0:00	ESTMT	20			20			N			DomSp: Victorian Tea Tree		RIDGE	LIMEST N		SAND	BROW N	
7343	97391	1639	Drakaea elastica	T	CR	2	A	X	SWAN COASTAL	PRI		28/07/2005 0:00		0			0			N			Kunzea ericifolia scrub	DRY	FLAT			SAND	WHITE	
7344	97392	1639	Drakaea elastica	T	CR	2	B	X	SWAN COASTAL	PRI		28/07/2005 0:00		0			0			N			Kunzea ericifolia scrub		FL_PLA IN			SAND	GREY	
7345	97393	1639	Drakaea elastica	T	CR	2	C	X	SWAN COASTAL	PRI		28/07/2005 0:00		0			0			N			Kunzea ericifolia scrub		FL_PLA IN			SAND	GREY	
7351	85084	1639	Drakaea elastica	T	CR	7			SWAN COASTAL	PRI		28/07/2005 0:00	ESTMT	0			0			N					FLAT			SAND	GREY	

[illegible]

APPENDIX 2

Naturemap Report

NatureMap Species Report

Created By Guest user on 18/11/2020

Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 115° 48' 05" E, 32° 13' 19" S
Buffer 10km
Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	1316	21773
Other specially protected fauna	2	14
Priority 1	3	3
Priority 2	1	1
Priority 3	13	195
Priority 4	17	328
Protected under international agreement	21	328
Rare or likely to become extinct	18	547
TOTAL	1391	23189

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Rare or likely to become extinct				
1.	1596 <i>Caladenia huegelii</i> (Grand Spider Orchid)		T	
2.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
3.	24790 <i>Calidris tenuirostris</i> (Great Knot)		T	
4.	24731 <i>Calyptrorhynchus banksii</i> subsp. naso (Forest Red-tailed Black Cockatoo)		T	
5.	24733 <i>Calyptrorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
6.	24734 <i>Calyptrorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
7.	48400 <i>Calyptrorhynchus</i> sp. (white-tailed black cockatoo)		T	
8.	25335 <i>Caretta caretta</i> (Loggerhead Turtle)		T	
9.	25336 <i>Chelonia mydas</i> (Green Turtle)		T	
10.	24092 <i>Dasyurus geoffroii</i> (Chuditch, Western Quoll)		T	
11.	25346 <i>Dermochelys coriacea</i> (Leatherback Turtle)		T	
12.	10796 <i>Diuris drummondii</i> (Tall Donkey Orchid)		T	
13.	12938 <i>Diuris micrantha</i>		T	
14.	1639 <i>Drakaea elastica</i> (Glossy-leaved Hammer Orchid)		T	
15.	24043 <i>Eubalaena australis</i> (Southern Right Whale)		T	
16.	24146 <i>Myrmecobius fasciatus</i> (Numbat, Walpurti)		T	
17.	24798 <i>Numenius madagascariensis</i> (Eastern Curlew)		T	
18.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T	
Protected under international agreement				
19.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
20.	25554 <i>Apus pacificus</i> (Fork-tailed Swift, Pacific Swift)		IA	
21.	25736 <i>Arenaria interpres</i> (Ruddy Turnstone)		IA	
22.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
23.	24786 <i>Calidris melanotos</i> (Pectoral Sandpiper)		IA	
24.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
25.	24789 <i>Calidris subminuta</i> (Long-toed Stint)		IA	
26.	41332 <i>Chlidonias leucopterus</i> (White-winged Black Tern, white-winged tern)		IA	
27.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
28.	25741 <i>Limosa limosa</i> (Black-tailed Godwit)		IA	
29.	24690 <i>Macronectes giganteus</i> (Southern Giant Petrel)		IA	
30.	41347 <i>Onychoprion anaethetus</i> (Bridled Tern)		IA	
31.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
32.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
33.	24383 <i>Pluvialis squatarola</i> (Grey Plover)		IA	
34.	25640 <i>Sterna dougallii</i> (Roseate Tern)		IA	
35.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
36.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
37.	24808	<i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
38.	24809	<i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
39.	41351	<i>Xenus cinereus</i> (Terek Sandpiper)		IA	

Other specially protected fauna

40.	25624	<i>Falco peregrinus</i> (Peregrine Falcon)		S	
41.	48070	<i>Phascogale tapoatafa</i> subsp. <i>wambenger</i> (South-western Brush-tailed Phascogale, Wambenger)		S	

Priority 1

42.	48762	<i>Acacia</i> sp. <i>Binningup</i> (G. Cockerton et al. WB 37784)		P1	
43.	16633	<i>Boronia juncea</i> subsp. <i>juncea</i>		P1	
44.	30334	<i>Lachnagrostis nesomytica</i> subsp. <i>paralia</i>		P1	

Priority 2

45.	35581	<i>Tetraria</i> sp. <i>Chandala</i> (G.J. Keighery 17055)		P2	
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Priority 3

46.	48332	<i>Amanita preissii</i> (Cinnamon-ring <i>Lepidella</i>)		P3	
47.	35317	<i>Austrostipa mundula</i>		P3	
48.	16245	<i>Cyathochaeta teretifolia</i>		P3	
49.	11461	<i>Hibbertia spicata</i> subsp. <i>leptotheca</i>		P3	
50.	48935	<i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)		P3	
51.	20462	<i>Jacksonia gracillima</i>		P3	
52.	25147	<i>Lerista lineata</i> (Perth Slider, Lined Skink)		P3	
53.	25249	<i>Neelaps calonotos</i> (Black-striped Snake, black-striped burrowing snake)		P3	
54.	5237	<i>Pimelea calcicola</i>		P3	
55.	8163	<i>Pithocarpa corymbulosa</i> (Corymbose Pithocarpa)		P3	
56.	25006	<i>Pletholax gracilis</i> subsp. <i>edelenensis</i> (Keelbed Legless Lizard (Shark Bay))		P3	
57.	25800	<i>Stylidium paludicola</i>		P3	
58.	24855	<i>Tyto novaehollandiae</i> subsp. <i>novaehollandiae</i> (Masked Owl (southwest))		P3	

Priority 4

59.	141	<i>Aponogeton hexatepalus</i> (Stalked Water Ribbons)		P4	
60.	4763	<i>Dodonaea hackettiana</i> (Hackett's Hopbush)		P4	
61.	24189	<i>Falsistrellus mackenziei</i> (Western False Pipistrelle, Western Falsistrelle)		P4	
62.	24215	<i>Hydromys chrysogaster</i> (Water-rat, Rakali)		P4	
63.	48588	<i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
64.	47975	<i>Ixobrychus dubius</i> (Australian Little Bittern)		P4	
65.	4027	<i>Jacksonia sericea</i> (Waldjumi)		P4	
66.	48024	<i>Notamacropus eugenii</i> subsp. <i>derbianus</i> (Tammar Wallaby, Tammar)		P4	
67.	48022	<i>Notamacropus irma</i> (Western Brush Wallaby)		P4	
68.	25196	<i>Notoscincus butleri</i> (lined soil-crevice skink (Dampier))		P4	
69.	24328	<i>Oxyura australis</i> (Blue-billed Duck)		P4	
70.	24663	<i>Phaethon rubricauda</i> (Red-tailed Tropicbird)		P4	
71.	17850	<i>Stylidium ireneae</i>		P4	
72.	7756	<i>Stylidium longitubum</i> (Jumping Jacks)		P4	
73.	7803	<i>Stylidium striatum</i> (Fan-leaved Triggerplant)		P4	
74.	33992	<i>Synemon gratiosa</i> (Graceful Sunmoth)		P4	
75.	48135	<i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	

Non-conservation taxon

76.	?	?			
77.		? <i>Anigozanthos humilis</i>			
78.		? <i>Amocrinum preissii</i>			
79.		? <i>Austrostipa compressa</i>			
80.		? <i>Austrostipa semibarbata</i>			Y
81.		? <i>Burchardia congesta</i>			
82.		? <i>Hovea pungens</i>			Y
83.		? <i>Hovea trisperma</i> var. <i>trisperma</i>			
84.		? <i>Hybanthus calycinus</i>			Y
85.		? <i>Hypolaena exsulca</i>			Y
86.		? <i>Kunzea glabrescens</i>			
87.		? <i>Lepidosperma squamatum</i> s.l.			
88.		? <i>Lomandra caespitosa</i>			
89.		? <i>Lotus subbiflorus</i>			
90.		? <i>Lysimachia arvensis</i>			
91.		? <i>Mesomelaena pseudostygia</i>			Y
92.		? <i>Microlaena stipoides</i>			
93.		? <i>Persoonia saccata</i>			Y
94.		? <i>Phlebocarya ciliata</i>			
95.		? <i>Phyllanthus calycinus</i>			Y
96.		? <i>Pterostylis sanguinea</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
97.	? <i>Rytidosperma occidentalis</i>			
98.	? <i>Sowerbaea laxiflora</i>			
99.	? <i>Vicia sativa</i>			Y
100.	15466 <i>Acacia applanata</i>			
101.	3262 <i>Acacia cochlearis</i> (Rigid Wattle)			
102.	3282 <i>Acacia cyclops</i> (Coastal Wattle)			
103.	3374 <i>Acacia huegelii</i>			
104.	3409 <i>Acacia lasiocarpa</i> (Panjang)			
105.	11611 <i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>			
106.	3502 <i>Acacia pulchella</i> (Prickly Moses)			
107.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
108.	15482 <i>Acacia pulchella</i> var. <i>goadbyi</i>			
109.	3525 <i>Acacia rostellifera</i> (Summer-scented Wattle)			
110.	3527 <i>Acacia saligna</i> (Orange Wattle, Kudjong)			
111.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
112.	3557 <i>Acacia stenoptera</i> (Narrow Winged Wattle)			
113.	3584 <i>Acacia truncata</i>			
114.	3602 <i>Acacia willdenowiana</i> (Grass Wattle)			
115.	<i>Acanthaluteres brownii</i>			
116.	<i>Acanthaluteres</i> sp.			Y
117.	<i>Acanthaluteres spilomelanurus</i>			
118.	<i>Acanthistius serratus</i>			
119.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
120.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
121.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
122.	1208 <i>Acanthocarpus preissii</i>			
123.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
124.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
125.	24281 <i>Accipiter cirrocephalus</i> subsp. <i>cirrocephalus</i> (Collared Sparrowhawk)			
126.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
127.	24282 <i>Accipiter fasciatus</i> subsp. <i>fasciatus</i> (Brown Goshawk)			
128.	<i>Acentrogobius pflaumii</i>			Y
129.	48409 <i>Acetabularia caliculus</i>			
130.	42368 <i>Acritoscincus trilineatus</i> (Western Three-lined Skink)			
131.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
132.	6203 <i>Actinotus glomeratus</i>			
133.	1775 <i>Adenanthos cygnorum</i> (Common Woollybush)			
134.	11837 <i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i> (Common Woollybush)			
135.	1791 <i>Adenanthos obovatus</i> (Basket Flower)			
136.	4582 <i>Adriana quadripartita</i> (Bitter Bush)			
137.	<i>Afraflacilla huntorum</i>			Y
138.	<i>Afurcagobius suppositus</i>			
139.	1505 <i>Agave americana</i> (Century Plant)	Y		
140.	17202 <i>Agonis flexuosa</i> var. <i>flexuosa</i>			
141.	184 <i>Aira caryophyllea</i> (Silvery Hairgrass)	Y		
142.	<i>Aira caryophyllea/cupaniana</i> group			
143.	185 <i>Aira cupaniana</i> (Silvery Hairgrass)	Y		
144.	187 <i>Aira praecox</i> (Early Hairgrass)	Y		
145.	<i>Aleurina ferruginea</i>			
146.	1728 <i>Allocasuarina fraseriana</i> (Sheoak, Kondil)			
147.	1732 <i>Allocasuarina humilis</i> (Dwarf Sheoak)			
148.	<i>Allotrochosisina karri</i>			
149.	<i>Ammotretis elongatus</i>			
150.	4585 <i>Amperea ericoides</i>			
151.	198 <i>Amphipogon laguroides</i>			
152.	20184 <i>Amphipogon laguroides</i> subsp. <i>laguroides</i>			
153.	200 <i>Amphipogon turbinatus</i>			
154.	<i>Aname mainae</i>			
155.	<i>Aname tepperi</i>			
156.	24310 <i>Anas castanea</i> (Chestnut Teal)			
157.	24312 <i>Anas gracilis</i> (Grey Teal)			
158.	24313 <i>Anas platyrhynchos</i> (Mallard)			
159.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
160.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
161.	7833 <i>Angianthus preissianus</i>			
162.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
163.	11434 <i>Anigozanthos humilis</i> subsp. <i>humilis</i>			
164.	1411 <i>Anigozanthos manglesii</i> (Mangles Kangaroo Paw, Kurulbrang)			
165.	11261 <i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>			
166.	44629 <i>Anilios australis</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
167.	<i>Anoplocapros lenticularis</i>			
168.	<i>Anoplocapros robustus</i>			
169.	<i>Anotrichium crinitum</i>			
170.	<i>Anser anser</i>			
171.	6949 <i>Anthocercis littorea</i> (Yellow Tailflower)			
172.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
173.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
174.	26475 <i>Antithamnion hanovioides</i>			
175.	3686 <i>Aotus cordifolia</i>			
176.	3688 <i>Aotus gracillima</i>			
177.	3692 <i>Aotus procumbens</i>			
178.	1117 <i>Aphelia cyperoides</i>			
179.	6210 <i>Apium annuum</i>			
180.	6211 <i>Apium prostratum</i> (Sea Celery)			
181.	12040 <i>Apium prostratum</i> subsp. <i>prostratum</i> var. <i>prostratum</i> (Sea Celery)			
182.	<i>Aplosporella yalgorensis</i>			
183.	<i>Apogon rueppellii</i>			
184.	<i>Apogon victoriae</i>			
185.	24991 <i>Aprasia repens</i> (Sand-plain Worm-lizard)			
186.	<i>Aptychotrema vincentiana</i>			
187.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
188.	<i>Aracana aurita</i>			
189.	<i>Arachnura higginsii</i>			
190.	<i>Araneus cyphoxis</i>			
191.	<i>Araneus senicaudatus</i>			
192.	7838 <i>Arctotheca calendula</i> (Cape Weed, African Marigold)	Y		
193.	38964 <i>Arcyria cinerea</i>			
194.	38967 <i>Arcyria incarnata</i>			
195.	38968 <i>Arcyria insignis</i>			
196.	25558 <i>Ardea ibis</i> (Cattle Egret)			
197.	41324 <i>Ardea modesta</i> (great egret, white egret)			
198.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
199.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
200.	19883 <i>Arenaria leptoclados</i>	Y		
201.	17797 <i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	Y		
202.	<i>Argiope protensa</i>			
203.	<i>Argiope trifasciata</i>			
204.	28293 <i>Argyranthemum frutescens</i> subsp. <i>foeniculaceum</i>	Y		
205.	1264 <i>Arnocrinum preissii</i>			
206.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
207.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
208.	<i>Artemia atlanta</i>			
209.	<i>Artoria flavimana</i>			
210.	<i>Artoria linnaei</i>			
211.	<i>Artoriopsis expolita</i>			
212.	226 <i>Arundo donax</i> (Giant Reed)	Y		
213.	8779 <i>Asparagus asparagoides</i> (Bridal Creeper)	Y		
214.	1364 <i>Asphodelus fistulosus</i> (Onion Weed)	Y		
215.	20350 <i>Astartea affinis</i> (West-coast Astartea)			
216.	20283 <i>Astartea scoparia</i> (Common Astartea)			
217.	<i>Asteraceae</i> sp.			
218.	<i>Asterella drummondii</i>			
219.	7851 <i>Asteridea pulverulenta</i> (Common Bristle Daisy)			
220.	<i>Asterorhombus</i> cf. <i>osculus</i>			Y
221.	6334 <i>Astroloma pallidum</i> (Kick Bush)			
222.	<i>Atherinosoma wallacei</i>			
223.	2452 <i>Atriplex cinerea</i> (Grey Saltbush)			
224.	2471 <i>Atriplex prostrata</i> (Hastate Orache)	Y		
225.	<i>Austracantha minax</i>			
226.	<i>Austrogautieria manjimupana</i>			
227.	47713 <i>Austronomus australis</i> (White-striped Free-tailed Bat)			
228.	<i>Austrostipa</i> ? <i>semibarbata</i>			Y
229.	17234 <i>Austrostipa compressa</i>			
230.	17240 <i>Austrostipa flavescens</i>			
231.	17245 <i>Austrostipa mollis</i>			
232.	17253 <i>Austrostipa semibarbata</i>			
233.	<i>Austrostipa</i> sp.			
234.	37421 <i>Austrostipa</i> sp. <i>Marchagee</i> (B.R. Maslin 1407)			
235.	231 <i>Avellinia michelii</i>	Y		
236.	233 <i>Avena barbata</i> (Bearded Oat)	Y		

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237.	234 <i>Avena fatua</i> (Wild Oat)	Y		
238.	235 <i>Avena sativa</i> (Common Oat)	Y		
239.	24318 <i>Aythya australis</i> (Hardhead)			
240.	18280 <i>Babiana nana</i>	Y		
241.	36441 <i>Babingtonia camphorosmae</i> (Camphor Myrtle)			
242.	<i>Backobourkia brounii</i>			
243.	38979 <i>Badhamia utricularis</i>			
244.	<i>Badumna insignis</i>			
245.	1800 <i>Banksia attenuata</i> (Slender Banksia, Piara)			
246.	32580 <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>dallanneyi</i>			
247.	1819 <i>Banksia grandis</i> (Bull Banksia, Pulgarla)			
248.	1822 <i>Banksia ilicifolia</i> (Holly-leaved Banksia)			
249.	1830 <i>Banksia littoralis</i> (Swamp Banksia, Pungura)			
250.	1834 <i>Banksia menziesii</i> (Firewood Banksia)			
251.	32077 <i>Banksia sessilis</i> var. <i>cygnorum</i>			
252.	1852 <i>Banksia telmatiaea</i> (Swamp Fox Banksia)			
253.	<i>Barnardius zonarius</i>			
254.	740 <i>Baumea arthropophylla</i>			
255.	741 <i>Baumea articulata</i> (Jointed Rush)			
256.	743 <i>Baumea juncea</i> (Bare Twigrush)			
257.	748 <i>Baumea vaginalis</i> (Sheath Twigrush)			
258.	5382 <i>Beaufortia elegans</i> (Elegant Beaufortia)			
259.	7046 <i>Bellardia trixago</i> (Bellardia)	Y		
260.	48868 <i>Bellardia viscosa</i>	Y		
261.	<i>Bianor maculatus</i>			
262.	24319 <i>Biziura lobata</i> (Musk Duck)			
263.	749 <i>Bolboschoenus caldwellii</i> (Marsh Club-rush)			
264.	4413 <i>Boronia crenulata</i> (Aniseed Boronia)			
265.	11503 <i>Boronia crenulata</i> subsp. <i>crenulata</i> var. <i>crenulata</i>			
266.	16636 <i>Boronia crenulata</i> subsp. <i>viminea</i>			
267.	4417 <i>Boronia dichotoma</i>			
268.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
269.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
270.	<i>Brachaluteres jacksonianus</i>			
271.	6341 <i>Brachyloma preissii</i> (Globe Heath)			
272.	8661 <i>Brachypodium distachyon</i> (False Brome)	Y		
273.	7878 <i>Brachyscome iberidifolia</i>			
274.	42381 <i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)			
275.	3000 <i>Brassica tournefortii</i> (Mediterranean Turnip)	Y		
276.	2995 <i>Brassica x napus</i>	Y		
277.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
278.	245 <i>Briza minor</i> (Shivery Grass)	Y		
279.	<i>Briza</i> sp.			
280.	249 <i>Bromus diandrus</i> (Great Brome)	Y		
281.	250 <i>Bromus hordeaceus</i> (Soft Brome)	Y		
282.	252 <i>Bromus madritensis</i> (Madrid Brome)	Y		
283.	6537 <i>Buddleja madagascariensis</i>	Y		
284.	1366 <i>Bulbine semibarbata</i> (Leek Lily)			
285.	1383 <i>Burchardia bairdiae</i>			
286.	12770 <i>Burchardia congesta</i>			
287.	<i>Byssomerulius corium</i>			
288.	25713 <i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
289.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
290.	25715 <i>Cacatua roseicapilla</i> (Galah)			
291.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
292.	24729 <i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
293.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
294.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
295.	1276 <i>Caesia micrantha</i> (Pale Grass Lily)			
296.	1277 <i>Caesia occidentalis</i>			
297.	3002 <i>Cakile maritima</i> (Sea Rocket)	Y		
298.	<i>Caladenia</i> ?flava			
299.	1586 <i>Caladenia discoidea</i> (Dancing Orchid)			
300.	1592 <i>Caladenia flava</i> (Cowslip Orchid)			
301.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
302.	15352 <i>Caladenia georgei</i>			
303.	1599 <i>Caladenia latifolia</i> (Pink Fairy Orchid)			
304.	15361 <i>Caladenia longicauda</i> subsp. <i>calcigena</i>			
305.	17760 <i>Caladenia nobilis</i>			
306.	<i>Caladenia</i> sp.			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
307.	2846	<i>Calandrinia calypttrata</i> (Pink Purslane)			
308.	2848	<i>Calandrinia corrigioloides</i> (Strap Purslane)			
309.	2854	<i>Calandrinia granulifera</i> (Pygmy Purslane)			
310.	2856	<i>Calandrinia liniflora</i> (Parakeelya)			
311.	19309	<i>Calectasia narragara</i>			
312.	34942	<i>Callitriche brutia</i> subsp. <i>brutia</i>	Y		
313.	96	<i>Callitris preissii</i> (Rottnest Island Pine, Maro)			
314.	36600	<i>Callitris pyramidalis</i> (Swamp Cypress)			
315.		<i>Calocera guepinoides</i>			
316.	5411	<i>Calothamnus hirsutus</i>			
317.	5415	<i>Calothamnus lateralis</i>			
318.	5426	<i>Calothamnus quadrifidus</i> (One-sided Bottlebrush, Kwoondjard)			
319.	35816	<i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i>			
320.	25717	<i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
321.	5439	<i>Calytrix angulata</i> (Yellow Starflower)			
322.	5458	<i>Calytrix flavescens</i> (Summer Starflower)			
323.	5460	<i>Calytrix fraseri</i> (Pink Summer Calytrix)			
324.	5476	<i>Calytrix sapphirina</i>			
325.		<i>Campichthys galei</i>			
326.	2795	<i>Carpobrotus edulis</i> (Hottentot Fig)	Y		
327.	2798	<i>Carpobrotus virescens</i> (Coastal Pigface, Kolboko, Bain)			
328.	1162	<i>Cartonema phylodroides</i>			
329.	2951	<i>Cassytha flava</i> (Dodder Laurel)			
330.	2952	<i>Cassytha glabella</i> (Tangled Dodder Laurel)			
331.	2954	<i>Cassytha micrantha</i>			
332.	2957	<i>Cassytha racemosa</i> (Dodder Laurel)			
333.	11242	<i>Cassytha racemosa</i> forma <i>pilosa</i>			
334.	11799	<i>Cassytha racemosa</i> forma <i>racemosa</i>			
335.	19842	<i>Casuarina equisetifolia</i>	Y		
336.	28247	<i>Casuarina equisetifolia</i> subsp. <i>equisetifolia</i>	Y		
337.	26556	<i>Caulerpa cactoides</i>			
338.	44539	<i>Caulerpa cylindracea</i>			
339.	46993	<i>Caulerpa taxifolia</i> var. <i>distichophylla</i>			
340.	26580	<i>Caulerpa trifaria</i>			
341.	41563	<i>Cenchrus purpureus</i> (Elephant Grass)	Y		
342.	41568	<i>Cenchrus setaceus</i> (Fountain Grass)	Y		
343.	7916	<i>Centaurea melitensis</i> (Maltese Cockspur, Malta Thistle)	Y		
344.	6539	<i>Centaureum erythraea</i> (Common Centaury)	Y		
345.	6542	<i>Centaureum tenuiflorum</i>	Y		
346.	6214	<i>Centella asiatica</i>			
347.	1121	<i>Centrolepis aristata</i> (Pointed Centrolepis)			
348.	1125	<i>Centrolepis drummondiana</i>			
349.	1132	<i>Centrolepis mutica</i>			
350.	1134	<i>Centrolepis polygyna</i> (Wiry Centrolepis)			
351.	26596	<i>Ceranium macilentum</i>			
352.	2889	<i>Cerastium glomeratum</i> (Mouse Ear Chickweed)	Y		
353.		<i>Cercophonius sulcatus</i>			
354.	17685	<i>Chaetanthes aristatus</i>			
355.	24186	<i>Chalinolobus gouldii</i> (Gould's Wattled Bat)			
356.	24187	<i>Chalinolobus morio</i> (Chocolate Wattled Bat)			
357.	18156	<i>Chamaecytisus palmensis</i> (Tagasaste)	Y		
358.	1280	<i>Chamaescilla corymbosa</i> (Blue Squill)			
359.	11299	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>			
360.	26616	<i>Champia affinis</i>			
361.	26621	<i>Champia zostericola</i>			
362.	24377	<i>Charadrius ruficapillus</i> (Red-capped Plover)			
363.	1513	<i>Chasmanthe floribunda</i> (African Cornflag)	Y		
364.		<i>Chelidonichthys kumu</i>			
365.		<i>Chelmonops curiosus</i>			
366.	43380	<i>Chelodina colleei</i> (South-western Snake-necked Turtle)			
367.	24321	<i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
368.	47909	<i>Cheramoeca leucosterna</i> (White-backed Swallow)			
369.	33939	<i>Cherax cainii</i> (Marron)			
370.		<i>Cherax destructor</i>			
371.		<i>Cherax quinquecarinatus</i>			
372.		<i>Cherax</i> sp.			
373.	24980	<i>Christinus marmoratus</i> (Marbled Gecko)			
374.		<i>Chroicocephalus novaehollandiae</i>			
375.	41787	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i>	Y		Y
376.	24431	<i>Chrysococcyx basalis</i> (Horsfield's Bronze Cuckoo)			

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377.	24288	<i>Circus approximans</i> (Swamp Harrier)			
378.	7937	<i>Cirsium vulgare</i> (Spear Thistle, Scotch Thistle)	Y		
379.	36316	<i>Cladophora herpestica</i>			
380.	26659	<i>Cladophora valonioides</i>			
381.	24774	<i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
382.	26662	<i>Cladostephus spongiosus</i>			
383.	38983	<i>Clastoderma debaryanum</i>			
384.	26665	<i>Clavicornium ovatum</i>			
385.		<i>Cleidopus gloriamaris</i>			
386.	10804	<i>Clematis linearifolia</i>			
387.		<i>Clynotis albobarbatus</i>			
388.		<i>Clynotis severus</i>			
389.	26682	<i>Codium spinescens</i>			
390.	25675	<i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
391.	24399	<i>Columba livia</i> (Domestic Pigeon)	Y		
392.	38990	<i>Comatricha nigra</i>			
393.	4550	<i>Comesperma calymega</i> (Blue-spike Milkwort)			
394.	4552	<i>Comesperma confertum</i>			
395.	4555	<i>Comesperma integerrimum</i>			
396.	4564	<i>Comesperma virgatum</i> (Milkwort)			
397.	6217	<i>Conium maculatum</i> (Hemlock)	Y		
398.	15611	<i>Conospermum stoechadis</i> subsp. <i>stoechadis</i> (Common Smokebush)			
399.	1885	<i>Conospermum triplinervium</i> (Tree Smokebush)			
400.	6348	<i>Conostephium pendulum</i> (Pearl Flower)			
401.	6349	<i>Conostephium preissii</i>			
402.	1418	<i>Conostylis aculeata</i> (Prickly Conostylis)			
403.	11826	<i>Conostylis aculeata</i> subsp. <i>aculeata</i>			
404.	12109	<i>Conostylis aculeata</i> subsp. <i>preissii</i>			
405.	1427	<i>Conostylis candicans</i> (Grey Cottonhead)			
406.	11438	<i>Conostylis candicans</i> subsp. <i>candicans</i>			
407.	1436	<i>Conostylis juncea</i>			
408.	1454	<i>Conostylis setigera</i> (Bristly Cottonhead)			
409.	11597	<i>Conostylis setigera</i> subsp. <i>setigera</i>			
410.	1455	<i>Conostylis setosa</i> (White Cottonhead)			
411.		<i>Conyza ?bonariensis</i>			
412.	7939	<i>Conyza bonariensis</i> (Flaxleaf Fleabane)	Y		
413.	7941	<i>Conyza parva</i>	Y		
414.		<i>Conyza</i> sp.			
415.	20074	<i>Conyza sumatrensis</i>	Y		
416.	25568	<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
417.		<i>Cormocephalus novaehollandiae</i>			
418.	48259	<i>Cortaderia selloana</i> subsp. <i>selloana</i>	Y		
419.	38776	<i>Cortinarius phalarus</i>			
420.	25592	<i>Corvus coronoides</i> (Australian Raven)			
421.	24417	<i>Corvus coronoides</i> subsp. <i>perplexus</i> (Australian Raven)			
422.	24419	<i>Corvus splendens</i> (House Crow)			
423.	17104	<i>Corymbia calophylla</i> (Marri)			
424.	1285	<i>Corynotheca micrantha</i> (Sand Lily)			
425.	11283	<i>Corynotheca micrantha</i> var. <i>micrantha</i>			
426.		<i>Coryphaena hippurus</i>			
427.	7945	<i>Cotula coronopifolia</i> (Waterbuttons)	Y		
428.	24671	<i>Coturnix pectoralis</i> (Stubble Quail)			
429.	25701	<i>Coturnix ypsilophora</i> (Brown Quail)			
430.	24420	<i>Cracticus nigrogularis</i> (Pied Butcherbird)			
431.	25595	<i>Cracticus tibicen</i> (Australian Magpie)			
432.	24422	<i>Cracticus tibicen</i> subsp. <i>dorsalis</i> (White-backed Magpie)			
433.	25596	<i>Cracticus torquatus</i> (Grey Butcherbird)			
434.	26704	<i>Craspedocarpus venosus</i>			
435.	3137	<i>Crassula colorata</i> (Dense Stonecrop)			
436.	11563	<i>Crassula colorata</i> var. <i>colorata</i>			
437.	3139	<i>Crassula exserta</i>			
438.	3140	<i>Crassula glomerata</i>	Y		
439.	11345	<i>Crassula thunbergiana</i> subsp. <i>thunbergiana</i>	Y		
440.	25399	<i>Crinia glauerti</i> (Clicking Frog)			
441.	25400	<i>Crinia insignifera</i> (Squelching Froglet)			
442.		<i>Cristiceps aurantiacus</i>			
443.		<i>Cristiceps australis</i>			
444.		<i>Crustulina bicrucata</i>			
445.	4802	<i>Cryptandra mutila</i>			
446.	30893	<i>Cryptoblepharus buchananii</i>			

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447.	25020	<i>Cryptoblepharus plagiocephalus</i>			
448.	1627	<i>Cryptostylis ovata</i> (Slipper Orchid)			
449.	30899	<i>Ctenophorus adalaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			
450.	25027	<i>Ctenotus australis</i>			
451.	25039	<i>Ctenotus fallens</i>			
452.	25040	<i>Ctenotus gemmula</i> (Jewelled South-west Ctenotus (Swan Coastal Plain subpop P3), skink)			
453.	6663	<i>Cuscuta epithymum</i> (Lesser Dodder, Greater Dodder)	Y		
454.	26714	<i>Cutleria multifida</i>			
455.	768	<i>Cyathochaeta avenacea</i>			
456.		<i>Cyclosa trilobata</i>			
457.	24322	<i>Cygnus atratus</i> (Black Swan)			
458.	19625	<i>Cymbalaria muralis</i> subsp. <i>muralis</i>	Y		
459.		<i>Cynoglossus broadhursti</i>			
460.	806	<i>Cyperus polystachyos</i> (Bunchy Sedge)			
461.	816	<i>Cyperus tenuiflorus</i> (Scaly Sedge)	Y		
462.		<i>Cyrtophora parnasia</i>			
463.	26729	<i>Cystophora subfarcinata</i>			
464.	30901	<i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
465.	30902	<i>Dacelo novaeguineae</i> subsp. <i>novaeguineae</i> (Laughing Kookaburra)	Y		
466.	38781	<i>Dacryopinax spathularia</i>			
467.		<i>Dactylopus dactylopus</i>			
468.	7454	<i>Dampiera linearis</i> (Common Dampiera)			
469.	7462	<i>Dampiera pedunculata</i>			
470.	25673	<i>Daphoenositta chrysoptera</i> (Varied Sittella)			
471.	24687	<i>Daption capense</i> (Cape Petrel)			
472.	35618	<i>Darwinia</i> sp. <i>Karonie</i> (K. Newbey 8503)			
473.	26752	<i>Dasyclonium incisum</i>			
474.	1218	<i>Dasypogon bromeliifolius</i> (Pineapple Bush)			
475.	6218	<i>Daucus glochidiatus</i> (Australian Carrot)			
476.	3807	<i>Daviesia divaricata</i> (Marno)			
477.	18560	<i>Daviesia divaricata</i> subsp. <i>divaricata</i>			
478.	16585	<i>Daviesia nudiflora</i> subsp. <i>nudiflora</i>			
479.	3832	<i>Daviesia physodes</i>			
480.	3845	<i>Daviesia triflora</i>			
481.		<i>Decapterus muroadsi</i>			
482.	25766	<i>Delma fraseri</i> (Fraser's Legless Lizard)			
483.	24999	<i>Delma grayii</i>			
484.	25296	<i>Demansia psammophis</i> subsp. <i>reticulata</i> (Yellow-faced Whipsnake)			
485.	38785	<i>Descomyces angustisporus</i>			
486.	17691	<i>Desmocladius fasciculatus</i>			
487.	16595	<i>Desmocladius flexuosus</i>			
488.	299	<i>Deyeuxia quadriseta</i> (Reed Bentgrass)			
489.	1259	<i>Dianella revoluta</i> (Blueberry Lily)			
490.	11636	<i>Dianella revoluta</i> var. <i>divaricata</i>			
491.	25607	<i>Dicaeum hirundinaceum</i> (Mistletoebird)			
492.	1287	<i>Dichopogon capillipes</i>			
493.	26758	<i>Dicranema revolutum</i>			
494.	26764	<i>Dictyopteris australis</i>			
495.	26776	<i>Dictyota dichotoma</i>			
496.	26778	<i>Dictyota furcellata</i>			
497.	39019	<i>Didymium clavus</i>			Y
498.	17838	<i>Dielsia stenostachya</i>			
499.	314	<i>Digitaria didactyla</i> (Queensland Blue Couch)	Y		
500.		<i>Dingosa serrata</i>			
501.	4454	<i>Diplolaena dampieri</i> (Southern Diplolaena)			
502.	9027	<i>Diplolaena drummondii</i>			
503.	3011	<i>Diplotaxis muralis</i> (Wall Rocket)	Y		
504.	19649	<i>Disa bracteata</i>	Y		
505.	7054	<i>Dischisma arenarium</i>	Y		
506.	7055	<i>Dischisma capitatum</i> (Woolly-headed Dischisma)	Y		
507.	12943	<i>Diuris brumalis</i>			
508.		<i>Diuris corymbosa/magnifica</i>			
509.	1634	<i>Diuris laxiflora</i> (Bee Orchid)			
510.	12939	<i>Diuris magnifica</i>			
511.	3095	<i>Drosera erythrorhiza</i> (Red Ink Sundew)			
512.	48747	<i>Drosera geniculata</i>			
513.	3097	<i>Drosera gigantea</i> (Giant Sundew)			
514.	3098	<i>Drosera glanduligera</i> (Pimpernel Sundew)			
515.	3106	<i>Drosera macrantha</i> (Bridal Rainbow)			

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516.	3109	<i>Drosera menziesii</i> (Pink Rainbow)			
517.	48710	<i>Drosera micrantha</i>			
518.	3118	<i>Drosera pallida</i> (Pale Rainbow)			
519.	29178	<i>Drosera porrecta</i>			
520.	3124	<i>Drosera pulchella</i> (Pretty Sundew)			
521.		<i>Drosera</i> sp. "climbing"			
522.	3131	<i>Drosera stolonifera</i> (Leafy Sundew)			
523.	3135	<i>Drosera zonaria</i> (Painted Sundew)			
524.	25100	<i>Egernia napoleonis</i>			
525.		<i>Egretta garzetta</i>			
526.		<i>Egretta novaehollandiae</i>			
527.		<i>Ehrharta ?longiflora</i>			Y
528.	11485	<i>Ehrharta brevifolia</i> var. <i>cuspidata</i>	Y		
529.	347	<i>Ehrharta calycina</i> (Perennial Veldt Grass)	Y		
530.	349	<i>Ehrharta longiflora</i> (Annual Veldt Grass)	Y		
531.		<i>Ehrharta</i> sp.			
532.		<i>Elanus axillaris</i>			
533.	47937	<i>Elseya melanops</i> (Black-fronted Dotterel)			
534.	1643	<i>Elythranthera brunonis</i> (Purple Enamel Orchid)			
535.		<i>Eolophus roseicapillus</i>			
536.	1645	<i>Epiblema grandiflorum</i> (Babe-in-a-cradle)			
537.	11756	<i>Epilobium billardiareanum</i> subsp. <i>cinereum</i> (Variable Willow Herb)			
538.	6132	<i>Epilobium ciliatum</i>	Y		
539.	6133	<i>Epilobium hirtigerum</i> (Hairy Willow Herb)			
540.	24567	<i>Epthianura albifrons</i> (White-fronted Chat)			
541.	374	<i>Eragrostis cilianensis</i> (Stinkgrass)	Y		
542.	376	<i>Eragrostis curvula</i> (African Lovegrass)	Y		
543.	379	<i>Eragrostis elongata</i> (Clustered Lovegrass)			
544.		<i>Eragrostis</i> sp. <i>indet.</i>			
545.	13949	<i>Eremaea asterocarpa</i>			
546.	13950	<i>Eremaea asterocarpa</i> subsp. <i>asterocarpa</i>			
547.	5541	<i>Eremaea pauciflora</i>			
548.	14104	<i>Eremaea pauciflora</i> var. <i>pauciflora</i>			
549.	7215	<i>Eremophila glabra</i> (Tar Bush)			
550.	17175	<i>Eremophila glabra</i> subsp. <i>albicans</i>			
551.		<i>Eriophora biapicata</i>			
552.	4333	<i>Erodium cicutarium</i> (Common Storksbill)	Y		
553.	15446	<i>Eryngium pinnatifidum</i> subsp. <i>pinnatifidum</i>			
554.	24379	<i>Erythronys cinctus</i> (Red-kneed Dotterel)			
555.		<i>Eubalichthys mosaicus</i>			
556.	5615	<i>Eucalyptus decipiens</i> (Limestone Marlock, Moit)			
557.	5649	<i>Eucalyptus foecunda</i> (Narrow-leaved Red Mallee)			
558.	5659	<i>Eucalyptus gomphocephala</i> (Tuart, Duart)			
559.	5708	<i>Eucalyptus marginata</i> (Jarrah, Djara)			
560.	13547	<i>Eucalyptus marginata</i> subsp. <i>marginata</i> (Jarrah)			
561.	5763	<i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
562.	13511	<i>Eucalyptus rudis</i> subsp. <i>rudis</i>			
563.	5790	<i>Eucalyptus todtiana</i> (Coastal Blackbutt)			
564.	3872	<i>Euchilopsis linearis</i> (Swamp Pea)			
565.	15137	<i>Euchiton sphaericus</i>			
566.	25746	<i>Eudyptula minor</i> (Little Penguin)			
567.	4627	<i>Euphorbia helioscopia</i> (Sun Spurge)	Y		
568.	20014	<i>Euphorbia hyssopifolia</i>	Y		
569.	29940	<i>Euphorbia maculata</i>	Y		
570.	4636	<i>Euphorbia paralias</i> (Sea Spurge)	Y		
571.	4638	<i>Euphorbia peplus</i> (Petty Spurge)	Y		
572.	34757	<i>Euphorbia prostrata</i>	Y		
573.	4648	<i>Euphorbia terracina</i> (Geraldton Carnation Weed)	Y		
574.	26830	<i>Euptilota articulata</i>			
575.	3880	<i>Eutaxia virgata</i>			
576.	835	<i>Evandra pauciflora</i>			
577.	25621	<i>Falco berigora</i> (Brown Falcon)			
578.	25622	<i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
579.	24472	<i>Falco cenchroides</i> subsp. <i>cenchrus</i> (Australian Kestrel, Nankeen Kestrel)			
580.	25623	<i>Falco longipennis</i> (Australian Hobby)			
581.		<i>Favonigobius lateralis</i>			
582.	24041	<i>Felis catus</i> (Cat)	Y		
583.	20216	<i>Ficinia nodosa</i> (Knotted Club Rush)			
584.	1747	<i>Ficus carica</i> (Common Fig)	Y		
585.		<i>Filicampus tigris</i>			

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586.	894	<i>Fimbristylis velata</i>			
587.	6221	<i>Foeniculum vulgare</i> (Fennel)	Y		
588.		<i>Fomitopsis lilacinogilva</i>			
589.	5209	<i>Frankenia pauciflora</i> (Seaheath)			
590.	25727	<i>Fulica atra</i> (Eurasian Coot)			
591.	24761	<i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
592.	8365	<i>Fumaria bastardii</i>	Y		
593.	2969	<i>Fumaria capreolata</i> (Whiteflower Fumitory)	Y		
594.		<i>Fumaria</i> sp.			
595.	907	<i>Gahnia trifida</i> (Coast Saw-sedge)			
596.	7976	<i>Galinsoga parviflora</i> (Potato Weed)	Y		
597.	17348	<i>Galium aparine</i> (Goosegrass)	Y		
598.	7323	<i>Galium murale</i> (Small Goosegrass)	Y		
599.	25729	<i>Gallinula tenebrosa</i> (Dusky Moorhen)			
600.	24763	<i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
601.	25730	<i>Gallirallus philippensis</i> (Buff-banded Rail)			
602.	20247	<i>Gamochaeta calviceps</i>	Y		
603.	20346	<i>Gamochaeta coarctata</i>	Y		
604.	20475	<i>Gastrolobium capitatum</i>			
605.	20473	<i>Gastrolobium ebracteolatum</i>			
606.	20483	<i>Gastrolobium linearifolium</i>			
607.	20482	<i>Gastrolobium nervosum</i>			
608.	24959	<i>Gehyra variegata</i>			
609.	26850	<i>Gelinaria ulvoidea</i>			
610.	3936	<i>Genista linifolia</i> (Flaxleaf Broom)	Y		
611.	24401	<i>Geopelia cuneata</i> (Diamond Dove)			
612.	4339	<i>Geranium molle</i> (Dove's Foot Cranesbill)	Y		
613.		<i>Gerres subfasciatus</i>			
614.	25530	<i>Gerygone fusca</i> (Western Gerygone)			
615.		<i>Girella zebra</i>			
616.	1520	<i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)	Y		
617.	26860	<i>Gloiodcladia halymenioides</i>			
618.	26864	<i>Gloiosaccion brownii</i>			
619.	47962	<i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
620.	6587	<i>Gomphocarpus fruticosus</i> (Narrowleaf Cottonbush)	Y		
621.	3945	<i>Gompholobium aristatum</i>			
622.	3957	<i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
623.	6161	<i>Gonocarpus pithyoides</i>			
624.	7538	<i>Goodenia pulchella</i>			
625.	26868	<i>Gracilaria cliftonii</i>			
626.	24443	<i>Grallina cyanoleuca</i> (Magpie-lark)			
627.	37500	<i>Grammatotheca bergiana</i> var. <i>bergiana</i>	Y		
628.	14282	<i>Gratiola pubescens</i>			
629.	1982	<i>Grevillea crithmifolia</i>			
630.	15839	<i>Grevillea preissii</i> subsp. <i>preissii</i>			
631.	2119	<i>Grevillea vestita</i>			
632.	12824	<i>Grevillea vestita</i> subsp. <i>vestita</i>			
633.	26884	<i>Griffithsia ovalis</i>			
634.	26886	<i>Griffithsia teges</i>			
635.		<i>Gymnapistes marmoratus</i>			
636.		<i>Gymnopilus allantopus</i>			
637.		<i>Gymnopilus eucalyptorum</i>			Y
638.		<i>Gymnopilus purpuratus</i>			
639.		<i>Gymnothorax woodwardi</i>			
640.	2788	<i>Gyrostemon subnudus</i>			
641.	24487	<i>Haematopus longirostris</i> (Pied Oystercatcher)			
642.		<i>Haemodorum</i> sp.			
643.	1475	<i>Haemodorum spicatum</i> (Mardja)			
644.	2175	<i>Hakea lissocarpha</i> (Honey Bush)			
645.	2197	<i>Hakea prostrata</i> (Harsh Hakea)			
646.	2214	<i>Hakea trifurcata</i> (Two-leaf Hakea)			
647.	2216	<i>Hakea varia</i> (Variable-leaved Hakea)			
648.		<i>Halletta semifasciata</i>			
649.	24293	<i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
650.	25541	<i>Haliastur indus</i> (Brahminy Kite)			
651.	24295	<i>Haliastur spheurnus</i> (Whistling Kite)			
652.	48568	<i>Halopeltis australis</i>			
653.	24296	<i>Hamirostra isura</i> (Square-tailed Kite)			
654.	3961	<i>Hardenbergia comptoniana</i> (Native Wisteria)			
655.		<i>Hasarius adansoni</i>			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
656.	25410	<i>Heleioporus eyrei</i> (Moaning Frog)			
657.	3016	<i>Heliophila pusilla</i>	Y		
658.	6710	<i>Heliotropium europaeum</i> (Common Heliotrope)	Y		
659.	6839	<i>Hemiandra pungens</i> (Snakebush)			
660.	38320	<i>Hemiandra</i> sp. Jurien (B.J. Conn & M.E. Tozer BJC 3885)			
661.	25119	<i>Hemiergis quadrilineata</i>			
662.	6871	<i>Hemigenia sericea</i> (Silky Hemigenia)			
663.	26915	<i>Hennedya crispa</i>			
664.	1293	<i>Hensmania turbinata</i>			
665.		<i>Heteroclinus</i> sp.			
666.		<i>Heterodontus portusjacksoni</i>			
667.	24961	<i>Heteronotia binoei</i> (Bynoe's Gecko)			
668.	26930	<i>Heterosiphonia crassipes</i>			
669.	26936	<i>Heterosiphonia muelleri</i>			
670.		<i>Heurodes turritus</i>			
671.	5134	<i>Hibbertia huegelii</i>			
672.	5135	<i>Hibbertia hypericoides</i> (Yellow Buttercups)			
673.	45534	<i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>			
674.	5154	<i>Hibbertia perfoliata</i>			
675.	5162	<i>Hibbertia racemosa</i> (Stalked Guinea Flower)			
676.	48381	<i>Hibbertia striata</i>			
677.	5173	<i>Hibbertia subvaginata</i>			
678.	5176	<i>Hibbertia vaginata</i>			
679.	47965	<i>Hieraaetus morphnoides</i> (Little Eagle)			
680.	25734	<i>Himantopus himantopus</i> (Black-winged Stilt)			
681.		<i>Hippocampus elongatus</i>			
682.	24491	<i>Hirundo neoxena</i> (Welcome Swallow)			
683.		<i>Hogna crispipes</i>			
684.		<i>Holasteron perth</i>			
685.		<i>Holconia westralia</i>			
686.	444	<i>Holcus lanatus</i> (Yorkshire Fog)	Y		
687.	445	<i>Holcus setiger</i> (Annual Fog)	Y		
688.		<i>Holoplatys dejongi</i>			
689.	6222	<i>Homalosciadium homalocarpum</i>			
690.	5816	<i>Homalospermum firmum</i>			
691.	448	<i>Hordeum glaucum</i> (Northern Barley Grass)	Y		
692.	3966	<i>Hovea pungens</i> (Devil's Pins, Puyenak)			
693.	3968	<i>Hovea trisperma</i> (Common Hovea)			
694.	12859	<i>Hovea trisperma</i> var. <i>trisperma</i>			
695.	12741	<i>Hyalosperma cotula</i>			
696.	5216	<i>Hybanthus calycinus</i> (Wild Violet)			
697.	5218	<i>Hybanthus debilissimus</i>			
698.		<i>Hydnoplicata convoluta</i>			
699.	26949	<i>Hydroclathrus clathratus</i>			
700.	6224	<i>Hydrocotyle blepharocarpa</i>			
701.	6226	<i>Hydrocotyle callicarpa</i> (Small Pennywort)			
702.	6240	<i>Hydrocotyle scutellifera</i>			
703.	25366	<i>Hydrophis elegans</i> (Elegant Seasnake, Bar-bellied Seasnake)			
704.	42410	<i>Hydrophis ornatus</i> (Ornate Reef Seasnake, Sea Snake)			
705.	43384	<i>Hydrophis platurus</i> (Yellow-bellied Seasnake)			
706.	26966	<i>Hypnea charoides</i>			
707.	35898	<i>Hypnea musciformis</i>			
708.	5817	<i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
709.	35070	<i>Hypocalymma angustifolium</i> subsp. <i>Swan Coastal Plain</i> (G.J. Keighery 16777)			
710.	5825	<i>Hypocalymma robustum</i> (Swan River Myrtle)			
711.	8086	<i>Hypochoeris glabra</i> (Smooth Catsear)	Y		
712.	9352	<i>Hypochoeris radicata</i> (Flat Weed, Cats-ear)	Y		
713.	1070	<i>Hypolaena exsulca</i>			
714.	17841	<i>Hypolaena pubescens</i>			
715.		<i>Hypoplectrodes nigroruber</i>			
716.		<i>Idiommatia blackwalli</i>			
717.		<i>Inegocia japonica</i>			
718.	48508	<i>Inocybe brunneidisca</i>			
719.	48521	<i>Inocybe froudii</i>			
720.	40870	<i>Inocybe rufuloides</i>	Y		
721.		<i>Iridaceae</i> sp.			Y
722.	910	<i>Isolepis cernua</i> (Nodding Club-rush)			
723.	20199	<i>Isolepis cernua</i> var. <i>cernua</i>			
724.	20200	<i>Isolepis cernua</i> var. <i>setiformis</i>			
725.	912	<i>Isolepis cyperoides</i>			

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726.	917 <i>Isolepis marginata</i> (Coarse Club-rush)			
727.	919 <i>Isolepis oldfieldiana</i>			
728.	924 <i>Isolepis stellata</i> (Star Club-rush)			
729.	<i>Isopeda leishmanni</i>			
730.	7396 <i>Isotoma hypocrateriformis</i> (Woodbridge Poison)			
731.	3992 <i>Isotropis cuneifolia</i> (Granny Bonnets)			
732.	19700 <i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>			
733.	8092 <i>Ixiolaena viscosa</i> (Sticky Ixiolaena)			
734.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
735.	4029 <i>Jacksonia sternbergiana</i> (Stinkwood, Kapur)			
736.	26985 <i>Jania micrarthrodia</i>			
737.	20454 <i>Juncus acutus</i> subsp. <i>acutus</i>	Y		
738.	1178 <i>Juncus bufonius</i> (Toad Rush)	Y		
739.	1185 <i>Juncus kraussii</i> (Sea Rush)			
740.	1186 <i>Juncus microcephalus</i>	Y		
741.	1188 <i>Juncus pallidus</i> (Pale Rush)			
742.	1189 <i>Juncus pauciflorus</i> (Loose Flower Rush)			
743.	1190 <i>Juncus planifolius</i> (Broadleaf Rush)			
744.	<i>Kanekonia queenslandica</i>			
745.	<i>Kanekonika queenslandica</i>			
746.	<i>Kangarosa properipes</i>			
747.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
748.	4044 <i>Kennedia prostrata</i> (Scarlet Runner)			
749.	24070 <i>Kogia breviceps</i> (Pygmy Sperm Whale)			
750.	5832 <i>Kunzea ericifolia</i> (Spearwood, Pondii)			
751.	15498 <i>Kunzea glabrescens</i> (Spearwood)			
752.	<i>Kyphosus sydneyanus</i>			
753.	<i>Laccaria lateritia</i>			
754.	20019 <i>Lachnagrostis filiformis</i>			
755.	19955 <i>Lachnagrostis plebeia</i>			
756.	19956 <i>Lachnagrostis preissii</i>			
757.	8096 <i>Lactuca serriola</i> (Prickly Lettuce)	Y		
758.	18585 <i>Lagenophora huegelii</i>			
759.	<i>Lagocephalus sceleratus</i>			
760.	467 <i>Lagurus ovatus</i> (Hare's Tail Grass)	Y		
761.	<i>Lampona cylindrata</i>			
762.	28342 <i>Landoltia punctata</i> (Thin Duckweed)			
763.	30920 <i>Larus crassirostris</i> (Black-tailed Gull)			Y
764.	24511 <i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull)			
765.	4052 <i>Latrobea tenella</i>			
766.	<i>Latrodectus hasseltii</i>			
767.	48408 <i>Laurencia dendroidea</i>			
768.	27000 <i>Laurencia elata</i>			
769.	27001 <i>Laurencia filiformis</i>			
770.	4958 <i>Lawrenzia spicata</i>			
771.	1307 <i>Laxmannia ramosa</i> (Branching Lily)			
772.	11911 <i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
773.	1309 <i>Laxmannia squarrosa</i>			
774.	7572 <i>Lechenaultia expansa</i>			
775.	7574 <i>Lechenaultia floribunda</i> (Free-flowering Leschenaultia)			
776.	7580 <i>Lechenaultia linarioides</i> (Yellow Leschenaultia)			
777.	27011 <i>Lenormandia latifolia</i>			
778.	39038 <i>Leocarpus fragilis</i>			
779.	44490 <i>Leontodon rhagadioloides</i>	Y		
780.	<i>Lepidosperma</i> ?aff. <i>costale</i>			Y
781.	925 <i>Lepidosperma angustatum</i>			
782.	937 <i>Lepidosperma longitudinale</i> (Pithy Sword-sedge)			
783.	940 <i>Lepidosperma pubisquameum</i>			
784.	<i>Lepidosperma pubisquameum</i> "flat form"			
785.	944 <i>Lepidosperma scabrum</i>			
786.	<i>Lepidosperma scabrum</i> (inland form)			Y
787.	<i>Lepidosperma</i> sp.			
788.	<i>Lepidosperma</i> sp. <i>Baldivis</i>			Y
789.	<i>Lepidosperma</i> sp. <i>Brixton Street broad inflorescence</i>			
790.	<i>Lepidosperma</i> sp. <i>Brixton Street broadish inflorescence</i>			Y
791.	<i>Lepidosperma</i> sp. <i>Brixton Street narrow inflorescence</i>			
792.	29150 <i>Lepidosperma</i> sp. <i>Margaret River (B.J. Lepschi 1841)</i>			
793.	945 <i>Lepidosperma squamatum</i>			
794.	<i>Lepidosperma squamatum</i> s.l.			
795.	946 <i>Lepidosperma striatum</i>			

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796.	<i>Lepidotrigla papilio</i>			
797.	1653 <i>Leporella fimbriata</i> (Hare Orchid)			
798.	1077 <i>Leptocarpus canus</i> (Hoary Twine-rush)			
799.	1078 <i>Leptocarpus coangustatus</i>			
800.	19833 <i>Leptocarpus laxus</i>			
801.	1080 <i>Leptocarpus scariosus</i>			
802.	15418 <i>Leptoceras menziesii</i>			
803.	2342 <i>Leptomeria cunninghamii</i>			
804.	2344 <i>Leptomeria empetriformis</i>			
805.	2350 <i>Leptomeria pauciflora</i> (Sparse-flowered Currant Bush)			
806.	2352 <i>Leptomeria preissiana</i>			
807.	27015 <i>Leptosomia rosea</i>			
808.	5850 <i>Leptospermum laevigatum</i> (Coast Teatree)	Y		
809.	1090 <i>Lepyrodia muirii</i>			
810.	25131 <i>Lerista distinguenda</i>			
811.	25133 <i>Lerista elegans</i>			
812.	6360 <i>Leucopogon australis</i> (Spiked Beard-heath)			
813.	6374 <i>Leucopogon conostephioides</i>			
814.	6427 <i>Leucopogon parviflorus</i> (Coast Beard-heath)			
815.	6434 <i>Leucopogon polymorphus</i>			
816.	6436 <i>Leucopogon propinquus</i>			
817.	7676 <i>Levenhookia pusilla</i> (Midget Stylewort)			
818.	<i>Levenhookia pusilla/stipitata</i>			
819.	7677 <i>Levenhookia stipitata</i> (Common Stylewort)			
820.	25005 <i>Lialis burtonis</i>			
821.	31280 <i>Lichenomphalia chromacea</i>			
822.	31333 <i>Lichenomphalia umbellifera</i>			
823.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
824.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
825.	4362 <i>Linum marginale</i> (Wild Flax)			
826.	36160 <i>Liparophyllum capitatum</i>			
827.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
828.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
829.	9289 <i>Lobelia anceps</i> (Angled Lobelia)			
830.	7407 <i>Lobelia rhytidosperra</i> (Wrinkled-seeded Lobelia)			
831.	7408 <i>Lobelia tenuior</i> (Slender Lobelia)			
832.	27043 <i>Lobophora variegata</i>			
833.	6515 <i>Logania vaginalis</i> (White Spray)			
834.	476 <i>Lolium perenne</i> (Perennial Ryegrass)	Y		
835.	478 <i>Lolium rigidum</i> (Wimmera Ryegrass)	Y		
836.	<i>Lolium sp. (annual)</i>			
837.	<i>Lomandra ?caespitosa</i>			
838.	<i>Lomandra ?preissii</i>			
839.	1223 <i>Lomandra caespitosa</i> (Tufted Mat Rush)			
840.	1228 <i>Lomandra hermaphrodita</i>			
841.	1231 <i>Lomandra maritima</i>			
842.	1232 <i>Lomandra micrantha</i> (Small-flower Mat-rush)			
843.	14542 <i>Lomandra micrantha</i> subsp. <i>micrantha</i>			
844.	1234 <i>Lomandra nigricans</i>			
845.	1239 <i>Lomandra preissii</i>			
846.	1243 <i>Lomandra sericea</i> (Silky Mat Rush)			
847.	1246 <i>Lomandra suaveolens</i>			
848.	25683 <i>Lonchura castaneothorax</i> (Chestnut-breasted Mannikin)			
849.	<i>Lophoictinia isura</i>			
850.	8564 <i>Lotus subbiflorus</i>	Y		
851.	1198 <i>Luzula meridionalis</i> (Field Woodrush)			
852.	39048 <i>Lycogala epidendrum</i>			
853.	<i>Lycosa ariadnae</i>			
854.	<i>Lycosa australicola</i>			
855.	<i>Lycosa godeffroyi</i>			
856.	1097 <i>Lyginia barbata</i>			
857.	<i>Lyginia barbata/imberbis</i>			
858.	18049 <i>Lyginia imberbis</i>			
859.	1656 <i>Lyperanthus serratus</i> (Rattle Beak Orchid)			
860.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
861.	6456 <i>Lysinema ciliatum</i> (Curry Flower)			
862.	6458 <i>Lysinema elegans</i>			
863.	5281 <i>Lythrum hyssopifolia</i> (Lesser Loosestrife)	Y		
864.	2839 <i>Macarthuria australis</i>			
865.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			

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866.	18119	<i>Macrozamia fraseri</i>			
867.	85	<i>Macrozamia riedlei</i> (Zamia, Djiridji)			
868.	24326	<i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
869.	25651	<i>Malurus lamberti</i> (Variegated Fairy-wren)			
870.	25654	<i>Malurus splendens</i> (Splendid Fairy-wren)			
871.	36480	<i>Malva arborea</i> (Tree Mallow)	Y		
872.	36522	<i>Malva pseudolavatera</i>	Y		
873.	24583	<i>Manorina flavigula</i> (Yellow-throated Miner)			
874.		<i>Maratus pavonis</i>			
875.		<i>Maxillcosta scabriceps</i>			
876.	4079	<i>Medicago polymorpha</i> (Burr Medic)	Y		
877.	25758	<i>Megalurus gramineus</i> (Little Grassbird)			
878.	36296	<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	Y		
879.	5900	<i>Melaleuca cuticularis</i> (Saltwater Paperbark)			
880.	5920	<i>Melaleuca huegelii</i> (Chenille Honeymyrtle)			
881.	13271	<i>Melaleuca huegelii</i> subsp. <i>huegelii</i>			
882.	13273	<i>Melaleuca incana</i> subsp. <i>incana</i>			
883.	5926	<i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
884.	5946	<i>Melaleuca pauciflora</i>			
885.	5952	<i>Melaleuca preissiana</i> (Moonah)			
886.	5959	<i>Melaleuca raphiophylla</i> (Swamp Paperbark)			
887.	5964	<i>Melaleuca seriatia</i>			
888.	18598	<i>Melaleuca systema</i>			
889.	5978	<i>Melaleuca teretifolia</i> (Banbar)			
890.	5980	<i>Melaleuca thymoides</i>			
891.	13280	<i>Melaleuca viminea</i> subsp. <i>viminea</i>			
892.	47997	<i>Melanodryas cucullata</i> (Hooded Robin)			
893.	4516	<i>Melia azedarach</i> (White Cedar)			
894.	4084	<i>Melilotus albus</i>	Y		
895.	4085	<i>Melilotus indicus</i>	Y		
896.	25663	<i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
897.	25184	<i>Menetia greyii</i>			
898.	25185	<i>Menetia maini</i>			
899.	25186	<i>Menetia surda</i> subsp. <i>crewelli</i>			
900.	25187	<i>Menetia surda</i> subsp. <i>surda</i>			
901.	6883	<i>Mentha pulegium</i> (Pennyroyal)	Y		
902.	24598	<i>Merops ornatus</i> (Rainbow Bee-eater)			
903.	955	<i>Mesomelaena pseudostygia</i>			
904.	957	<i>Mesomelaena tetragona</i> (Semaphore Sedge)			
905.		<i>Metavelifer multiradiatus</i>			
906.		<i>Meuschenia freycineti</i>			
907.		<i>Meuschenia hippocrepis</i>			
908.		<i>Microcanthus strigatus</i>			
909.		<i>Microcarbo melanoleucos</i>			
910.	25693	<i>Microeca fascinans</i> (Jacky Winter)			
911.	485	<i>Microlaena stipoides</i> (Weeping Grass)			
912.	1658	<i>Microtis atrata</i> (Swamp Mignonette Orchid)			
913.	15419	<i>Microtis media</i> subsp. <i>media</i>			
914.	8106	<i>Millotia tenuifolia</i> (Soft Millotia)			
915.	16693	<i>Minuartia mediterranea</i>	Y		
916.		<i>Missulena granulosa</i>			
917.		<i>Missulena hoggi</i>			
918.		<i>Monacanthus chinensis</i>			
919.	37440	<i>Monopsis debilis</i> var. <i>depressa</i>	Y		
920.	4662	<i>Monotaxis grandiflora</i> (Diamond of the Desert)			
921.	4666	<i>Monotaxis occidentalis</i>			
922.	19179	<i>Moraea flaccida</i> (One-leaf Cape Tulip)	Y		
923.	19438	<i>Moraea ochroleuca</i>	Y		
924.	25188	<i>Morethia adelaidensis</i>			
925.	25189	<i>Morethia boulengeri</i>			
926.	25191	<i>Morethia lineocellata</i>			
927.	25192	<i>Morethia obscura</i>			
928.	25193	<i>Morethia ruficauda</i> subsp. <i>exquisita</i>			
929.	25194	<i>Morethia ruficauda</i> subsp. <i>ruficauda</i>			
930.	25195	<i>Morethia storri</i>			
931.	48008	<i>Morus serrator</i> (Australasian Gannet)			
932.	2412	<i>Muehlenbeckia adpressa</i> (Climbing Lignum)			
933.	24223	<i>Mus musculus</i> (House Mouse)	Y		
934.		<i>Myandra bicincta</i>			
935.	25420	<i>Myobatrachus gouldii</i> (Turtle Frog)			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
936.	7291	<i>Myoporum insulare</i> (Blueberry Tree, boobialla)			
937.	27089	<i>Myriodesma peronii</i>			
938.	6189	<i>Myriophyllum crispatum</i>			
939.	6199	<i>Myriophyllum tillaeoides</i>			
940.		<i>Nanometa gentilis</i>			
941.		<i>Neatypus obliquus</i>			
942.	25248	<i>Neelaps bimaculatus</i> (Black-naped Snake)			
943.		<i>Neoodax balteatus</i>			
944.		<i>Neoodax</i> sp.			
945.	24738	<i>Neophema elegans</i> (Elegant Parrot)			
946.		<i>Neosebastes pandus</i>			
947.		<i>Nephila edulis</i>			
948.	492	<i>Neurachne alopecuroides</i> (Foxtail Mulga Grass)			
949.		<i>Nicodamus mainae</i>			
950.	6974	<i>Nicotiana glauca</i> (Tree Tobacco)	Y		
951.	25252	<i>Notechis scutatus</i> (Tiger Snake)			
952.		<i>Notolabrus parilus</i>			
953.	25197	<i>Notoscincus ornatus</i> subsp. <i>ornatus</i>			
954.	2401	<i>Nuytsia floribunda</i> (Christmas Tree, Mudja)			
955.	25564	<i>Nycticorax caledonicus</i> (Rufous Night Heron)			
956.	24194	<i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)			
957.		<i>Ocrisina parmeliae</i>			
958.	24407	<i>Ocyphaps lophotes</i> (Crested Pigeon)			
959.	6140	<i>Oenothera mollissima</i>	Y		
960.	14292	<i>Oenothera stricta</i> subsp. <i>stricta</i>	Y		
961.	8127	<i>Olearia axillaris</i> (Coastal Daisybush)			
962.	8149	<i>Olearia rudis</i> (Rough Daisybush)			
963.		<i>Olpidium brassicae</i>			Y
964.		<i>Omegophora armilla</i>			
965.		<i>Ommatoiulus moreletii</i>			
966.		<i>Onigocia pedimacula?</i>			
967.	7348	<i>Opercularia hispidula</i> (Hispid Stinkweed)			
968.	18255	<i>Opercularia vaginata</i> (Dog Weed)			
969.	12782	<i>Ophioglossum gramineum</i>			
970.		<i>Ophisurus serpens</i>			
971.	36177	<i>Ornduffia albiflora</i>			
972.	1372	<i>Ornithogalum arabicum</i> (Lesser Cape Lily)	Y		
973.	4113	<i>Ornithopus compressus</i> (Yellow Serradella)	Y		
974.	7122	<i>Orobancha minor</i> (Lesser Broomrape)	Y		
975.	24085	<i>Oryctolagus cuniculus</i> (Rabbit)	Y		
976.	27107	<i>Osmundaria prolifera</i>			
977.	4358	<i>Oxalis purpurea</i> (Largeflower Wood Sorrel)	Y		
978.	25680	<i>Pachycephala rufiventris</i> (Rufous Whistler)			
979.		<i>Pagrus auratus</i>			
980.		<i>Parablennius postocolomaculatus</i>			
981.	1667	<i>Paracaleana nigrita</i> (Flying Duck Orchid)			
982.		<i>Paraperis haackei</i>			
983.	516	<i>Parapholis incurva</i> (Coast Barbgrass)	Y		
984.	25253	<i>Parasuta gouldii</i>			
985.	25681	<i>Pardalotus punctatus</i> (Spotted Pardalote)			
986.	25682	<i>Pardalotus striatus</i> (Striated Pardalote)			
987.	24630	<i>Pardalotus striatus</i> subsp. <i>westraliensis</i> (Striated Pardalote)			
988.	527	<i>Paspalum dilatatum</i>	Y		
989.	528	<i>Paspalum distichum</i> (Water Couch)	Y		
990.	24642	<i>Passer montanus</i> (Eurasian Tree Sparrow)	Y		
991.	1550	<i>Patersonia occidentalis</i> (Purple Flag, Koma)			
992.	30471	<i>Patersonia occidentalis</i> var. <i>angustifolia</i>			
993.	30472	<i>Patersonia occidentalis</i> var. <i>occidentalis</i>			
994.	24674	<i>Pavo cristatus</i> (Common Peafowl, Indian Peafowl)	Y		
995.		<i>Pegasus volitans</i>			
996.	4343	<i>Pelargonium capitatum</i> (Rose Pelargonium)	Y		
997.	4346	<i>Pelargonium littorale</i>			
998.		<i>Pelates sexlineatus</i>			
999.	24648	<i>Pelecanus conspicillatus</i> (Australian Pelican)			
1000.		<i>Pempheris klunzingeri</i>			
1001.	40423	<i>Pentameris airoides</i> (False Hairgrass)	Y		
1002.		<i>Pentapodus vitta</i>			
1003.	6006	<i>Pericalymma ellipticum</i> (Swamp Teatree)			
1004.	16477	<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
1005.	16984	<i>Persicaria lapathifolia</i>	Y		

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1006.	2273	<i>Persoonia saccata</i> (Snottygobble)			
1007.	27126	<i>Petalonia fascia</i>			
1008.	48060	<i>Petrochelidon ariel</i> (Fairy Martin)			
1009.	48061	<i>Petrochelidon nigricans</i> (Tree Martin)			
1010.	48066	<i>Petroica boodang</i> (Scarlet Robin)			
1011.	24659	<i>Petroica goodenovii</i> (Red-capped Robin)			
1012.	20368	<i>Petrophile axillaris</i>			
1013.	2299	<i>Petrophile linearis</i> (Pixie Mops)			
1014.	2301	<i>Petrophile macrostachya</i>			
1015.	2309	<i>Petrophile serruriae</i>			
1016.	2312	<i>Petrophile striata</i>			
1017.	19825	<i>Petrorhagia dubia</i>	Y		
1018.	25697	<i>Phalacrocorax carbo</i> (Great Cormorant)			
1019.	25698	<i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
1020.	24667	<i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
1021.	25699	<i>Phalacrocorax varius</i> (Pied Cormorant)			
1022.	551	<i>Phalaris minor</i> (Lesser Canary Grass)	Y		
1023.	552	<i>Phalaris paradoxa</i> (Paradoxa Grass)	Y		
1024.	24409	<i>Phaps chalcoptera</i> (Common Bronzewing)			
1025.	25587	<i>Phaps elegans</i> (Brush Bronzewing)			
1026.	18529	<i>Philothea spicata</i> (Pepper and Salt)			
1027.		<i>Phlebia rufa</i>			
1028.		<i>Phlebia subceracea</i>			
1029.	1478	<i>Phlebocarya ciliata</i>			
1030.		<i>Pholiota communis</i>			
1031.		<i>Phryganoporus candidus</i>			
1032.	6734	<i>Phyla nodiflora</i> var. <i>nodiflora</i>	Y		
1033.	48071	<i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
1034.	24596	<i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
1035.	16177	<i>Phyllangium paradoxum</i>			
1036.	4675	<i>Phyllanthus calycinus</i> (False Boronia)			
1037.		<i>Phyllophryne scortea</i>			
1038.	20652	<i>Physalis angulata</i>	Y		
1039.	6983	<i>Physalis peruviana</i> (Cape Gooseberry)	Y		
1040.	39071	<i>Physarum luteolum</i>			Y
1041.	39079	<i>Physarum viride</i>			
1042.	2793	<i>Phytolacca octandra</i> (Red Ink Plant)	Y		
1043.		<i>Phytophthora cinnamomi</i>			
1044.	5252	<i>Pimelea lanata</i>			
1045.	5254	<i>Pimelea leucantha</i>			
1046.	18117	<i>Pimelea rosea</i> subsp. <i>rosea</i>			
1047.		<i>Pinkfloydia harveii</i>			
1048.	88	<i>Pinus radiata</i> (Radiata Pine)	Y		
1049.	7304	<i>Plantago major</i> (Greater Plantain)	Y		
1050.	24841	<i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
1051.	24842	<i>Platalea regia</i> (Royal Spoonbill)			
1052.		<i>Platycephalus longispinis</i>			
1053.	25720	<i>Platycercus icterotis</i> (Western Rosella)			
1054.	24747	<i>Platycercus spurius</i> (Red-capped Parrot)			
1055.	24750	<i>Platycercus zonarius</i> subsp. <i>semitorquatus</i> (Twenty-eight Parrot)			
1056.	6249	<i>Platysace compressa</i> (Tapeworm Plant)			
1057.	6253	<i>Platysace filiformis</i>			
1058.	4524	<i>Platytheca galioides</i>			
1059.	25509	<i>Pletholax gracilis</i> (Keeled Legless Lizard)			
1060.	25007	<i>Pletholax gracilis</i> subsp. <i>gracilis</i> (Keeled Legless Lizard)			
1061.		<i>Pluteus atomarginatus</i>			
1062.	38825	<i>Pluteus pauperculus</i>			
1063.	571	<i>Poa annua</i> (Winter Grass)	Y		
1064.	573	<i>Poa drummondiana</i> (Knotted Poa)			
1065.	577	<i>Poa poliformis</i> (Coastal Poa)			
1066.	578	<i>Poa porphyroclados</i>			
1067.		<i>Poaceae</i> sp.			
1068.	25703	<i>Podargus strigoides</i> (Tawny Frogmouth)			
1069.	24679	<i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
1070.	25704	<i>Podiceps cristatus</i> (Great Crested Grebe)			
1071.	8175	<i>Podolepis gracilis</i> (Slender Podolepis)			
1072.		<i>Podotheca ?gnaphalioides</i>			
1073.	8182	<i>Podotheca angustifolia</i> (Sticky Longheads)			
1074.	8183	<i>Podotheca chrysantha</i> (Yellow Podotheca)			
1075.	8184	<i>Podotheca gnaphalioides</i> (Golden Long-heads)			

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1076.	25510	<i>Pogona minor</i> (Dwarf Bearded Dragon)			
1077.	24907	<i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
1078.	24908	<i>Pogona minor</i> subsp. <i>mitchelli</i> (Dwarf Bearded Dragon)			
1079.	24909	<i>Pogona nullarbor</i> (Nullarbor Bearded Dragon)			
1080.	24681	<i>Poliocephalus poliocephalus</i> (Hoary-headed Grebe)			
1081.	27162	<i>Pollexfenia pedicellata</i>			
1082.	582	<i>Polypogon monspeliensis</i> (Annual Beardgrass)	Y		
1083.	583	<i>Polypogon tenellus</i>			
1084.		<i>Polyspina piosae</i>			
1085.	25722	<i>Polytelis anthopeplus</i> (Regent Parrot)			
1086.	4691	<i>Poranthera microphylla</i> (Small Poranthera)			
1087.		<i>Poranthera microphylla</i> /moorokatta			
1088.	25731	<i>Porphyrio porphyrio</i> (Purple Swamphen)			
1089.	24767	<i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
1090.	24769	<i>Porzana fluminea</i> (Australian Spotted Crake)			
1091.	25732	<i>Porzana pusilla</i> (Baillon's Crake)			
1092.	24771	<i>Porzana tabuensis</i> (Spotless Crake)			
1093.	1670	<i>Prasophyllum drummondii</i> (Swamp Leek Orchid)			
1094.	1676	<i>Prasophyllum hians</i> (Yawning Leek Orchid)			
1095.	10853	<i>Prasophyllum plumiforme</i>			
1096.		<i>Prionosternum nitidiceps</i>			
1097.		<i>Prionosternum scutatum</i>			
1098.	25199	<i>Proablepharus reginae</i>			
1099.	25200	<i>Proablepharus tenuis</i>			
1100.		<i>Psammoperca waigiensis</i>			
1101.	25201	<i>Pseudemoia baudini</i>			
1102.		<i>Pseudocalliurichthys goodladi</i>			
1103.		<i>Pseudocaranx dentex</i>			
1104.		<i>Pseudocaranx wrighti</i>			
1105.	36139	<i>Pseudocodium devriesii</i>	Y		
1106.	8189	<i>Pseudognaphalium luteoalbum</i> (Jersey Cudweed)			
1107.	25511	<i>Pseudonaja affinis</i> (Dugite)			
1108.	25259	<i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)			
1109.	42416	<i>Pseudonaja mengdeni</i> (Western Brown Snake)			
1110.	25433	<i>Pseudophryne guentheri</i> (Crawling Toadlet)			
1111.		<i>Pseudorhombus jenynsii</i>			
1112.	24702	<i>Pterodroma brevirostris</i> (Kerguelen Petrel)			
1113.		<i>Pterois antennata</i>			
1114.		<i>Pterostylis</i> aff. <i>nana</i>			
1115.		<i>Pterostylis</i> aff. <i>nana</i> long sepal			Y
1116.	15426	<i>Pterostylis aspera</i>			
1117.	48677	<i>Pterostylis ectypha</i>			
1118.	44723	<i>Pterostylis glebosa</i>			
1119.	1693	<i>Pterostylis recurva</i> (Jug Orchid)			
1120.	12217	<i>Pterostylis sanguinea</i>			
1121.		<i>Pterostylis</i> sp.			
1122.	1698	<i>Pterostylis vittata</i> (Banded Greenhood)			
1123.		<i>Pterygotrigla polyommata</i>			
1124.	2718	<i>Ptilotus drummondii</i> (Narrowleaf Mulla Mulla)			
1125.	11260	<i>Ptilotus drummondii</i> var. <i>drummondii</i> (Pussytail)			
1126.	2742	<i>Ptilotus manglesii</i> (Pom Poms, Mulamula)			
1127.	2751	<i>Ptilotus polystachyus</i> (Prince of Wales Feather)			
1128.	4177	<i>Pultenaea ochreatea</i>			
1129.	4181	<i>Pultenaea reticulata</i>			
1130.		<i>Purpureicephalus spurius</i>			
1131.	48835	<i>Pycnopus coccineus</i>			
1132.	25008	<i>Pygopus lepidopodus</i> (Common Scaly Foot)			
1133.	25009	<i>Pygopus nigriceps</i>			
1134.	16367	<i>Pyrorchis nigricans</i> (Red beaks, Elephants ears)			
1135.	8195	<i>Quinetia urvillei</i>			
1136.	2938	<i>Ranunculus trilobus</i> (Buttercup)	Y		
1137.	24243	<i>Rattus fuscipes</i> (Western Bush Rat)			
1138.	24245	<i>Rattus rattus</i> (Black Rat)	Y		
1139.		<i>Raveniella peckorum</i>			
1140.	24776	<i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
1141.	6012	<i>Regelia ciliata</i>			
1142.	8197	<i>Reichardia tingitana</i> (False Sowthistle)	Y		
1143.	3084	<i>Reseda lutea</i> (Cutleaf Mingnonette)	Y		
1144.	3085	<i>Reseda luteola</i> (Wild Mingnonette)	Y		
1145.	48434	<i>Reticularia lobata</i>			Y

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1146.	<i>Rhabdosargus sarba</i>			
1147.	11341 <i>Rhagodia baccata</i> subsp. <i>baccata</i>			
1148.	4822 <i>Rhamnus alaternus</i> (Buckthorn)	Y		
1149.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
1150.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
1151.	13300 <i>Rhodanthe citrina</i>			
1152.	<i>Rickenella fibula</i>			
1153.	14485 <i>Romulea flava</i> var. <i>minor</i>	Y		
1154.	1556 <i>Romulea rosea</i> (Guildford Grass)	Y		
1155.	14924 <i>Romulea rosea</i> var. <i>communis</i>	Y		
1156.	10970 <i>Rostraria cristata</i>	Y		
1157.	116 <i>Ruppia polycarpa</i>			
1158.	40431 <i>Rytidosperma acerosum</i>			
1159.	40426 <i>Rytidosperma occidentale</i>			
1160.	2906 <i>Sagina apetala</i> (Annual Pearlwort)	Y		
1161.	2908 <i>Sagina maritima</i>	Y		
1162.	30434 <i>Salsola australis</i>			
1163.	6483 <i>Samolus junceus</i>			
1164.	6484 <i>Samolus repens</i> (Creeping Brookweed)			
1165.	11647 <i>Samolus repens</i> var. <i>repens</i>			
1166.	27230 <i>Sarconema filiforme</i>			
1167.	<i>Sardinella lemuru</i>			
1168.	7368 <i>Scabiosa atropurpurea</i> (Purple Pincushion)	Y		
1169.	7595 <i>Scaevola anchusifolia</i>			
1170.	7603 <i>Scaevola canescens</i> (Grey Scaevola)			
1171.	7606 <i>Scaevola crassifolia</i> (Thick-leaved Fan-flower)			
1172.	13152 <i>Scaevola thesioides</i> subsp. <i>thesioides</i>			
1173.	48834 <i>Schinus terebinthifolia</i>	Y		
1174.	978 <i>Schoenus brevisetis</i>			
1175.	982 <i>Schoenus clandestinus</i>			
1176.	984 <i>Schoenus curvifolius</i>			
1177.	986 <i>Schoenus efoliatus</i>			
1178.	992 <i>Schoenus grandiflorus</i> (Large Flowered Bogrush)			
1179.	1004 <i>Schoenus nitens</i> (Shiny Bog-rush)			
1180.	1007 <i>Schoenus pedicellatus</i>			
1181.	1017 <i>Schoenus subbulbosus</i>			
1182.	6033 <i>Scholtzia involucreta</i> (Spiked Scholtzia)			
1183.	<i>Scleroderma cepa</i>			
1184.	<i>Scobinichthys granulatus</i>			
1185.	<i>Scorpaena sumptuosa</i>			
1186.	<i>Scorpius georgianus</i>			
1187.	35911 <i>Scytosiphon lomentaria</i>			
1188.	6 <i>Selaginella gracillima</i> (Tiny Clubmoss)			
1189.	25878 <i>Senecio condylus</i>			
1190.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
1191.	<i>Servaea melaina</i>			
1192.	<i>Servaea spinibarbis</i>			
1193.	27279 <i>Shepleya claviformis</i>			Y
1194.	2909 <i>Silene gallica</i> (French Catchfly)	Y		
1195.	15972 <i>Silene gallica</i> var. <i>gallica</i>	Y		
1196.	<i>Sillago bassensis</i>			
1197.	<i>Sillago burrus</i>			
1198.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
1199.	<i>Simaetha tenuior</i>			
1200.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
1201.	25267 <i>Simoselaps littoralis</i> (West Coast Banded Snake)			
1202.	<i>Siphamia cuneiceps</i>			
1203.	<i>Siphonognathus argyrophanes</i>			
1204.	<i>Siphonognathus radiatus</i>			
1205.	42785 <i>Sirophyalis trinodis</i>			
1206.	<i>Smeringopus natalensis</i>			
1207.	30948 <i>Smicronis brevirostris</i> (Weebill)			
1208.	7020 <i>Solanum linnaeanum</i> (Apple of Sodom)	Y		
1209.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
1210.	7037 <i>Solanum symonii</i>			
1211.	27281 <i>Solieria robusta</i>			
1212.	8230 <i>Sonchus asper</i> (Rough Sowthistle)	Y		
1213.	9367 <i>Sonchus hydrophilus</i> (Native Sowthistle)			
1214.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
1215.	1312 <i>Sowerbaea laxiflora</i> (Purple Tassels)			

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1216.	4211 <i>Sphaerolobium vimineum</i> (Leafless Globe Pea)			
1217.	<i>Sphyraena obtusata</i>			
1218.	635 <i>Sporobolus virginicus</i> (Marine Couch)			
1219.	27310 <i>Spyridia filamentosa</i>			
1220.	4828 <i>Spyridium globulosum</i> (Basket Bush)			
1221.	<i>Squatina australis</i>			
1222.	<i>Steatoda grossa</i>			
1223.	2918 <i>Stellaria media</i> (Chickweed)	Y		
1224.	39087 <i>Stemonitis splendens</i>			
1225.	19403 <i>Stenopetalum gracile</i>			
1226.	48594 <i>Sternula nereis</i> (Fairy Tern)			
1227.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
1228.	<i>Stigmatopora argus</i>			
1229.	<i>Stigmatopora nigra</i>			
1230.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
1231.	<i>Strabozebrias cancellatus</i>			
1232.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
1233.	25589 <i>Streptopelia chinensis</i> (Spotted Turtle-Dove)	Y		
1234.	30951 <i>Streptopelia chinensis</i> subsp. <i>tigrina</i> (Spotted Turtle-Dove)	Y		
1235.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
1236.	24942 <i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
1237.	25831 <i>Stylidium araeophyllum</i> (Stilt Walker)			
1238.	<i>Stylidium araeophyllum/neurophyllum</i>			
1239.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
1240.	7694 <i>Stylidium bulbiferum</i> (Circus Triggerplant)			
1241.	7696 <i>Stylidium calcaratum</i> (Book Triggerplant)			
1242.	7699 <i>Stylidium carnosum</i> (Fleshy-leaved Triggerplant)			
1243.	7717 <i>Stylidium divaricatum</i> (Daddy-long-legs)			
1244.	7718 <i>Stylidium diversifolium</i> (Touch-me-not)			
1245.	7734 <i>Stylidium guttatum</i> (Dotted Triggerplant)			
1246.	25801 <i>Stylidium hesperium</i>			
1247.	7774 <i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
1248.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
1249.	25806 <i>Stylidium scariosum</i>			
1250.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
1251.	7806 <i>Stylidium utricularioides</i> (Pink Fan Triggerplant)			
1252.	1260 <i>Stypandra glauca</i> (Blind Grass)			
1253.	24259 <i>Sus scrofa</i> (Pig)	Y		
1254.	2326 <i>Synaphea polymorpha</i> (Albany Synaphea, Pinda)			
1255.	2329 <i>Synaphea spinulosa</i>			
1256.	15532 <i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>			
1257.	<i>Synchiropus papilio</i>			
1258.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
1259.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
1260.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
1261.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
1262.	<i>Tamopsis distinguenda</i>			
1263.	<i>Tamopsis perthensis</i>			
1264.	24167 <i>Tarsipes rostratus</i> (Honey Possum, Noolbenger)			
1265.	<i>Tasmanicosa leuckartii</i>			
1266.	20135 <i>Taxandria linearifolia</i>			
1267.	4256 <i>Templetonia retusa</i> (Cockies Tongues)			
1268.	2791 <i>Tersonia cyathiflora</i> (Button Creeper)			
1269.	<i>Tetragnatha demissa</i>			
1270.	<i>Tetragnatha nitens</i>			
1271.	<i>Tetragnatha valida</i>			
1272.	2820 <i>Tetragonia decumbens</i> (Sea Spinach)	Y		
1273.	1036 <i>Tetraria octandra</i>			
1274.	<i>Thelymitra</i> aff. <i>pauciflora</i>			
1275.	1702 <i>Thelymitra campanulata</i> (Shirt Orchid)			
1276.	1705 <i>Thelymitra crinita</i> (Blue Lady Orchid)			
1277.	1708 <i>Thelymitra fuscolutea</i> (Chestnut Sun Orchid)			
1278.	11143 <i>Thelymitra graminea</i>			
1279.	11053 <i>Thelymitra macrophylla</i>			
1280.	1710 <i>Thelymitra mucida</i> (Plum Orchid)			
1281.	20731 <i>Thelymitra vulgaris</i>			
1282.	20728 <i>Thelymitra xanthotricha</i>			
1283.	5077 <i>Thomasia cognata</i>			
1284.	5105 <i>Thomasia triphylla</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
1285.	2644 <i>Threlkeldia diffusa</i> (Coast Bonefruit)			
1286.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
1287.	<i>Thysanophrys cirronasus</i>			
1288.	<i>Thysanotus ?thyrsoides</i>			
1289.	1318 <i>Thysanotus arbuscula</i>			
1290.	1319 <i>Thysanotus arenarius</i>			
1291.	1328 <i>Thysanotus dichotomus</i> (Branching Fringe Lily)			
1292.	1338 <i>Thysanotus manglesianus</i> (Fringed Lily)			
1293.	<i>Thysanotus manglesianus/patersonii</i> complex			
1294.	1339 <i>Thysanotus multiflorus</i> (Many-flowered Fringe Lily)			
1295.	1343 <i>Thysanotus patersonii</i>			
1296.	<i>Thysanotus</i> sp.			
1297.	1351 <i>Thysanotus sparteus</i>			
1298.	1357 <i>Thysanotus thyrsoides</i>			
1299.	1358 <i>Thysanotus triandrus</i>			
1300.	25202 <i>Tiliqua multifasciata</i> (Central Blue-tongue)			
1301.	25203 <i>Tiliqua occipitalis</i> (Western Bluetongue)			
1302.	25519 <i>Tiliqua rugosa</i>			
1303.	25204 <i>Tiliqua rugosa</i> subsp. <i>aspera</i>			
1304.	25207 <i>Tiliqua rugosa</i> subsp. <i>rugosa</i>			
1305.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
1306.	<i>Torquigener pleurogramma</i>			
1307.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
1308.	38845 <i>Trechispora farinacea</i>			
1309.	1481 <i>Tribonanthes australis</i> (Southern Tiurndin)			
1310.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
1311.	4383 <i>Tribulus terrestris</i> (Caltrop)	Y		
1312.	39097 <i>Trichia decipiens</i>			
1313.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
1314.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
1315.	24158 <i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (Common Brushtail Possum)			
1316.	1361 <i>Tricoryne elatior</i> (Yellow Autumn Lily)			
1317.	1363 <i>Tricoryne tenella</i>			
1318.	1038 <i>Tricostularia neesii</i>			
1319.	<i>Tridentiger trigonocephalus</i>			
1320.	17145 <i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Y		
1321.	4292 <i>Trifolium campestre</i> (Hop Clover)	Y		
1322.	<i>Trifolium campestre/dubium</i>			
1323.	4293 <i>Trifolium cernuum</i> (Drooping Flower Clover)	Y		
1324.	4298 <i>Trifolium hirtum</i> (Rose Clover)	Y		
1325.	14738 <i>Trifolium resupinatum</i> var. <i>resupinatum</i>	Y		
1326.	147 <i>Triglochin mucronata</i>			
1327.	151 <i>Triglochin striata</i>			
1328.	708 <i>Triticum aestivum</i> (Wheat)	Y		
1329.	4360 <i>Tropaeolum majus</i> (Garden Nasturtium)	Y		
1330.	<i>Trygonoptera personata</i>			
1331.	<i>Trygonorrhina fasciata</i>			
1332.	39103 <i>Tubifera ferruginosa</i>			
1333.	48147 <i>Turnix varius</i> (Painted Button-quail)			
1334.	24851 <i>Turnix velox</i> (Little Button-quail)			
1335.	30954 <i>Tursiops aduncus</i> (Indo-Pacific Bottlenose Dolphin)			
1336.	24069 <i>Tursiops truncatus</i> (Bottlenose Dolphin)			
1337.	99 <i>Typha orientalis</i> (Bulrush, Cumbungi)			
1338.	25762 <i>Tyto alba</i> (Barn Owl)			
1339.	24852 <i>Tyto alba</i> subsp. <i>delicatula</i> (Barn Owl)			
1340.	27352 <i>Ulva lactuca</i>			
1341.	27354 <i>Ulva rigida</i>			
1342.	<i>Upeneichthys lineatus</i>			
1343.	<i>Upeneichthys stotti</i>			
1344.	<i>Urodacus novaehollandiae</i>			
1345.	8254 <i>Urospermum picroides</i> (False Hawkbit)	Y		
1346.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
1347.	38388 <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Y		
1348.	1767 <i>Urtica urens</i> (Small Nettle)	Y		
1349.	<i>Vanacampus poecilolaemus</i>			
1350.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
1351.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
1352.	25227 <i>Varanus tristis</i> subsp. <i>tristis</i> (Racehorse Monitor)			
1353.	8257 <i>Vellereophyton dealbatum</i> (White Cudweed)	Y		
1354.	<i>Venator immansueta</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
1355.	<i>Venatrix pullastra</i>			
1356.	7107 <i>Verbascum virgatum</i> (Twiggy Mullein)	Y		
1357.	15725 <i>Verbesina encelioides</i>	Y		
1358.	7108 <i>Veronica arvensis</i> (Wall Speedwell)	Y		
1359.	7111 <i>Veronica persica</i> (Creeping Speedwell)	Y		
1360.	15432 <i>Verticordia densiflora</i> var. <i>densiflora</i>			
1361.	24206 <i>Vespadelus regulus</i> (Southern Forest Bat)			
1362.	4320 <i>Vicia hirsuta</i> (Hairy Vetch)	Y		
1363.	11474 <i>Vicia sativa</i> subsp. <i>nigra</i>	Y		
1364.	27360 <i>Vidalia spiralis</i>			
1365.	4325 <i>Viminaria juncea</i> (Swishbush, Koweda)			
1366.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
1367.	722 <i>Vulpia bromoides</i> (Squirrel Tail Fescue)	Y		
1368.	11137 <i>Vulpia fasciculata</i>	Y		
1369.	724 <i>Vulpia myuros</i> (Rat's Tail Fescue)	Y		
1370.	12052 <i>Vulpia myuros</i> forma <i>megalaria</i>	Y		
1371.	33101 <i>Vulpia myuros</i> forma <i>myuros</i>	Y		
1372.	<i>Vulpia</i> sp.			
1373.	7384 <i>Wahlenbergia capensis</i> (Cape Bluebell)	Y		
1374.	7389 <i>Wahlenbergia preissii</i>			
1375.	8282 <i>Waitzia suaveolens</i> (Fragrant Waitzia)			
1376.	18118 <i>Watsonia meriana</i> var. <i>meriana</i>	Y		
1377.	6658 <i>Wilsonia backhousei</i> (Narrow-leaf <i>Wilsonia</i>)			
1378.	6659 <i>Wilsonia humilis</i> (Silky <i>Wilsonia</i>)			
1379.	1394 <i>Wurmbea dioica</i> (Early Nancy)			
1380.	12072 <i>Wurmbea dioica</i> subsp. <i>alba</i>			
1381.	1398 <i>Wurmbea monantha</i>			
1382.	28194 <i>Xanthoria parietina</i>			
1383.	1256 <i>Xanthorrhoea preissii</i> (Grass tree, Palga)			
1384.	<i>Xanthorrhoea</i> sp.			
1385.	<i>Xanthosia</i> ? <i>huegelii</i>			Y
1386.	6289 <i>Xanthosia huegelii</i>			
1387.	2331 <i>Xylomelum occidentale</i> (Woody Pear, Djandin)			
1388.	1049 <i>Zantedeschia aethiopica</i> (Arum Lily)	Y		
1389.	<i>Zebraplatys fractivittata</i>			
1390.	<i>Zebrias cancellatus</i>			
1391.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

Conservation Codes

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

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

APPENDIX 3

Protected Matters Search Tool Report



EPBC Act Protected Matters Report

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

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

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

Report created: 18/11/20 19:19:50

[Summary](#)

[Details](#)

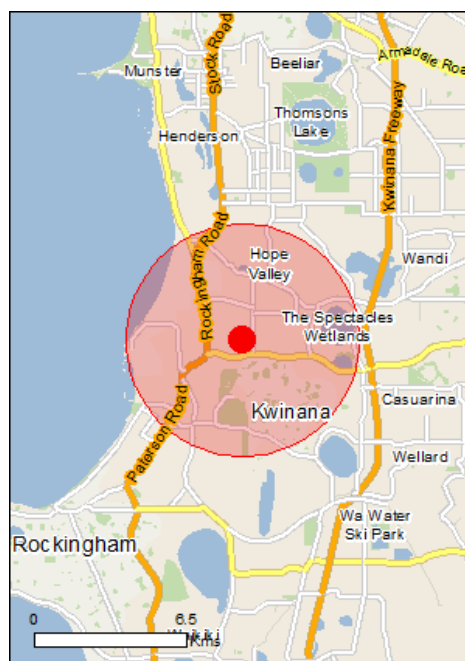
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

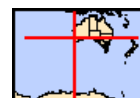
[Acknowledgements](#)



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

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	45
Listed Migratory Species:	43

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:	67
Whales and Other Cetaceans:	12
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:	3
Regional Forest Agreements:	None
Invasive Species:	36
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)		[Resource Information]
Name	Proximity	
Forrestdale and thomsons lakes	Within 10km of Ramsar	
Peel-yalgorup system	30 - 40km upstream	

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
Sedgeland in Holocene dune swales of the southern Swan Coastal Plain	Endangered	Community likely to occur within area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to 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	Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or

Name	Status	Type of Presence related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur

Name	Status	Type of Presence within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat 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
Plants		
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat likely to occur within area
Drakaea elastica Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sharks		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area

Name	Status	Type of Presence
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Flesh-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Hydroprogne caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Onychoprion anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Balaena glacialis australis Southern Right Whale [75529]	Endangered*	Breeding known to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

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
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Larus pacificus Pacific Gull [811]		Foraging, feeding or related behaviour may occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species

Name	Threatened	Type of Presence
Pachyptila turtur Fairy Prion [1066]		habitat likely to occur within area Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Foraging, feeding or related behaviour likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Sterna anaethetus Bridled Tern [814]		Foraging, feeding or related behaviour likely to occur within area
Sterna caspia Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse		Species or species

Name	Threatened	Type of Presence
[66234]		habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammals		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species

Name	Status	Type of Presence
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		habitat may occur within area Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Leda	WA
Unnamed WA39584	WA
Unnamed WA39752	WA

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur 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
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista 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

Name	Status	Type of Presence area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Opuntia spp. Prickly Pears [82753]		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
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Nationally Important Wetlands		[Resource Information]
Name	State	
Spectacles Swamp	WA	

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-32.22178 115.80106

Acknowledgements

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

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

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

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

APPENDIX 4

Conservation Codes

Conservation Codes for Western Australian Flora and Fauna

Specially protected fauna or flora are species* which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such. Conservation codes have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018*.

T **Threatened species – Schedules 1-4**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

- **Threatened fauna** is that subset of ‘Specially Protected Fauna’ listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.
- **Threatened flora** is that subset of ‘Rare Flora’ listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

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

CR Critically endangered species

Threatened species considered to be “*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be “*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU Vulnerable species

Threatened species considered to be “*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife*

Conservation (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

EX Presumed extinct species

Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

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; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

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 other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

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

Priority 1: Poorly-known species

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

Priority 2: Poorly-known species

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

Priority 3: Poorly-known species

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

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

- (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
- (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.
- (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

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

Western Australian Ecological Communities

Threatened Ecological Communities

The BC Act provides for the statutory listing of threatened ecological communities (TECs) by the Minister.

Presumed Totally Destroyed (PD)

An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.

Critically Endangered (CR)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.

Endangered (EN)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.

Vulnerable (VU)

An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

Priority Ecological Communities

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

Priority One: Poorly-known ecological communities

Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤ 5 occurrences or a total area of $\leq 100\text{ha}$).

Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

Priority Two: Poorly-known ecological communities

Communities that are known from few occurrences with a restricted distribution (generally ≤ 10 occurrences or a total area of $\leq 200\text{ha}$). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

Priority Three: Poorly known ecological communities

- (i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:
- (ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), or;
- (iii) munities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc.

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

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

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

Priority Five: Conservation Dependent ecological communities

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

Commonwealth of Australia Conservation Codes

Threatened Flora and Fauna

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

Extinct

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

Extinct in the wild

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

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

Critically endangered

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

Endangered

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

Vulnerable

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

Conservation dependent

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

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

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

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

Threatened Ecological Communities

Threatened Ecological communities under the EPBC Act are listed in three categories.

Critically endangered

If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).

Endangered

If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).

Vulnerable

If, at that time, an ecological community is not critically endangered or endangered, but is facing a high risk of extinction in the wild in the medium-term future (indicative timeframe being the next 50 years).

APPENDIX 5

DBCA TEC/PEC Database Search

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
1877	SCP26a	Melaleuca huegelii - Melaleuca systema shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994))	Endangered		1	ANKETELL01		500	318	211
591	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	5	IP14-07	MYIP14-13	2000	334	219
596	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	1	IP14-08		2000	335	220
942	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	1	IP14-01		2000	339	224
598	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	1	IP14-03		2000	340	225
1908	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	1	IP14-04		2000	341	226
889	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	5	IP14-09CENTRE	IP14-PLOT3	2000	342	227
888	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	2	IP14-10NORTH	IP14-10SOUTH	2000	343	228
594	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	1	IP14-02		2000	344	229
593	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	3	IP14 PLOT1	IP14-06	2000	346	231
605	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	1	COOL15		2000	348	233
603	SCP19b	Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994).	Critically Endangered	Endangered	1	COOL14		2000	349	234
2642	SCP24	Northern Spearwood shrublands and woodlands	Priority 3		2	MTB01	MTB_West	500	1383	1107
3610	SCP24	Northern Spearwood shrublands and woodlands	Priority 3		1	MTB_East		500	1750	1431

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
110829	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05111		200	107828	20024
110836	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05118		200	107835	20031
110837	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05119		200	107836	20032
110859	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05141		200	107858	20054
110861	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05143		200	107860	20056
110862	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05144		200	107861	20057
111284	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05566		200	108283	20479
111285	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05567		200	108284	20480
111286	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05568		200	108285	20481
111287	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05569		200	108286	20482
111288	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05570		200	108287	20483
111291	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05573		200	108290	20486
111440	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05722		200	108439	20635
111441	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05723		200	108440	20636
111442	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05724		200	108441	20637
111443	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05725		200	108442	20638
111444	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05726		200	108443	20639
111445	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05727		200	108444	20640
111446	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05728		200	108445	20641

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
111538	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05820		200	108537	20733
111586	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05868		200	108585	20781
111587	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05869		200	108586	20782
111588	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05870		200	108587	20783
111589	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05871		200	108588	20784
111625	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05907		200	108624	20820
111626	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05908		200	108625	20821
111627	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05909		200	108626	20822
111628	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld05910		200	108627	20823
111904	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06186		200	108903	21099
111905	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06187		200	108904	21100
111906	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06188		200	108905	21101
111907	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06189		200	108906	21102
111908	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06190		200	108907	21103
111947	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06229		200	108946	21142
111948	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06230		200	108947	21143
111949	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06231		200	108948	21144
111950	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06232		200	108949	21145
112016	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06298		200	109015	21211

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
112390	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06672		200	109389	21585
112391	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06673		200	109390	21586
112392	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06674		200	109391	21587
112393	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06675		200	109392	21588
112394	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06676		200	109393	21589
112481	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06763		200	109480	21676
112540	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06822		200	109539	21735
112541	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06823		200	109540	21736
112555	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06837		200	109554	21750
112556	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06838		200	109555	21751
112601	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06883		200	109600	21796
112630	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06912		200	109629	21825
112631	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06913		200	109630	21826
112660	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06942		200	109659	21855
112734	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07016		200	109733	21929
112797	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07079		200	109796	21992
112804	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07086		200	109803	21999
112805	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07087		200	109804	22000
112928	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07210		200	109927	22123

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
112929	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07211		200	109928	22124
112930	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07212		200	109929	22125
112931	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07213		200	109930	22126
112943	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07225		200	109942	22138
112944	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07226		200	109943	22139
112945	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07227		200	109944	22140
112946	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07228		200	109945	22141
112948	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07230		200	109947	22143
112978	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07260		200	109977	22173
112979	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07261		200	109978	22174
112980	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07262		200	109979	22175
112987	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07269		200	109986	22182
113015	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07297		200	110014	22210
113046	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07328		200	110045	22239
113047	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07329		200	110046	22240
113083	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07365		200	110082	22276
113110	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07392		200	110109	22303
113124	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld07406		200	110123	22317
116380	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10662		200	113379	25571

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
116381	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10663		200	113380	25572
116382	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10664		200	113381	25573
116383	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10665		200	113382	25574
116384	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10666		200	113383	25575
116385	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10667		200	113384	25576
116386	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10668		200	113385	25577
116390	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10672		200	113389	25581
116391	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10673		200	113390	25582
116392	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10674		200	113391	25583
116466	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10748		200	113465	25657
116467	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10749		200	113466	25658
116468	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10750		200	113467	25659
116469	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10751		200	113468	25660
116472	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10754		200	113471	25663
116473	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10755		200	113472	25664
116480	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10762		200	113479	25671
116481	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10763		200	113480	25672
116482	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10764		200	113481	25673
116483	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10765		200	113482	25674

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116484	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10766		200	113483	25675
116485	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10767		200	113484	25676
116486	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10768		200	113485	25677
116487	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10769		200	113486	25678
116573	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10855		200	113572	25764
116574	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10856		200	113573	25765
116575	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10857		200	113574	25766
116576	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10858		200	113575	25767
116577	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10859		200	113576	25768
116578	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10860		200	113577	25769
116579	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10861		200	113578	25770
116580	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10862		200	113579	25771
116581	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10863		200	113580	25772
116582	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10864		200	113581	25773
116583	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10865		200	113582	25774
116584	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10866		200	113583	25775
116585	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10867		200	113584	25776
116586	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10868		200	113585	25777
116587	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10869		200	113586	25778

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116588	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10870		200	113587	25779
116592	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10874		200	113591	25783
116593	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10875		200	113592	25784
116594	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10876		200	113593	25785
116595	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10877		200	113594	25786
116596	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10878		200	113595	25787
116597	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10879		200	113596	25788
116598	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10880		200	113597	25789
116599	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10881		200	113598	25790
116600	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10882		200	113599	25791
116601	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10883		200	113600	25792
116602	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10884		200	113601	25793
116603	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10885		200	113602	25794
116605	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10887		200	113604	25796
116606	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10888		200	113605	25797
116607	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10889		200	113606	25798
116608	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10890		200	113607	25799
116609	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10891		200	113608	25800
116610	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10892		200	113609	25801

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116611	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10893		200	113610	25802
116612	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10894		200	113611	25803
116613	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10895		200	113612	25804
116614	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10896		200	113613	25805
116615	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10897		200	113614	25806
116616	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10898		200	113615	25807
116617	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10899		200	113616	25808
116618	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10900		200	113617	25809
116619	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10901		200	113618	25810
116621	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10903		200	113620	25812
116622	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10904		200	113621	25813
116624	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10906		200	113623	25815
116625	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10907		200	113624	25816
116627	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10909		200	113626	25818
116631	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10913		200	113630	25822
116634	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10916		200	113633	25825
116637	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10919		200	113636	25828
116638	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10920		200	113637	25829
116639	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10921		200	113638	25830

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116640	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10922		200	113639	25831
116641	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10923		200	113640	25832
116642	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10924		200	113641	25833
116643	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10925		200	113642	25834
116644	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10926		200	113643	25835
116646	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10928		200	113645	25837
116647	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10929		200	113646	25838
116648	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10930		200	113647	25839
116649	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10931		200	113648	25840
116650	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10932		200	113649	25841
116651	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10933		200	113650	25842
116652	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10934		200	113651	25843
116653	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10935		200	113652	25844
116654	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10936		200	113653	25845
116655	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10937		200	113654	25846
125345	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0244		500	122414	120663
125346	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0245		500	122415	120664

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
125347	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0246		500	122416	120665
125348	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0247		500	122417	120666
125349	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0248		500	122418	120667
125350	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0249		500	122419	120668
125351	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0250		500	122420	120669
125352	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0251		500	122421	120670
125353	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0252		500	122422	120671
125354	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0253		500	122423	120672
125356	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0255		500	122425	120674
125505	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0404		500	122574	120823
125925	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0824		500	122994	121243
125926	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0825		500	122995	121244

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
125928	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0827		500	122997	121246
125929	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0828		500	122998	121247
125930	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0829		500	122999	121248
126008	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0907		500	123077	121326
126009	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0908		500	123078	121327
126010	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0909		500	123079	121328
126011	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0910		500	123080	121329
126012	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0911		500	123081	121330
126013	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0912		500	123082	121331
126014	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0913		500	123083	121332
126015	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0914		500	123084	121333
126016	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0915		500	123085	121334

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
126017	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0916		500	123086	121335
126018	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0917		500	123087	121336
126019	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0918		500	123088	121337
126020	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0919		500	123089	121338
126021	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0920		500	123090	121339
126022	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0921		500	123091	121340
126023	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0922		500	123092	121341
126024	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0923		500	123093	121342
126025	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0924		500	123094	121343
126026	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0925		500	123095	121344
126027	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0926		500	123096	121345
126028	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0927		500	123097	121346

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
126029	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld0928		500	123098	121347
126156	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1055		500	123225	121474
126157	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1056		500	123226	121475
126158	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1057		500	123227	121476
126159	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1058		500	123228	121477
126160	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1059		500	123229	121478
126161	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1060		500	123230	121479
126162	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1061		500	123231	121480
126163	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1062		500	123232	121481
126164	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1063		500	123233	121482
126165	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1064		500	123234	121483
126166	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1065		500	123235	121484

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
126167	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1066		500	123236	121485
126168	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1067		500	123237	121486
126169	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1068		500	123238	121487
126170	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1069		500	123239	121488
126171	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1070		500	123240	121489
126172	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1071		500	123241	121490
126173	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1072		500	123242	121491
126174	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1073		500	123243	121492
126175	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1074		500	123244	121493
126176	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1075		500	123245	121494
126177	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1076		500	123246	121495
126178	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1077		500	123247	121496

OCC_UNI QUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID	ORIG_FID
126179	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1078		500	123248	121497
126180	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1079		500	123249	121498
126181	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1080		500	123250	121499
126182	Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered	1	TuartWld1081		500	123251	121500
112554	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld06836		200	109553	21749
116589	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10871		200	113588	25780
116604	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10886		200	113603	25795
116620	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10902		200	113619	25811
116623	Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	Endangered	1	BanksiaWld10905		200	113622	25814
3118	SCP25	Southern Eucalyptus gomphocephala-Agonis flexuosa woodlands	Priority 3		1	SEW4		200	0	617
3119	SCP25	Southern Eucalyptus gomphocephala-Agonis flexuosa woodlands	Priority 3		1	SEW5		200	0	618

APPENDIX 6

Flora Species List

SPECIES LIST – M70/656 Abercrombie Road, Postans

GYMNOSPERMS

CYCADACEAE

Macrozamia riedlei

MONOCOTYLEDONS

ANARTHRIACEAE

Lyginia barbata

ASPARAGACEAE

**Asparagus asparagoides*

Chamaescilla corymbosa

Dichopogon capillipes

Lomandra hermaphrodita

Lomandra caespitosa

Lomandra maritima

Lomandra suaveolens

Sowerbaea laxiflora

Thysanotus patersonii

Thysanotus sparteus

ASPHODELACEAE

**Trachyandra divaricata*

COLCHICACEAE

Burchardia congesta

CYPERACEAE

Chaetospora curvifolia

Lepidosperma leptostachyum

Lepidosperma pubisquameum

Lepidosperma scabrum

Mesomelaena pseudostygia

Schoenus grandiflorus

Schoenus latitans/clandestinus

HAEMODORACEAE

Anigozanthos manglesii

Conostylis aculeata subsp. *aculeata*

HEMEROCALLIDACEAE

Corynotheca micrantha

Dianella revoluta var. *divaricata*

Tricoryne elatior

IRIDACEAE

**Freesia alba x leichtlinii*

**Gladiolus caryophyllaceus*

**Moraea flaccida*

ORCHIDACEAE

Caladenia flava

Caladenia latifolia

Microtis media

Pterostylis vittata

POACEAE

**Avena fatua*

**Briza maxima*

**Cenchrus setaceus*

**Ehrharta calycina*

**Lagurus ovatus*

**Lolium perenne*

RESTIONACEAE

Desmocladius flexuosus

XANTHORRHOEACEAE

Xanthorrhoea preissii

DICOTYLEDONS

AIZOACEAE

**Carpobrotus edulis*

AMARANTHACEAE

Ptilotus drummondii

Ptilotus polystachyus

ARALIACEAE

Trachymene pilosa

ASTERACEAE

**Arctotheca calendula*

**Hypochaeris glabra*

Podolepis gracilis

Senecio condylus

Senecio pinnatifolius

**Sonchus oleraceus*

**Urospermum picroides*

**Ursinia anthemoides*

BRASSICACEAE

**Raphanus raphanistrum*

CARYOPHYLLACEAE

**Cerastium glomeratum*

**Petrorhagia dubia*

CASUARINACEAE

Allocasuarina fraseriana

Allocasuarina humilis

CRASSULACEAE

Crassula colorata

**Crassula glomerata*

DILLENIACEAE

Hibbertia hypericoides

Hibbertia subvaginata

Hibbertia vaginata

DROSERACEAE

Drosera erythrorhiza

Drosera glanduligera

Drosera stolonifera

ERICACEAE

Leucopogon propinquus

EUPHORBIACEAE

**Euphorbia peplus*

**Euphorbia terracina*

FABACEAE

Acacia pulchella

Acacia rostellifera

Acacia xanthina

Daviesia triflora

Gompholobium tomentosum

Hardenbergia comptoniana

Hovea pungens

Isotropis cuneifolia

Jacksonia furcellata

Kennedia prostrata

**Lupinus cosentinii*

**Melilotus indicus*

**Trifolium campestre*

FUMARIACEAE

**Fumaria capreolata*

GERANIACEAE

**Erodium moschatum*

MYRTACEAE

Eucalyptus gomphocephala

Eucalyptus marginata

OROBANCHACEAE

**Parentucellia latifolia*

**Parentucellia viscosa*

OXALIDACEAE

**Oxalis pes-caprae*

PHYLLANTHACEAE

Phyllanthus calycinus

PRIMULACEAE

**Lysimachia arvensis*

PROTEACEAE

Banksia attenuata

Banksia grandis

Banksia dallanneyi

Banksia ilicifolia

Banksia menziesii

Banksia sessilis

Conospermum triplinervium

Grevillea preissii

Grevillea vestita

Hakea lissocarpha

RANUNCULACEAE

Clematis linearifolia

RHAMNACEAE

Spyridium globulosum

RUBIACEAE

**Galium murale*

Opercularia vaginata

SCROPHULARIACEAE

**Dischisma arenarium*

SOLANCAEAE

**Solanum nigrum*

VALERIANACEAE

**Centranthus macrosiphon*

VIOLACEAE

Hybanthus calycinus

APPENDIX 7

Quadrat Data

QUADRAT AR 1

50 386971 E 6434111 N

Vegetation: *Acacia rostellifera* Closed Heath over weeds
Condition: Good
Soil Type: Orange-brown sand with some surface limestone
Landform: Flat
Date: 13.9.20
Recorder: Paul van der Moezel



QUADRAT (10 x 10m)

SPECIES	HEIGHT (m)	COVER (%)
<i>Xanthorrhoea preissii</i>	1.7	1
<i>Acacia rostellifera</i>	1.5	75
<i>Acacia pulchella</i>	0.8	2
* <i>Ehrharta calycina</i>	0.7	50
* <i>Avena fatua</i>	0.5	<1
<i>Leucopogon propinquus</i>	0.4	<1
<i>Macrozamia riedlei</i>	0.4	<1
* <i>Briza maxima</i>	0.3	20
* <i>Lagurus ovatus</i>	0.2	10
* <i>Lysimachia arvensis</i>	0.2	1
* <i>Raphanus raphanistrum</i>	0.2	<1
<i>Conostylis aculeata</i>	0.2	<1
* <i>Centranthus macrosiphon</i>	0.1	5
* <i>Cerastium glomeratum</i>	0.1	1
* <i>Urospermum picroides</i>	0.1	<1
* <i>Sonchus oleraceus</i>	0.1	<1
* <i>Euphorbia peplus</i>	<0.1	1
* <i>Galium murale</i>	<0.1	<1
* <i>Hypochaeris glabra</i>	Flat	1

SPECIES	HEIGHT (m)	COVER (%)
<i>Hardenbergia comptoniana</i>	Climber	<1
<i>Clematis linearifolia</i>	Climber	<1

* introduced species

QUADRAT AR 2

50 386911 E 6434193N

Vegetation: *Eucalyptus gomphocephala* Low Open Woodland over *Banksia attenuata*/*Allocasuarina fraseriana* Low Open Woodland over *Acacia pulchella*/*Xanthorrhoea preissii* Open Low Heath

Condition: Good

Soil Type: Orange-brown sand

Landform: Gentle slope down to the south

Date: 13.9.20

Recorder: Paul van der Moezel



QUADRAT (10 x 10m)

SPECIES	HEIGHT (m)	COVER (%)
<i>Eucalyptus gomphocephala</i>	10	5
<i>Banksia attenuata</i>	2.2	2
<i>Acacia pulchella</i>	1	20
<i>Xanthorrhoea preissii</i>	1	5
<i>Macrozamia riedlei</i>	0.9	1
* <i>Ehrharta calycina</i>	0.8	25
* <i>Gladiolus caryophyllaceus</i>	0.6	<1
* <i>Euphorbia terracina</i>	0.4	<1
<i>Conostylis aculeata</i>	0.3	4
<i>Desmocladius flexuosus</i>	0.3	1
<i>Sowerbaea laxiflora</i>	0.3	<1
* <i>Briza maxima</i>	0.2	5
<i>Hibbertia subvaginata</i>	0.2	<1
* <i>Euphorbia peplus</i>	0.1	2
* <i>Ursinia anthemoides</i>	0.1	1
<i>Hybanthus calycinus</i>	0.1	<1

SPECIES	HEIGHT (m)	COVER (%)
* <i>Sonchus oleraceus</i>	0.1	<1
* <i>Urospermum picroides</i>	0.1	<1
* <i>Carpobrotus edulis</i>	0.1	<1
* <i>Lagurus ovatus</i>	0.1	<1
* <i>Petrorhagia dubia</i>	0.1	<1
* <i>Lysimachia arvensis</i>	0.1	<1
* <i>Trifolium campestre</i>	0.1	<1
* <i>Crassula glomerata</i>	<0.1	<1
* <i>Dischisma capitatum</i>	<0.1	<1
<i>Crassula colorata</i>	<0.1	<1
* <i>Hypochaeris glabra</i>	Flat	1
<i>Hardenbergia comptoniana</i>	Climber	<1

* introduced species

QUADRAT AR 3

50 387141 E 6434206 N

Vegetation: *Eucalyptus marginata*/*Banksia attenuata* Low Woodland over
Xanthorrhoea preissii Open Low Heath

Condition: Very Good

Soil Type: Orange-brown sand

Landform: Gentle slope down to the south

Date: 13.9.20

Recorder: Paul van der Moezel



Quadrat (10 x 10m)

SPECIES	HEIGHT (m)	COVER (%)
<i>Eucalyptus marginata</i>	8	5
<i>Banksia attenuata</i>	2.5	10
<i>Xanthorrhoea preissii</i>	1.1	20
<i>Macrozamia riedlei</i>	1	1
* <i>Ehrharta calycina</i>	0.8	10
* <i>Gladiolus caryophyllaceus</i>	0.7	<1
<i>Leucopogon propinquus</i>	0.4	1
<i>Lyginia barbata</i>	0.4	1
<i>Sowerbaea laxiflora</i>	0.4	<1
<i>Burchardia congesta</i>	0.4	<1
<i>Lepidosperma pubisquameum</i>	0.4	<1
<i>Conostylis aculeata</i>	0.3	5
<i>Chamaescilla corymbosa</i>	0.3	<1
<i>Drosera stolonifera</i>	0.3	<1
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.3	<1
* <i>Briza maxima</i>	0.2	5
* <i>Ursinia anthemoides</i>	0.2	1
* <i>Ehrharta longiflora</i>	0.2	1

<i>*Trifolium campestre</i>	0.1	10
<i>Caladenia flava</i>	0.1	<1
<i>*Lysimachia arvensis</i>	0.1	<1
<i>*Parentucellia viscosa</i>	0.1	<1
<i>*Petrorhagia dubia</i>	<0.1	1
<i>Crassula colorata</i>	<0.1	<1
<i>*Hypochaeris glabra</i>	Flat	1
<i>Drosera erythrorhiza</i>	Flat	1
<i>Hardenbergia comptoniana</i>	Climber	2

* introduced species

QUADRAT AR 4

50 387150 E 6434420 N

Vegetation: *Acacia rostellifera* Tall Open Scrub over weeds
Condition: Good
Soil Type: Orange-brown sand with some surface limestone
Landform: Sloping down to the east
Date: 13.9.20
Recorder: Paul van der Moezel



QUADRAT (10 x 10m)

SPECIES	HEIGHT (m)	COVER (%)
<i>Acacia rostellifera</i>	2	50
<i>Xanthorrhoea preissii</i>	1.6	1
<i>Macrozamia riedlei</i>	1.1	1
<i>Banksia sessilis</i>	0.6	<1
* <i>Ehrharta calycina</i>	0.5	10
<i>Grevillea vestita</i>	0.5	4
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.4	1
<i>Conostylis aculeata</i>	0.3	5
* <i>Sonchus oleraceus</i>	0.3	<1
* <i>Ehrharta longiflora</i>	0.2	20
* <i>Briza maxima</i>	0.2	10
* <i>Euphorbia terracina</i>	0.2	<1
* <i>Parentucellia viscosa</i>	0.2	<1
* <i>Euphorbia peplus</i>	0.1	5
* <i>Petrorhagia dubia</i>	0.1	1
* <i>Urospermum picroides</i>	0.1	1
* <i>Trifolium campestre</i>	0.1	<1
* <i>Cerastium glomeratum</i>	0.1	<1
* <i>Galium murale</i>	<0.1	5

SPECIES	HEIGHT (m)	COVER (%)
<i>*Lysimachia arvensis</i>	<0.1	1
<i>*Hypochaeris glabra</i>	Flat	1
<i>Thysanotus patersonii</i>	Climber	<1
<i>Hardenbergia comptoniana</i>	Climber	<1

* introduced species

QUADRAT AR 5

50 387115 E 6434517 N

Vegetation: *Eucalyptus marginata*/*Banksia attenuata* Low Open Woodland over *Xanthorrhoea preissii* Open Low Heath

Condition: Good

Soil Type: Orange-brown sand

Landform: Flat

Date: 13.9.20

Recorder: Paul van der Moezel



QUADRAT (10 x 10m)

SPECIES	HEIGHT (m)	COVER (%)
<i>Eucalyptus marginata</i>	8	10
<i>Banksia attenuata</i>	4	2
<i>Xanthorrhoea preissii</i>	1.5	20
<i>Macrozamia riedlei</i>	1.1	1
<i>Dianella revoluta</i> var. <i>divaricata</i>	0.5	<1
* <i>Ehrharta calycina</i>	0.4	20
* <i>Gladiolus caryophyllaceus</i>	0.4	<1
<i>Conostylis aculeata</i>	0.3	1
<i>Burchardia congesta</i>	0.3	<1
* <i>Lolium perenne</i>	0.3	<1
<i>Drosera stolonifera</i>	0.2	<1
* <i>Trifolium campestre</i>	0.1	20
* <i>Lysimachia arvensis</i>	0.1	2
* <i>Urospermum picroides</i>	0.1	<1
<i>Caladenia flava</i>	0.1	<1
* <i>Crassula glomerata</i>	<0.1	<1
<i>Crassula colorata</i>	<0.1	<1
* <i>Hypochaeris glabra</i>	Flat	1

SPECIES	HEIGHT (m)	COVER (%)
<i>Drosera erythrorhiza</i>	Flat	<1
<i>Hardenbergia comptoniana</i>	Climber	<1

* introduced species

QUADRAT AR 6

50 386885 E 6434350 N

Vegetation: *Eucalyptus gomphocephala* Low Open Woodland over *Banksia attenuata* Low Open Woodland over *Grevillea vestita*/*Xanthorrhoea preissii* Open Low Heath

Condition: Good

Soil Type: Orange-brown sand

Landform: Flat

Date: 13.9.20

Recorder: Paul van der Moezel



QUADRAT (10 x 10m)

SPECIES	HEIGHT (m)	COVER (%)
<i>Eucalyptus gomphocephala</i>	8	10
<i>Banksia attenuata</i>	1.9	2
<i>Xanthorrhoea preissii</i>	1.8	5
<i>Grevillea vestita</i>	1.5	20
<i>Macrozamia riedlei</i>	1	1
* <i>Ehrharta calycina</i>	0.8	10
* <i>Gladiolus caryophyllaceus</i>	0.8	<1
<i>Hibbertia subvaginata</i>	0.6	<1
<i>Acacia pulchella</i>	0.4	<1
<i>Burchardia congesta</i>	0.4	<1
* <i>Ehrharta longiflora</i>	0.3	10
<i>Conostylis aculeata</i>	0.3	10
* <i>Lagurus ovatus</i>	0.3	5
* <i>Trachyandra divaricata</i>	0.3	2
* <i>Briza maxima</i>	0.2	20
* <i>Urospermum picroides</i>	0.2	1

SPECIES	HEIGHT (m)	COVER (%)
* <i>Cerastium glomeratum</i>	0.2	1
* <i>Euphorbia terracina</i>	0.2	<1
* <i>Trifolium campestre</i>	0.1	10
* <i>Melilotus indicus</i>	0.1	5
* <i>Lysimachia arvensis</i>	0.1	1
<i>Kennedia prostrata</i>	0.1	<1
* <i>Euphorbia peplus</i>	0.1	<1
* <i>Romulea rosea</i>	0.1	<1
* <i>Hypochaeris glabra</i>	Flat	2
* <i>Asparagus asparagoides</i>	Climber	<1
<i>Hardenbergia comptoniana</i>	Climber	<1

* introduced species

Appendix C Tree Assessment (Kirkby, 2023)

[REDACTED]

From: [REDACTED]
Sent: Sunday, 5 November 2023 7:53 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Emailing: Tree 6 Abercrombie Rd, Tree 1 Abercrombie Rd, Tree 66 Abercrombie Rd

Thanks [REDACTED] that's a shame, obviously a hot fire. Your email will suffice if you are OK with that, so no report required. Please send in an invoice and I'm sure you will, but please make sure you include the time you took to sort through the information before going to site. As always, we appreciate your assistance.

Regards

[REDACTED]

Director

Unit 5, 162 Colin Street, West Perth WA 6005
P: (08) 6162 8980 M: [REDACTED]
E: [REDACTED]

We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging.
The information contained in this email, including any attachments, may contain confidential, commercially sensitive or restricted information.
If you are not the intended recipient, any use, disclosure or copying of this information is unauthorised.
If you have received this email in error, please notify the sender immediately by return email and then delete it from your system.
Please consider the environment before printing this email.

-----Original Message-----

From: [REDACTED]
Sent: Saturday, November 4, 2023 9:59 AM
To: [REDACTED]
Subject: Emailing: Tree 6 Abercrombie Rd, Tree 1 Abercrombie Rd, Tree 66 Abercrombie Rd

Hi [REDACTED]

I managed to get to Rockingham on Wednesday and found that all three trees have been reduced to stumps from the 2021 fires. I double checked the locations with [REDACTED] maps and they are all correct.
Other than the photographs attached and this email, do you require a report?

Thanks

[REDACTED]

Appendix D Ecological Surveys (WEPL, 2024a)



WESTERN
ENVIRONMENTAL

Abercrombie Road Quarry

Ecological Survey Report

Western Environmental Pty Ltd

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Abercrombie Road Quarry

Ecological Survey Report

Report No:

A23.096_RPT-FVSR_0_FINAL

Issue Date:

23-Apr-2024

Status

<DRAFT>

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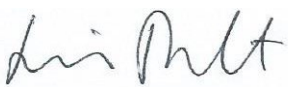
Western Environmental acknowledges the traditional Custodians of the lands on which we work and live. This report was prepared in our Perth office, on Whadjak Noongar Boodjar.

The subject site also lies on Whadjak Noongar Boodjar. We acknowledge the on-going connection First Nations people have to land, waters and sea. Our environmental work endeavours to better understand the natural environment and its values, in this we seek honour the long history of Kaartdijin (knowledge) held by the Whadjak Noongar people of Boodjar’.



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WEPL will not be liable to update or revise this report to take into account any events or circumstances or facts becoming apparent after the date of this report.

Executive Summary

Project Background, Purpose, and Scope

WA Limestone is proposing to extend the life of its Abercrombie Road Quarry by expanding into adjacent Mining Lease 70/656. The proposed expansion was referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act; EPBC 2023/09465). EPBC 2023/09465 was determined to be a controlled action on 2 June 2023 to be assessed by preliminary documentation due to impacts to threatened species and communities, namely:

- Carnaby's black cockatoo (*Zanda latirostris*) – Endangered.
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) – Vulnerable.
- Banksia Woodlands of the Swan Coastal Plain TEC – Endangered.
- Tuart Woodlands and Forests of the Swan Coastal Plain TEC – Critically Endangered.
- Other potentially impacted species not discussed in the referral (Threatened Orchid species).

Further information was requested by the Minister for Environment on 23 June 2023 (Appendix A) where some of the information requested was beyond that available through previous surveys.

The purpose of this report is to provide the following information to provide the following additional baseline information requested by the Department:

- Habitat quality scoring values for black cockatoo species as per a recognised methodology.
- Details (number, type and size) of trees with diameter at breast height (DBH) > 30 cm.
- Detailed (number, type and size) of potential roosting trees (defined by DAWE [2022] as 'any tall trees').
- Habitat quality scoring attributes specific to Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community.
- Habitat quality scoring attributes specific to Tuart Woodlands and Forests of the Swan Coastal Plain TEC.
- Assessment of likelihood that Threatened orchid species occur within the site and targeted searches for relevant species where suitable habitat is present. Alternatively, presentation of a robust argument negating the need for targeted searches where suitable habitat is not present.

Therefore, Western Environmental Approvals Pty Ltd (WEPL) scope of work comprised of the following:

- Desktop review to determine the likelihood Threatened orchid species occur with the Survey Area.
- Targeted searches for Threatened orchid species using methods consistent with DoEE (2013).
- Follow-up survey of Banksia TEC and Tuart TEC and assessment against the habitat quality scoring tools developed for each TEC by DCCEEW (n.d.) and the approved conservation advice.
- Black cockatoo habitat quality assessment using the habitat quality scoring tool developed by DCCEEW (n.d.).
- Black cockatoo tree survey, including:
 - Records of the number, species, and size of potential breeding trees (30-50 cm DBH) and review of potential breeding trees (DBH > 50 cm) previously recorded by Harewood (2018).
 - Records of the number, species, and size of potential roosting habitat ('tall trees').
 - Follow-up hollow inspection using a pole camera for trees for hollows identified as 'possible' by Harewood (2018).

Survey Findings

The survey recorded the following:

- Three Threatened orchid species were found to have a 'medium' likelihood of occurrence within the Survey Area (*Caladenia huegelii*, *Drakaea elastica*, and *D. micrantha*). No Threatened orchid species were found to have a 'high' likelihood of occurrence.
- No Threatened orchid species were recorded during the field survey, and none are considered to occur given the absence of suitable habitat.
- One patch of Banksia TEC (9.10 ha) with a habitat quality score of 3.6 (out of 10).
- Two patches of Tuart TEC covering a total area of 7.51 ha (noting this area extends outside of the Survey Area). Patch 1 is 4.52 ha in size with a habitat quality score of 6.05 (out of 10). Patch 2 is 2.99 ha with a habitat quality score of 6.05.
- A total of 17.41 ha of foraging habitat for Carnaby's black cockatoo and Forest red-tailed black cockatoo.
- The weighted average site condition score for Carnaby's black cockatoo is 2.51 (low to moderate), and for Forest red-tailed black cockatoo is 2.32 (low). The Survey Area has a site context score of 3 given the proximity to other foraging resources.

-
- There are 197 potential breeding trees with a DBH greater than 30 cm. Of those, 162 have a DBH greater than 30 cm and less than 50 cm, and 35 have a DBH greater than 50 cm.
 - Four trees contain small hollows of insufficient size to support black cockatoo nesting. No suitable nesting hollows were identified.
 - The trees Harewood (2018) identified as containing 'possible' black cockatoo nesting hollows (Wpt 1, Wpt 6, and Wpt 66) were reduced to stumps during a bushfire in 2021.

Acronyms and Abbreviations

Abbreviation	Full Title
°C	Degree Celsius
BAM Act	Biosecurity and Agriculture Management Act 2007
Banksia TEC	Commonwealth listed 'Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community'
BC Act	<i>Biodiversity Conservation Act 2016</i>
CR	Critically Endangered
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEWHA	Department of the Environment, Water Heritage and the Arts
DotEE	Department of the Energy and Environment
DSEWPaC	Department of Sustainability Environment Water Population and Communities
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EN	Endangered
EP Act	<i>Environmental Protection Act 1986</i>
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection Biodiversity and Conservation Act 1999</i>
ESA	Environmentally Sensitive Area
FCT	Floristic Community Type
GPS	Global Positioning System
ha	Hectare
HQS	Habitat Quality Score
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for Conservation of Nature
km	Kilometres
m	Metres
MNES	Matters of National Environmental Significance
NVIS	National Vegetation Information System
P	Priority
PEC	Priority Ecological Community
PF	Priority Flora
PMST	Protected Matters Search Tool
SCP	Swan Coastal Plain

Abbreviation	Full Title
T	Threatened
TEC	Threatened Ecological Community
TPFL	Threatened and Priority Flora Database
TPFRF	Threatened and Priority Flora Report Forms
VU	Vulnerable
WA	Western Australia
WAH	Western Australian Herbarium
WC Act	<i>Wildlife Conservation Act 1950</i>
WEPL	Western Environmental Pty Ltd

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1. Introduction

1.1 Project Background

WA Limestone is proposing to extend the life of its Abercrombie Road Quarry by expanding into adjacent Mining Lease 70/656. The proposed expansion was referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act; EPBC 2023/09465). EPBC 2023/09465 was determined to be a controlled action on 2 June 2023 to be assessed by preliminary documentation due to impacts to threatened species and communities, namely:

- Carnaby's black cockatoo (*Zanda latirostris*) – Endangered.
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) – Vulnerable.
- Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community (TEC) – Endangered (hereafter referred to as “Banksia TEC”).
- Tuart Woodlands and Forests of the Swan Coastal Plain TEC – Critically Endangered (hereafter referred to as “Tuart TEC”).
- Other potentially impacted species not discussed in the referral (Threatened Orchid species).

Further information was requested by the Minister for Environment on 23 June 2023 (Appendix A) where some of the information requested was beyond that available through previous surveys. Western Environmental Approvals Pty Ltd (WEPL) was commissioned to undertake ecological surveys to provide the following information:

- Habitat quality scoring values for black cockatoo species as per a recognised methodology.
- Details (number, type and size) of trees with diameter at breast height (DBH) > 30 cm.
- Detailed (number, type and size) of potential roosting trees (defined by DAWE [2022] as ‘any tall trees’).
- Habitat quality scoring attributes specific to Banksia TEC.
- Habitat quality scoring attributes specific to Tuart TEC.
- Assessment of likelihood that Threatened orchid species occur within the site and targeted searches for relevant species where suitable habitat is present. Alternatively, presentation of a robust argument negating the need for targeted searches where suitable habitat is not present.

The Survey Area covers the entirety of Mining Lease 70/656 as shown on Figure 1.

1.2 Scope and Objectives

To satisfy the information requirements requested by the Department, the following was conducted:

- Desktop review to determine the likelihood Threatened orchid species occur with the Survey Area.
- Targeted searches for Threatened orchid species using methods consistent with DoEE (2013).
- Follow-up survey of Banksia TEC and Tuart TEC and assessment against the habitat quality scoring tools developed for each TEC by DCCEEW (n.d.) and the approved conservation advice.
- Black cockatoo habitat quality assessment using the habitat quality scoring tool developed by DCCEEW (n.d.).
- Black cockatoo tree survey, including:
 - Records of the number, species, and size of potential breeding trees (30-50 cm DBH) and review of potential breeding trees (DBH > 50 cm) previously recorded by Harewood (2018).
 - Records of the number, species, and size of potential roosting habitat ('tall trees').
 - Follow-up hollow inspection using a pole camera for trees for hollows identified as 'possible' by Harewood (2018).

1.3 Location

Abercrombie Road Quarry (the 'Survey Area') covers 18.15 ha and is located in Postans within the City of Kwinana. The Survey Area is approximately 30 km south of the Perth CBD, on the Swan Coastal Plain (SCP) in Western Australia (Figure 1).

1.4 Previous Surveys

A summary of previous surveys undertaken across the Survey Area is provided in the following subsections.

1.4.1 Flora and Vegetation Survey (PGV, 2020)

PGV undertook a detailed flora and vegetation survey in the Survey Area in September 2020 (PGV, 2020). The survey report is provided as Appendix B and a summary of survey timing, methodologies, limitations and key findings is provided in Table 1.

Table 1. Summary of Timing, Methodology, Limitations, and Findings of PGV (2020)

Survey Aspect	Summary
Timing	The survey was undertaken on 13 September 2020 which was optimal to identify most flora species on the site.

Survey Aspect	Summary
Methodology	- The survey area was walked in parallel transects spaced 20 m apart to maximise the recording of small plants (particularly orchid species). The dense stands of <i>Acacia rostellifera</i> were covered at a lower intensity (given the difficulty to walk through). - Information on flora composition and vegetation structure was recorded in six 10 m by 10 m non-permanent quadrats in representative vegetation types (two quadrats per vegetation type).
Limitations	- No limitations were noted by PGV (2020). - A targeted search for threatened and priority species was not undertaken.
Key Findings	PGV (2020) recorded: - No conservation significant flora species. - Three vegetation types (Table 3). - Three flora species listed as a Priority species in WA, none of which were orchids or listed under the EPBC Act. (Table 3). - Overall vegetation across the site was assessed as being most similar to FCT28 'Spearwood Banksia attenuata or B. attenuata – Eucalyptus woodland' which is not a TEC at State level. - Two TECs within the survey area: - Two patches of Tuart Woodland and Forests TEC (listed as Critically Endangered under the EPBC Act and as Priority 3 in WA) in Very Good condition covering 5.97 ha in total, recorded in vegetation types Eg and Ar (Table 3). Three quadrats were sampled across the two Tuart TEC patches, two in Patch 1 (AR2, AR6) and one in Patch 2 (AR4). - One large patch of Banksia Woodlands of the Swan Coastal Plain TEC (listed as Endangered under the EPBC Act and as Priority 3 in WA) in Good condition covering 9.1 ha, recorded in vegetation type EmBa. Two quadrats (AR3 and AR5) were sampled within the TEC.

1.4.2 Black Cockatoo Habitat Assessment (Harewood, 2018)

Greg Harewood undertook a black cockatoo habitat assessment during April and July in 2018 (Harewood, 2018). The survey report is provided as Appendix Cand a summary of survey timing, methodologies, limitations and key findings is provided in Table 2.

Table 2. Summary of Timing, Methodology, Limitations, and Findings of Harewood (2018)

Survey Aspect	Summary
Timing	The survey was undertaken on 23 April and 3 July 2018. The survey was outside of the breeding season for one or more of the three threatened black cockatoo species.
Methodology	- The black cockatoo habitat assessment was undertaken in accordance with guidelines published by the then Department of the Environment and Energy (DotEE, 2012). - Results of a level 2 flora and vegetation survey undertaken by Natural Area Holdings Pty Ltd (2018) were reviewed. - Breeding habitat was assessed by identifying all suitable breeding trees species within the site that had a Diameter at Breast Height (DBH) equal to or greater than 50 cm. The location of each tree over the DBH threshold was recorded with a handheld GPS and the presence of hollows was observed from the ground. Hollow suitability was first assessed from the ground (size, orientation, and access). Potentially suitable hollows were then assessed using binoculars (for evidence of use e.g. chewing, scarring, scratch marks) and drones were used to examine and photograph each potential hollow. - The nature and extent of potential foraging habitat was documented. - Foraging evidence (e.g. chewed fruits around the base of trees) was recorded.

Survey Aspect	Summary
	• Direct and indirect evidence of black cockatoos roosting within trees was noted if observed (e.g. branch clippings, droppings or moulted feathers).
Limitations	• The survey was outside of the breeding season for one or more of the three threatened black cockatoo species.
Key Findings	Harewood (2018) recorded: • 119 trees with DBH > 50 cm (predominantly jarrah). • 39 trees were identified to contain one or more hollows, of which 10 were examined using a drone. • One hollow was considered potentially suitable for nesting by black cockatoos and showed chew marks that may have been from a black cockatoo. It was unclear whether the chewing was done by nesting or investigating birds. • Foraging habitat comprises approximately 8.50 ha of the site. • No existing roosting trees were identified.

Table 3. Vegetation Habitats within the Survey Area (Data from PGV [20220])

Vegetation Unit	Photo	Description	Soil	Conservation Status
Ar <i>Acacia rostellifera</i> Closed Heath to Tall Open Scrub over weeds		<i>Acacia rostellifera</i> is dense (50-75% cover) and up to 2 m high. Occasional Tuart trees occur in the unit. The understorey is sparse and consists mostly of grassy weed species such as Perennial and Annual Veldtgrass (*<i>Ehrharta calycina</i>, *<i>E. longiflora</i>), Blowfly Grass (*<i>Briza maxima</i>) and Hare's Tail Grass (*<i>Lagurus ovatus</i>). Common native species include <i>Xanthorrhoea preissii</i>, <i>Macrozamia riedlei</i>, <i>Conostylis aculeata</i> and <i>Hardenbergia comptoniana</i>. Quadrats AR1 and AR4 are representative of this vegetation type. Condition: Good	The soils were orange-brown sands with some surface limestone.	Some areas representative of Tuart Woodlands and Forests of the Swan Coastal Plain Threatened Ecology Community pursuant to the EBPC Act.
Eg <i>Eucalyptus gomphocephala</i> Low Open Woodland over <i>Banksia attenuata</i>/<i>Allocasuarina fraseriana</i> Low Open Woodland over <i>Acacia pulchella</i>/<i>Grevillea vestita</i>/<i>Xanthorrhoea preissii</i> Open Low Heath		Tuart (<i>Eucalyptus gomphocephala</i>) woodland occurred on the upper slopes and top of the low ridge that occurs on the central western part of the site. The Tuart trees are up to 10 m high and low density (average 5-10% cover) with a sparse lower tree canopy of <i>Banksia attenuata</i> and in some places <i>Allocasuarina fraseriana</i>. The understorey is an open low heath with common native species <i>Xanthorrhoea preissii</i>, <i>Macrozamia riedlei</i>, <i>Hibbertia subvaginata</i>, <i>Acacia pulchella</i>, <i>Conostylis aculeata</i> and <i>Hardenbergia comptoniana</i>. <i>Grevillea vestita</i> was common in patches. Quadrats AR2 and AR6 are representative of this vegetation type. Condition: Good	The soils were orange-brown sand with no surface limestone.	Representative of Tuart Woodlands and Forests of the Swan Coastal Plain Threatened Ecology Community pursuant to the EBPC Act.

Vegetation Unit	Photo	Description	Soil	Conservation Status
EmBa <i>Eucalyptus marginata</i> / <i>Banksia attenuata</i> Low Woodland to Low Open Woodland over <i>Xanthorrhoea</i> <i>preissii</i> Open Low Heath		The Jarrah (<i>Eucalyptus marginata</i>)/<i>Banksia</i> woodland vegetation type occurred on lower slopes in the north and south-east parts of the site. Jarrah was up to 8 m high and low density (5-10% cover) with a secondary tree canopy of <i>Banksia attenuata</i> around 3-4 m high and less than 10% cover. Common understorey species in the open low heath include <i>Xanthorrhoea preissii</i>, <i>Macrozamia riedlei</i>, <i>Dianella revoluta</i> var. <i>divaricata</i>, <i>Conostylis aciuleata</i>, <i>Drosera stolonifera</i>, <i>Drosera erythrorhiza</i> and <i>Hardenbergia comptoniana</i>. Quadrats AR3 and AR5 are representative of this vegetation type. Condition: Good	The soils were orange-brown sand with no surface limestone.	Representative of <i>Banksia</i> woodlands of the Swan Coastal Plain Threatened Ecology Community pursuant to the EBPC Act. Some areas also representative of Tuart Woodlands and Forests of the Swan Coastal Plain Threatened Ecology Community pursuant to the EBPC Act.

1.5 Legislation and Guidance

This assessment was conducted in accordance with Commonwealth and State legislation, guidelines and advice:

- Commonwealth EPBC Act.
- WA *Environmental Protection Act 1986* (EP Act).
- WA Biodiversity Conservation Act 2016 (BC Act).
- Western Australian *Biodiversity Conservation Regulations 2018*.
- Commonwealth Department of the Environment (DoE). (2013). Matters of National Environmental Significance. Significant Impact Guidelines 1.1 - *Environment Protection and Biodiversity Conservation Act 1999*.
- Former Department of the Environment and Energy (DoEE). (2019). Approved Conservation Advice (incorporating listing advice) for the Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain ecological community.
- Former Department of the Environment and Energy (DoEE). (2016). Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community.
- WA Environmental Protection Authority (EPA). (2016). Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment. Known herein as the ‘Flora and Vegetation Technical Guidance’.
- Department of Biodiversity Conservation and Attractions (DBCA) (2023) Draft: Methods for survey and identification of Western Australian Threatened Ecological Communities. Communities and Communities Program, DBCA.
- Former Department of Agriculture, Water and the Environment (DAWE) (2022) Referral Guidelines for 3 Threatened Black Cockatoo Species Carnaby’s Cockatoo (*Zanda latirostris*), Baudin’s Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*).
- Former Department of Environment (DoE) (2013) Draft Survey Guidelines for Australia’s Threatened Orchids: Guidelines for Detecting Orchids Listed as ‘Threatened’ Under the *Environment Protection and Biodiversity Conservation Act 1999*.

Brief descriptions of relevant Commonwealth and State legislation is provided in Appendix D. Definitions and criteria for Commonwealth and State conservation codes is provided in Appendix E.

2. Methodology

2.1 Desktop Review

Existing biological information for the Survey Area and surrounds (10 km radius) was reviewed prior to the field survey. This comprised a literature review (section 2.1.1) and a review of database records (section 2.1.2).

2.1.1 Literature Review

A review of available literature was undertaken, which included the following:

- Available biological surveys and information (described in Section 1.4):
 - PGV (2020). M70/656 Abercrombie Road, Postans – Flora and Vegetation Survey. Unpublished report for WA Limestone.
 - Harewood (2018). Black Cockatoo Habitat Assessment - M70/656 Abercrombie Road, Postans. Unpublished report for WA Limestone.
- Regional surveys and information:
 - Existing Swan Coastal Plain flora and vegetation data (Gibson et al. 1994; Keighery et al. 2012).
 - Sought site-specific advice from WA orchid expert Andrew Brown (in accordance with item 1.4b of the Department's request for further information [Appendix J]).

2.1.2 Database searches

Database searches were undertaken to compile a list of potential conservation significant orchids and ecological communities known to occur within or surrounding the Survey Area. In addition, a search of the EPBC Protected Matters Search Tool (PMST) was undertaken to identify the Matters of National Environmental Significance (MNES) known to occur within or surrounding the Survey Area (DEECCW, 2022b). A summary of database searches is provided in Table 4.

Table 4. Database Searches of the Survey Area

Database Name	Date Received and Reference Number	Search Type	Search Area
Threatened and Priority Ecological Communities database search (DBCA)	18/10/2023 38-1023EC	Threatened and Priority Ecological Communities	10 km buffer of the Survey Area
Threatened and Priority Flora (TPFL) database search (DBCA)	08/12/2023 12-1223FL	Threatened and Priority Flora	10 km buffer of the Survey Area

Database Name	Date Received and Reference Number	Search Type	Search Area
Western Australian Herbarium (WAHerb) flora database search (DBBCA)	08/12/2023 12-1223FL	Threatened and Priority Flora	10 km buffer of the Survey Area
Protected Matters Search Tool (DAWE, 2022a)	15/12/2023	Commonwealth listed Threatened Flora and fauna and TECs	10 km buffer of the Survey Area

2.1.3 Likelihood of Occurrence for Threatened Orchids

Threatened orchid species identified in the database searches were assessed to determine the likelihood of their occurrence within the Survey Area. The assessment was conducted both before and after the field survey and based on the likelihood of occurrence criteria presented in Table 5.

Only species either recorded during the survey or considered as having a high or medium likelihood of occurrence in post field survey assessment will be discussed in detail. Species classified as having low likelihood of occurrence will not be discussed unless detailed justification for this classification is required.

Table 5. Likelihood of Occurrence Criteria

Likelihood	Criteria
Recorded	Recorded in the Survey Area from database searches (if confident record is accurate), previous survey by others or by current survey. Community buffer area recorded in the Survey Area.
High	Suitable habitat occurs within the Survey Area; and Records of flora or community <2 km from the Survey Area, with record <30 years old.
Medium	Suitable or marginally suitable habitat occurs within the Survey Area; and - Records of flora species or community <5 km from the Survey Area. - Species or community is strongly linked to a specific habitat, which occurs within the Survey Area and records are present <10 km from the Survey Area.
Low	- The species or community has a well understood and specific habitat preference/requirements, which is absent from the Survey Area. - Records are historical only, or are pre mapping procedures (e.g. records assigned to towns or place names). - Suitable habitat is present, but there are no existing records of the species or community from the region despite reasonable previous search effort.

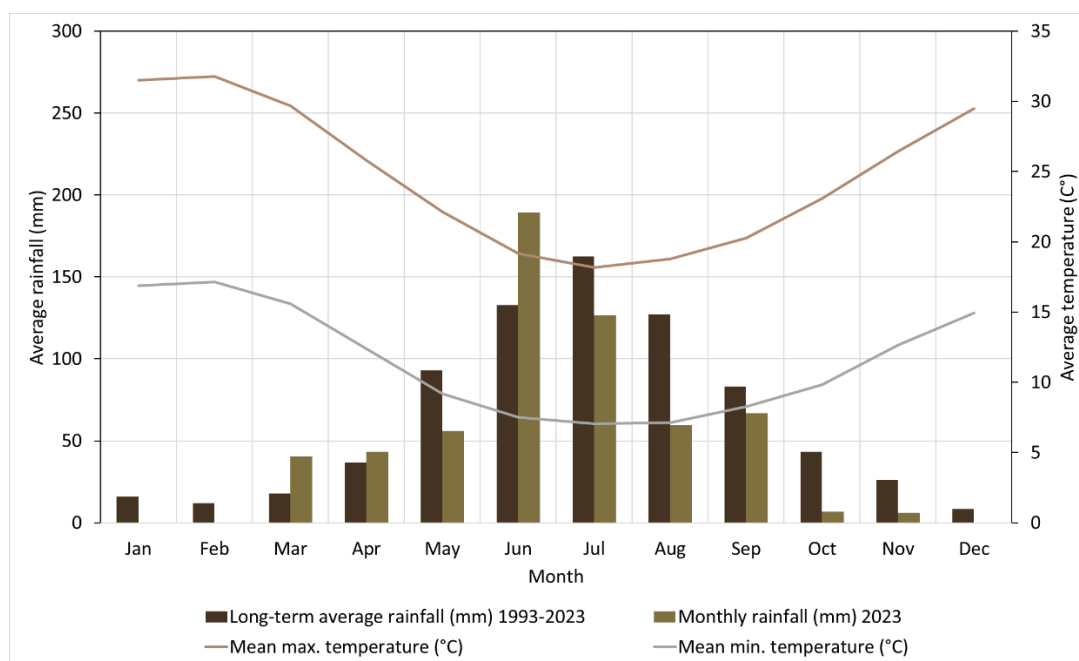
2.2 Field Surveys

2.2.1 Climate and Pre-survey Rainfall

Climate statistics were calculated using data from the closest long-term Bureau of Meteorology (BoM) station, Jandakot Aero (Station 009172) located 15.31 km northeast of the Survey Area. A 30-year data interval was utilised to establish the current climate normal as the interval allowed for year-to-year variation while avoiding the influence of long-term changes in climate.

The long-term mean minimum temperature for Jandakot ranges from 7.1°C (July) to 17.13°C (February) (1996-2023) and the long-term mean maximum temperature ranges from 18.1°C (July) to 31.8°C (February) (Graph 1) (BoM, 2023).

Jandakot weather station recorded 515 mm of rain in the eight months prior to the survey (September 2023), which is 82.9 mm below the long-term average of 597.8 mm in the same period (BoM, 2023). Conditions during winter 2023 showed significant increase in rainfall in June (189.2 mm in 2023 compared to 132.68 mm), with continuous decreasing rainfall trend observed from July (126.6 mm in 2023 compared to 162.6 mm) to August (59.6 mm in 2023 compared to 127.2 mm) (BoM, 2023). In the three months prior to the survey (June to August 2023), 375mm of rain was recorded, which is 47.14mm below the long-term average rainfall at 422.54 mm.



Graph 1: Long Term and Monthly Total Rainfall, Maximum and Minimum Temperatures for Jandakot Aero WA (Station no: 9172) (BoM, 2023)

2.2.2 Timing and Survey Team

The surveys occurred across seven person days between the 28th September and 9th May by WEPL ecologists and a black cockatoo hollow expert (Tony Kirkby). The timing and personnel involved in each survey is provided in Table 6.

Table 6. Timing and Survey Team

Date	Survey Team	Flora License
Targeted Search for Threatened orchid species		
28/09/23	Ciaran Gibson	FB62000464

Date	Survey Team	Flora License
	Julia Burr	N/A
Additional Banksia and Tuart TEC assessment and complimentary Black Cockatoo tree assessment		
10-11/10/23	Andrew Fry Lovisa Thambert	FB62000002-2 FB62000468
Hollow Inspection		
05/11/23	Tony Kirkby	N/A

2.2.3 Threatened Orchid Searches

Searches for Threatened orchid species with a 'high' or 'medium' likelihood of occurrence within the Survey Area were undertaken. In accordance with DoE (2013) parallel transects (approximately 10 m apart) were conducted over the Survey Area (Figure 2). The majority of the Survey Area was traversed, including all suitable habitat for the targeted species. Unsuitable habitat (Acacia thicket) was not systematically searched.

The locations of any orchid records were marked using a handheld GPS with the following data recorded:

- Observer, date, and time.
- Local abundance/population size and/or population boundary.
- Representative photos of each species and habitat.
- Collection of representative specimens.
- Notes on habitat and vegetation type.

2.2.4 Habitat Quality Scoring Tool for Threatened Ecological Communities

In order to satisfy the Commonwealth's request for further information (items 1.2a and 1.3a of Appendix A), a follow-up survey of Banksia TEC and Tuart TEC was undertaken using mapping notes to collect information (Figure 3). The follow-up survey sought to verify vegetation type mapping from PGV (2020) as well as capture detailed information to facilitate assessment against habitat quality scoring (HQS) tools developed by DCCEEW (n.d.) and approved conservation advice for each TEC.

Banksia TEC

The Survey Area was walked to ensure previous mapping aligned with the vegetation on the site. The information collected was used to assess the habitat quality of the TEC. See Appendix F for HQS assessment methods provided by Woodman Environmental (2021).

Tuart TEC

To assess the quality of the Tuart Woodland TEC patches, individual tuart tree locations were marked with a handheld GPS. Tuart tree locations were marked both within the Survey Area and in the immediately surrounding area in order to estimate connectivity to adjacent remnant bushland and patch size. The presence of seedlings and younger individuals was also recorded as evidence of regeneration within the two patches. The information collected was used to assess the habitat quality of the two patches as per Appendix G.

2.2.5 Black Cockatoo Survey

Tree Assessment

Harewood (2018) recorded suitable habitat trees within the Survey Area with a DBH equal to or greater than 50 cm. The Commonwealth requested additional information for trees with a DBH between 300 and 50 cm. As such, all tree species with the potential to form hollows (typically jarrah, marri, and tuart) and with sufficient diameter (DBH > 30 cm) were recorded using a handheld GPS. The following was recorded for each tree:

- Species.
- DBH (approximately 1.3 m from the ground).
- Tree health (such as presence of dieback (*Phytophthora cinnamomi*) or marri canker (*Quambalaria coyrecup*) and other threatening processes).
- Presence of hollows (as observable from the ground).

In addition to Commonwealth guidelines for assessing potential breeding trees (DCCEEW, 2022b), a scoring system based on that developed by Dr Mike Bamford was applied to class potential breeding trees (Table 7).

Table 7. Black Cockatoo Potential Breeding Tree Class

Class	Description of Tree and Hollows/Activity
1	Active nest observed; adult (or immature) bird seen entering or emerging from hollow, eggs present.
2	Hollow of suitable size and angle visible with chew marks around entrance.
3	Potentially suitable hollow visible but no chew marks present; or potentially suitable hollow present (as suggested by structure of tree, such as large, vertical trunk broken off at a height of >10m).
4	Tree with hollows or broken branches that might contain hollows, but hollows or potential hollows are not of a suitable size, or are aligned or obstructed so as to prevent access
5	Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown.

Hollow inspection

Harewood (2018) recorded one tree with hollows considered potentially suitable for black cockatoos (Wpt 66). An additional two trees were identified to have 'possible hollow's (Wpt 1 and Wpt 6). A follow-up hollow inspection by Tony Kirkby was undertaken to confirm the suitability or unsuitability of each 'possible' hollow.

Habitat Quality Score for Black Cockatoo Habitat

The Survey Area was traversed to record vegetation that provides black cockatoo foraging habitat. Mapping notes were used to collect information regarding foraging potential, coverage of foraging species, and any foraging evidence to determine whether black cockatoos are present within the Survey Area (Figure 3).

The quality of black cockatoo foraging habitat within the Survey Area was assessed according to the HQS tool developed by DCCEE (n.d.), provided as Appendix H. The HQS tool describes elements indicative of suitable foraging habitat for WA black cockatoo species and is supported by habitat assessments undertaken by suitably qualified and experienced ecologists. The HQS was assessed for each habitat type within the Survey Area, as well as a weighted site average.



Figure 3: Survey Effort and Quadrat Location

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

PROJECT/REPORT NAME

Biological survey technical report
Abercrombie Road

CLIENT

WA Limestone

PROJECT NUMBER

A23.096

VERSION

0

DATA SOURCE

LANDGATE AERIAL IMAGERY Summer 2023

DRAWN BY / REVIEWED BY

SM/LT

DATE

7/3/2024

Legend

Survey Area

Quadrat (PGV, 2020)

Tracklog

No	Description	Drawn	Approved	Date
A	Original issue	SM	LT	7/3/2024

NOTES:
Cadastral boundary (LGATE-002). Label corresponds to the vegetation association number.

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3. Results

3.1 Targeted Search for Threatened Orchids

3.1.1 Desktop Assessment

Threatened orchid species identified in the database searches were assessed to determine the likelihood of their occurrence within the Survey Area. The likelihood of occurrence was based on the habitats described by PGV (Table 3), database search results (Figure 4) and known details about Threatened orchids.

Based on the above, three Threatened orchid species were considered to have a 'medium' likelihood of occurrence within the Survey Area, specifically:

- King Spider-orchid (*Caladenia huegelii*).
- Glossy-leafed Hammer Orchid (*Drakaea elastica*).
- Dwarf Hammer Orchid (*Drakaea micrantha*).

A summary of the assessment is provided in Table 8.

This assessment was consistent with advice from A. Brown (Research Associate Western Australian Herbarium, specialist area: Orchidaceae) and no other Threatened orchid species were considered to have the potential to occur within the Survey Area.

Table 8. Threatened Orchid Species potentially occurring within the Survey Area

Species	Photo (DBCA, 2023)	DBCA Database search or PMST search	Landscape-scale habitat (Department of Environment, 2013)	Habit and Habitat (DBCA, 2023)	Likelihood of presence, justification, and survey requirements.
King Spider-orchid <i>(Caladenia huegelii)</i>	 <i>Caladenia huegelii</i> Photos: I. & M. Greeve & J.L. Robson	14 records (2004 – 2013). Closest record 4,460 m east of the Survey Area. Nearest record found in Banksia woodland; grey sand.	Mixed banksia/jarrah woodlands	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green & cream & red, Sep to Oct. Grey or brown sand, clay loam.	Medium Suitable habitat is present and locally known from the area. PGV (2020) noted the habitat was not typical for the species (shallow sand over limestone) and that this species generally doesn't survive in disturbed areas (PGV, 2020). However, it is possible this species may be present. Survey Requirements Searches (10 m parallel transects) through Banksia woodland habitat, scheduled for late September 2023. Survey design and timing in accordance with Department of Environment (2013) which states: • Peak flowering period: mid September to October – • Dormant between late November and late April

Species	Photo (DBCA, 2023)	DBCA Database search or PMST search	Landscape-scale habitat (Department of Environment, 2013)	Habit and Habitat (DBCA, 2023)	Likelihood of presence, justification, and survey requirements.
Tall Donkey Orchid (<i>Diuris drummondii</i>)	 <i>Diuris drummondii</i> Photos: A. P. Brown and I & M Greeve	One record (1959). Closest record 8,140 m north of the Survey Area.	Low-lying depressions in peaty and sandy, clay swamps	Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow, Nov to Dec or Jan. Low-lying depressions, swamps.	Low: Would not occur As described in PGV (2020), suitable habitat is not present; winter-wet swamps. Species known to be strongly linked to habitat. Further, this species not commonly or recently recorded locally. Survey No further survey for this species is required.
Dwarf Bee-orchid (<i>Diuris micrantha</i>)	 <i>Diuris micrantha</i> Photos: A.P. Brown, I. & M. Greeve & B. Jackson	Seven records (1977 – 2019). Closest record 4,761 m east of the Survey Area. Nearest record found in Swamp; peaty black soil.	Winter-wet depressions or swamps	Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow & brown, Sep to Oct. Brown loamy clay. Winter-wet swamps, in shallow water.	Low: Would not occur As described in PGV (2020), suitable habitat is not present; winter-wet swamps. Species known to be strongly linked to habitat. Further, this species not commonly or recently recorded locally. Survey No further survey for this species is required.
Purdie's Donkey-orchid (<i>Diuris purdiei</i>)	 <i>Diuris purdiei</i> Photos: I. & M. Greeve & S.D. Hopper	Two records (1987, 2004). Nearest record found in Winter wet swamp.	Grows among native sedges in areas subject to winter inundation.	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. yellow, Sep to Oct. Grey-black sand, moist. Winter-wet swamps	Low: Would not occur As described in PGV (2020), suitable habitat is not present; winter-wet swamps. Species known to be strongly linked to habitat. Further, this species not commonly or recently recorded locally. Survey No further survey for this species is required.

Species	Photo (DBCA, 2023)	DBCA Database search or PMST search	Landscape-scale habitat (Department of Environment, 2013)	Habit and Habitat (DBCA, 2023)	Likelihood of presence, justification, and survey requirements.
Glossy-leaved Hammer Orchid (<i>Drakaea elastica</i>)	 <i>Drakaea elastica</i> Photos: A. Brown & S.D. Hopper	Five records (1982 – 2010). Closest record 5087 m east of the Survey Area. Nearest record found in Kunzea ericifolia Scrub.	In sandy soil adjacent to winter-wet depressions, swamps and water courses, growing in mixed woodlands, often under Kunzea species	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.	Medium Considered unlikely this species would be present. This species is locally rare (only one previous record within 10 km) and doesn't usually survive in disturbed areas (PGV, 2020). However, suitable habitat is present, Banksia woodland. Survey Requirements Searches (10 m parallel transects) through Banksia woodland habitat, scheduled for late September 2023. Survey design and timing in accordance with Department of Environment (2013) which states: • Peak flowering period: mid September to October – • Dormant: between late November and late April
Dwarf Hammer Orchid (<i>Drakaea micrantha</i>)	 <i>Drakaea micrantha</i> Photos: S.D. Hopper, A.P. Brown & I. & M. Greeve	One record (2002). Wet.	Jarrah (<i>Eucalyptus marginata</i>) and common sheoak (<i>Allocasuarina fraseriana</i>) woodland or forest associated with Banksia species	Tuberous, perennial, herb, 0.15-0.3 m high. Fl. red & yellow, Sep to Oct. White-grey sand.	Medium Considered unlikely this species would be present. This species is locally rare (only one previous record within 10 km) and doesn't usually survive in disturbed areas (PGV, 2020). However, suitable habitat is present, Banksia woodland. Survey Requirements Searches (10 m parallel transects) through Banksia woodland habitat, scheduled for late September 2023.

Species	Photo (DBCA, 2023)	DBCA Database search or PMST search	Landscape-scale habitat (Department of Environment, 2013)	Habit and Habitat (DBCA, 2023)	Likelihood of presence, justification, and survey requirements.
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Survey design and timing in accordance with Department of Environment (2013) which states:

- Peak flowering period: mid September to October –
- Dormant: between late November and late April

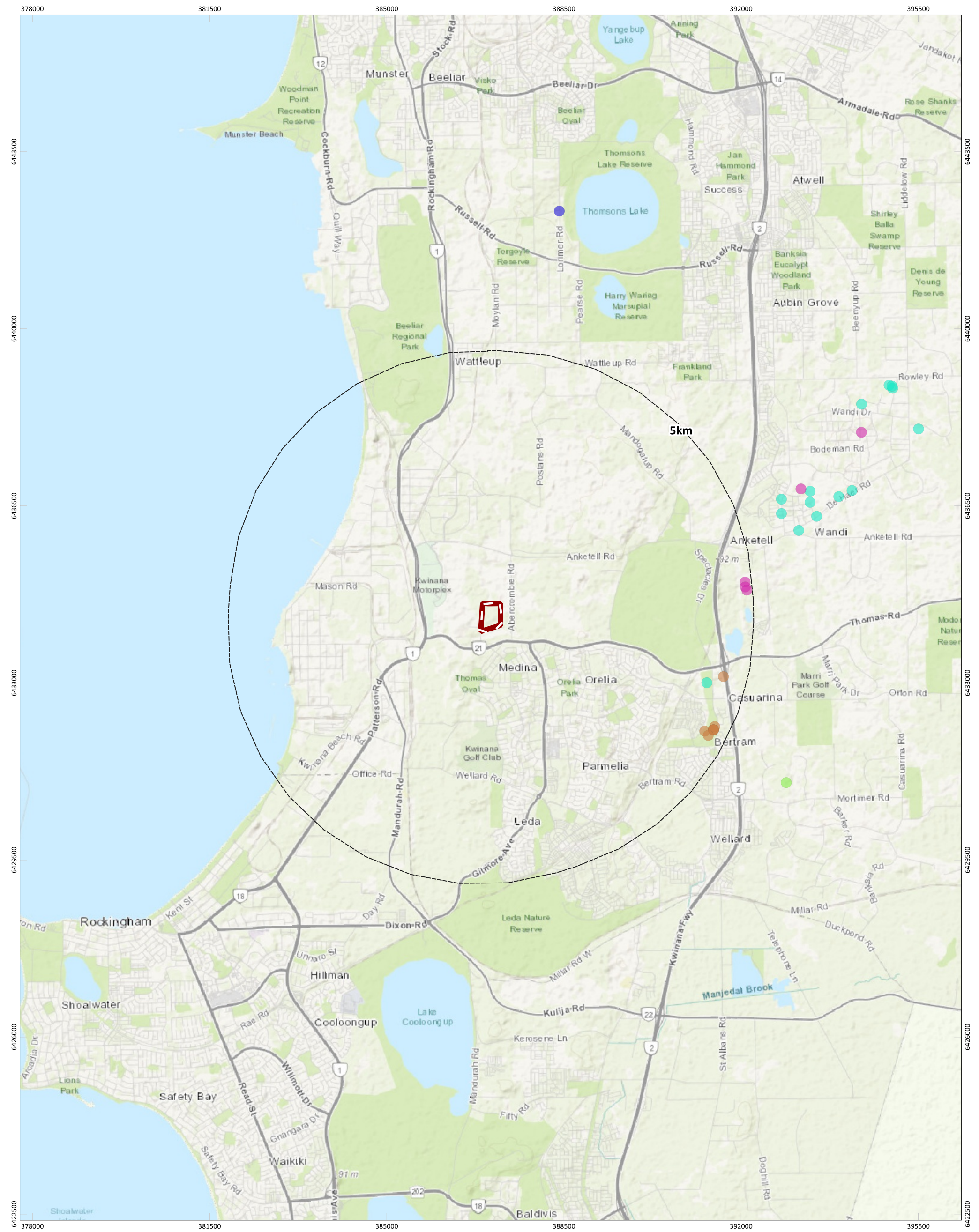


Figure 4: DBCA Database Search of Threatened Orchids

06001,2001,8002,400

N

SCALE1:70,000

SHEET SIZEA3 COLOUR

COORDINATE REFERENCE SYSTEMGDA2020 / MGA zone 50

DATA SOURCELANDGATE AERIAL IMAGERY Summer 2023

PROJECT/REPORT NAMEBiological survey technical report
Abercrombie Road

CLIENTWA Limestone

PROJECT NUMBERA23.096

VERSION0

DRAWN BY / REVIEWED BYSM/LT

DATE7/3/2024

Legend

Survey Area

Threatened Orchid (DBCA)

Caladenia huegelii

Diuris drummondii

Diuris micrantha

Drakaea elastica

Thelymitra variegata

No	Description	Drawn	Approved	Date
A	Original issue	SM	LT	7/3/2024

NOTES:
Cadastral boundary (LGATE-002). Label corresponds to the vegetation association number.

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3.1.2 Threatened Orchid Survey

Targeted searches were undertaken for Threatened orchids across the Survey Area through suitable habitat (vegetation units Eg and EmBa). All potentially suitable habitat was covered by 10 m transects (Figure 2). The searches were undertaken in accordance with DoE (2013) and advice from A. Brown (Research Associate Western Australian Herbarium, specialist area: Orchidaceae). The following species were targeted:

- King Spider-orchid (*Caladenia huegelii*).
- Glossy-leafed Hammer Orchid (*Drakaea elastica*).
- Dwarf Hammer Orchid (*Drakaea micrantha*).

No Threatened orchids were recorded within the Survey Area. One population of the common Pink Fairies Orchid (*Caladenia latifolia*) was recorded in the north of the Survey Area.

Given the effort of the targeted searches and habitats present within the Survey Area, no threatened orchid species are considered to be present.

3.2 Threatened Ecological Communities

3.2.1 Desktop Assessment

PGV (2020) identified two TECs listed under the EPBC Act within the Survey Area, comprising:

- Banksia TEC (one patch comprising 9.10 ha).
- Tuart TEC (two patches covering a combined total of 7.51 ha, of which 1.54 ha extends beyond the boundary of the Survey Area).

PGV (2020) recorded the presence and extent of both TECs within the Survey Area, however did not provide an assessment of habitat quality.

PGV (2020) reported that two vegetation types (Eg and Ar) are representative of the Tuart TEC (Table 3). DBCA database searches indicate that Tuart TEC is distributed extensively within the Survey Area and is present within surrounding remnant bushland to the north, south, and east (Figure 5).

PGV (2020) reported that one vegetation type (EmBa) is representative of the Banksia TEC (Table 3). DBCA database searches indicate the TEC is present within surrounding remnant bushland to the north, south, and east (Figure 5).

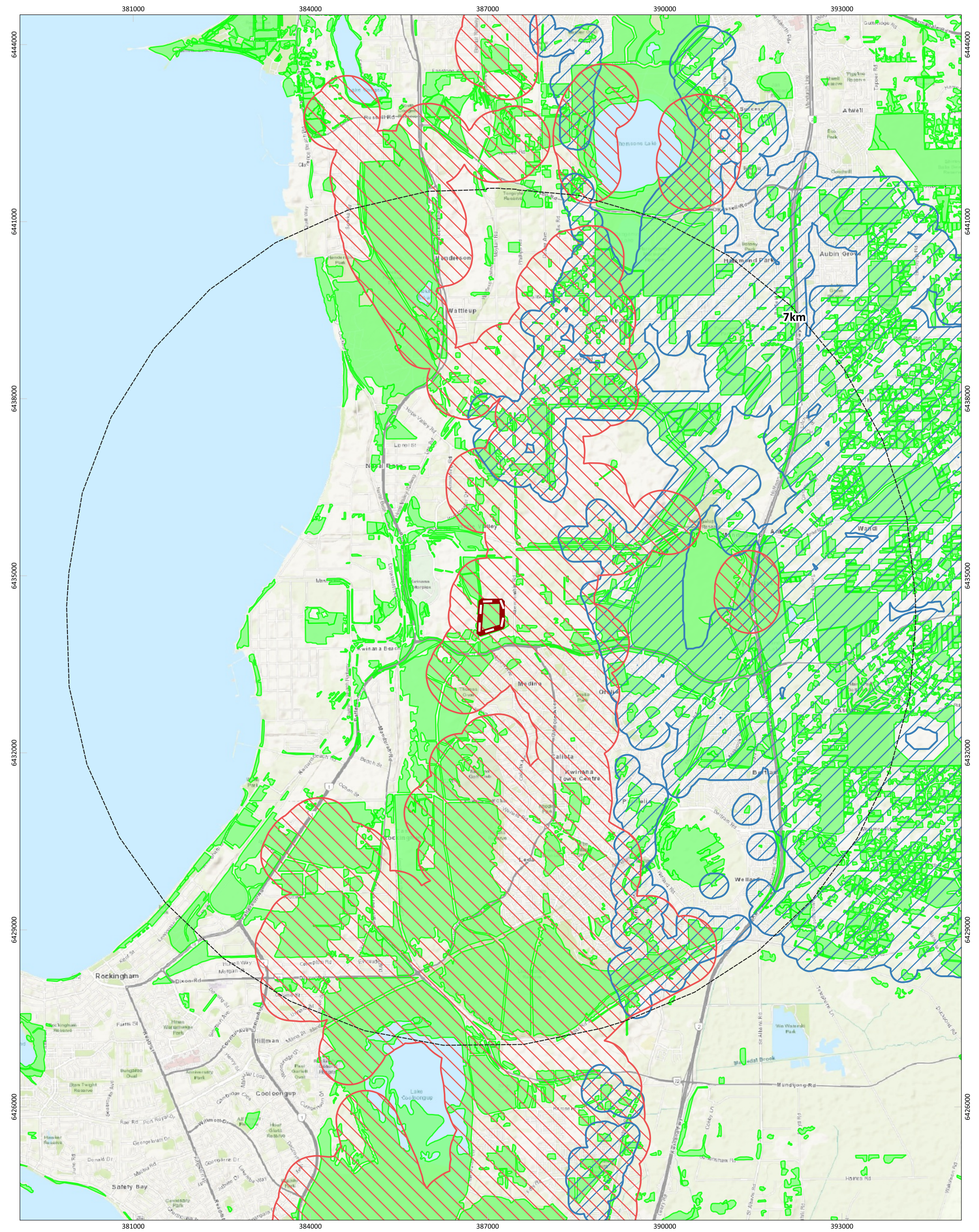


Figure 5: DBCA Database Search of Threatened Ecological Communities and Native Vegetation Extent

0

500

1,000

1,500

2,000 m

N

SCALE

1:60,000

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

LANDGATE AERIAL IMAGERY Summer 2023

PROJECT/REPORT NAME

Biological survey technical report
Abercrombie Road

CLIENT

WA Limestone

PROJECT NUMBER

A23.096

VERSION

0

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DATE

8/3/2024

Legend

Survey Area

Native Vegetation Extent (DPIRD-005)

Threatened Ecological Communities (DBCA-038)

Banksia Woodlands of the Swan Coastal Plain ecological community

Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain

No	Description	Drawn	Approved	Date
A	Original issue	SM	LT	8/3/2024

NOTES:
Cadastral boundary (LGATE-002). Label corresponds to the vegetation association number.

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3.2.2 Field Survey

A follow-up survey of Banksia TEC and Tuart TEC was undertaken within the mapped extent of each TEC (PGV, 2020). Mapping notes were captured to facilitate a detailed assessment of habitat quality in accordance with DCCEEW (n.d.) and the approved conservation advice for each TEC.

Banksia TEC Assessment

The Survey Area contains one patch of Banksia TEC that covers 9.1 ha.

A habitat quality assessment was undertaken for the one patch of Banksia TEC present within the Survey Area, originally mapped by PGV (2020). The Banksia TEC patch was assigned a HQS of 3.6 (out of 10). The full assessment is provided as Table 9.

In summary, the assessment result was as follows:

- Site Condition Parameters (weighted 70% of total score):
 - Vegetation condition scored a total of 40 (out of possible 100) due to the entirety of the patch being in Good condition.
 - Species Richness was scored 0 (out of possible 10) as the average species richness of the quadrats sampled within the TEC patch (AR3 and AR5) was lower than the average species richness noted for the Banksia TEC (50 species/100m² quadrat).
 - Presence of Threatened Taxa scored 0 (out of possible 10) as no threatened species were considered to have high likelihood of occurrence from the desktop assessment, and none were recorded during the targeted survey.
 - Contain State listed TEC/PEC was scored 0 (out of a maximum of 20) given the absence of State listed TEC or PEC.
 - Presence of Dieback scored 5 (out of a maximum of 10). Dieback (*Phytophthora cinnamomi*) infestation was evident in patches across the Study Area and is likely to be present within the TEC patch.

Site Context (weighted 30% of score):

- Connectivity scored 20 (out of possible 30) given the patch is connected to a corridor to the east which extends to the Spectacles wetlands.
- Patch Size scored 30 (out of a possible 50) as to the size of the remnant patch is 9.1 ha.
- Site Location and Risk scored a total of 0 (out of possible 20) as the Survey Area is not within an area where the TEC has been extensively cleared and is not on the edge of its known range.

Table 9. Banksia TEC Habitat Quality Score Assessment

	Component	Sub-Component	Potential Score	Survey Area Score	Comment
Site Condition	Vegetation Condition	Pristine	100	40	PGV (2020) assessed the entire patch as in 'Good' condition. This was confirmed by WEPL. Therefore, a score of 40 has been applied.
		Excellent	80		
		Very Good	60		
		Good	40		
		Degraded	20		
		Completely Degraded	0		
		Total			
	Species Richness	Average native species richness within top half of recorded range for the TEC	10	0	As per approved conservation advice (DEECCW, 2016), the average species richness in the Banksia TEC is 50 species within 100 m2 sample plots.
		Average native species richness within the bottom half of recorded range of the TEC	0		Two quadrats were situated within the EmBa vegetation type, within which the following species richness were recorded: • AR3: 17 native species • AR5: 12 native species. The patch has an average of 14.5 native species which is within the bottom half of recorded average range of the TEC identified in the conservation advice. Therefore, a score of 0 has been applied.
	Presence of Threatened Taxa	Patch is critical habitat for and hosts Threatened taxa	10	0	No Threatened taxa were considered to have a 'high' likelihood of occurrence in the desktop assessment (section 3.1.1), and none were recorded within the detailed flora and vegetation assessment (PGV, 2020) or targeted searches by WEPL (section 3.1.2). Therefore the patch cannot be considered critical habitat for Threatened taxa, and a score of 0 has been applied.
		Patch is critical habitat for Threatened taxa	5		
		Patch is not critical habitat for Threatened taxa	0		
	Contains State listed TEC/PEC	Patch contains WA FCT listed as State TEC	20	0	PGV (2020) reported that vegetation within the patch was most similar to FCT28 'Spearwood Banksia attenuata or B. attenuata – Eucalyptus woodland'. FCT28 is not a TEC/PEC at State-level. Therefore, the patch does not contain a WA FCT listed as either TEC or PE and a score of 0 has been applied.
		Patch contains WA FCT listed as State PEC	10		
		Patch does not contain WA FCT	0		

	Component	Sub-Component	Potential Score	Survey Area Score	Comment
Site Context		listed as either TEC or PEC			
	Presence Dieback	Patch is dieback free	10	5	There is evidence of dieback in several locations within the Survey Area, indicated as die-off of Banksia and Xanthorrhoea sp. Given track and soil disturbance, dieback is considered likely in several locations across the overall Survey Area. Therefore, the patch is considered partly dieback-free and a score of 5 has been applied.
		Patch is partly dieback free	5		
		Patch is dieback infested	0		
	Total Patch Condition (/150)			45/150	
	Proportional Total Patch Condition (/150*70)			45/100*70 =21	
	Connectivity	Patch is continuous with remnant vegetation and forms a corridor that links different landscape units	30	20	The patch is continuous with remnant vegetation south of the Survey Area. The patch forms a medium to large local remnant. Therefore, a score of 20 has been applied.
		Patch is continuous with remnant vegetation that forms a medium to large local remnant	20		
		Patch is within 1 km of other medium to large remnants	10		
		Patch is within 12 km of other significant remnants and contributes to support of significant avifauna (i.e. known Black Cockatoo Breeding sites are located within 12km)	5		
		Patch does not meet any of the above criteria	0		

	Component	Sub-Component	Potential Score	Survey Area Score	Comment
	Patch size	>20 ha	50	30	The patch has an area of 9.1 ha as mapped by PGV (2020) and confirmed by WEPL. As the patch is between 5 and 10 ha in size, a score of 30 has been applied.
		10 – 20 ha	40		
		5 – 10 ha	30		
		2 – 5 ha	20		
		Less than 2 ha	10		
	Site Location and Risk	Patch is located in an area where the TEC has been extensively cleared	10	10	Banksia TEC has been extensively cleared throughout its range. Therefore, a score of 10 has been applied.
		Patch is located at the geographical edge of the recorded range	10	0	The patch is not located at the geographical edge of the TEC's recorded range. Therefore, a score of 0 has been applied.
	Total Site Context (/100)			60/100	
	Proportional Total Site Context (/100*30)			60/100*30 =18	
	Patch HQS (Sum of Proportional Totals for Patch Condition and Patch Context)			21+18 =39	
	Patch Weighted (by Area) HQS (/100)			0.39	
	Site HQS (/10)			3.9/10	

Tuart TEC Assessment

The Survey Area contains two patches of Tuart TEC covering a total of 7.51 ha, of which 1.54 ha extends beyond the boundary of the Survey Area. The habitat quality of each patch was assessed across the full extent of each (i.e. both within and outside the Survey Area). Patch 1 covers a total of 4.52 ha and Patch 2 covers a total of 2.99 ha.

A habitat quality assessment was undertaken for the two patches of Tuart TEC as mapped by PGV (2020) shown on Figure 7. Both patches of Tuart TEC were assessed to have a HQS of 6 (out of a possible 10). The full assessment is provided as Table 10.

In summary, the assessment result was as follows:

- Site Condition Parameters (weighted 70% of total score)
 - Native Understory Cover scored a total of 40 (out of possible 60) given both patches have greater than 8 and less than 12 native understory species per 100m² quadrat.
 - Contains a Habitat Role was scored 15 (out of possible 15), both patches contains > 2 large trees (DBH >30 cm) per half hectare of any species native to southwest WA.
 - Site Shows Regeneration scored 15 (out of possible 15). It was evident from the site walkover that both patches display signs of regeneration of Eucalypts, with more than 15 individuals each per half hectare.
 - Presence of Key Fauna Species was scored 0 (out of a maximum of 10) given there was a lack of evidence indicating the presence of key fauna species (e.g. Quenda or Echidna diggings). The mid stratum is also considered too sparse to support mammal pollinators for seed dispersal.
 - Presence of Dieback scored 5 (out of a maximum of 15). Dieback (*Phytophthora cinnamomi*) infestation was evident in patches across the Survey Area and is likely to be present within both TEC patches.
- Site Context (weighted 30% of score)
 - Patch Size scored 50 (out of possible 100) given both patches are between 2 and 5 ha in size.
 - Landscape Role scored 15 (out of a possible 50) given both patches are connected to native vegetation adjacent to the Survey Area.

Buffer Zone scored a total of 0 (out of possible 15) due to the absence of an appropriate buffer (60 m from outer canopy of established Tuarts) beyond the patch boundary.

Table 10. Tuart TEC Habitat Quality Score Assessment

Habitat Quality Scoring Framework			Potential Score	Patch 1 Score	Patch 2 Score	Justification
	Component	Sub-Component				
Site Condition (70%)	Native Understory Cover	Very high condition ≥80% OR ≥12 native species per plot	60	High condition 40	High condition 40	Both patches have greater than 8 and less than 12 native species per plot (PGV,2020) as detailed below. Patch 1 Plot AR2: 10 native understory species. Plot AR6: 9 native understory species. Patch 2 AR4: 9 Native understory species.
		High condition ≥60% and <80% OR ≥8 native species per plot	40			
		Moderate condition ≥50% and <60% OR ≥4 native species per plot	20			
		Poor condition <50% OR <4 native species per plot	0			
	Contains a Habitat Role	Site has habitat role (2 or more large trees per 0.5 ha)	15	15	15	Patch 1 contains 18 trees with DBH > 30 cm, of which four have a DBH > 50 cm. Patch 2 contains 48 trees with DBH > 30 cm, of which six have a DBH > 50 cm. Neither patch contains >2 trees with DBH > 50 cm per half hectare, however both contain > 2 trees with DBH > 30 cm per half hectare. Given the Department consider trees with DBH > 30 cm of a suitable species to develop hollows important habitat
		Site doesn't have a habitat role	0			

Habitat Quality Scoring Framework			Potential Score	Patch 1 Score	Patch 2 Score	Justification
	Component	Sub-Component				
						for black cockatoos, both patches are considered to have a habitat role. Therefore, a score of 15 has been applied to both patches.
	Site shows regeneration	Site shows regeneration (15 or more seedlings and/or saplings per 0.5 ha)	15	15	15	During WEPL's follow-up survey, a transect within each patch identified >15 regenerating individuals per half hectare. Therefore, a score of 15 has been applied to both patches.
		Site doesn't show regeneration	0			
	Presence of Key Fauna Species	Entire site hosts key fauna	10			There is no evidence that key fauna that contribute to soil turn-over (e.g. Quenda and Echidna) are present within either patch. However, a fauna survey has not been undertaken. Invasive fauna such as rabbits and foxes are common.
		Minor presence	0	0	0	
	Presence of Dieback	Site has no evidence of dieback	15			There is evidence of dieback in several locations within the Survey Area, indicated as die-off of Banksia and Xanthorrhoea sp. Given track and soil disturbance, dieback is considered likely in several locations across the overall Survey Area. Therefore, the patch is considered partly dieback-free and a score of 5 has been applied.
		Site has signs of dieback	5	5	5	
		Dieback is widespread on site	0			

Habitat Quality Scoring Framework				Potential Score	Patch 1 Score	Patch 2 Score	Justification
	Component	Sub-Component					
	Condition total (out of 115)				75/115	75/115	-
	Condition Score (Condition total / 115 * 70)				75/115*70 = 45.65	75/115*70 = 45.65	-
Site Context (30%)	Patch Size	≥5 hectares	100				Both patches are between 2 and 5 ha in size (PGV,2020): Patch 1: 4.52 ha Patch 2: 2.99 ha
		≥2 hectares and <5 hectares	50				
		≥0.5 hectares and <2 hectares. Patches smaller than 0.5 ha will not be accepted.	0				
					50	50	Therefore, a score of 50 has been applied to both patches.
	Landscape Role	Site has a landscape role	15				Both patches are connected to native vegetation outside the Survey Area. Patch 1 is connected to native vegetation to the southwest and Patch 2 is connected to the east (Figure 5). Therefore, both patches have a landscape role and a score of 15 has been applied to each.
		Site does not have a landscape role	0		15	15	

Habitat Quality Scoring Framework			Potential Score	Patch 1 Score	Patch 2 Score	Justification	
	Component	Sub-Component					
	Buffer Zone	Site has an appropriate buffer zone 15				Neither patch has an appropriate buffer. Land uses immediately adjacent to the patches include: • landfill to the west. • sand quarry to the north. • paddock to the northeast. • gas pipeline/pumping station to the southeast.	
		Site does not have an appropriate buffer zone 0			0		0
	Context total (out of 130)				65/130	65/130	
	Context Score (Context total / 130 * 30)				65/130*30 = 15	65/130*30 = 15	
	Quality total: Condition Score + Context Score (out of 100)				45.65+15 = 60.65	45.65+15 = 60.65	
Final Site Habitat Quality Score: Quality total/10 (out of 10)				6.065	6.065		
Weighted Site Score: Final Site Habitat Quality Score * area of site (ha)				6.065*4.52 = 27.31	6.065*2.99 = 18.13		
Site Habitat Quality Score: All Weighted Site Scores/total impact area (out of 10)				27.31/4.52 = 6.04	18.13/2.99 = 6.06		



Figure 7: Tuart TEC Extent

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

PROJECT/REPORT NAME

Biological survey technical report
Abercrombie Road

CLIENT

WA Limestone

PROJECT NUMBER

A23.096

VERSION

0

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DATE

8/3/2024

Legend

Survey Area

Tuart Woodland TEC (PGV, 2020)

No	Description	Drawn	Approved	Date
A	Original issue	SM	LT	8/3/2024

NOTES:
Cadastral boundary (LGATE-002). Label corresponds to the vegetation association number.

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3.3 Black Cockatoo Habitat Assessment

The black cockatoo habitat assessment was undertaken during two one-person days on the 10th and 11th October 2023.

3.3.1 Black Cockatoo Breeding Habitat Assessment

A total of 197 potential breeding trees (DBH > 30 cm) were recorded. Of those, 162 had a DBH of between 30 and 50 cm, and the remaining 35 had a DBH greater than 50 cm. The number, species, size, and class of all trees recorded within the Survey Area is provided in Table 11.

The large majority of trees (193) did not show signs of potential nesting hollow development (Class 5 trees). Four trees possess small hollows that are currently of an insufficient size to support nesting, however these trees are of sufficient age and growth form to develop hollows (Class 4 trees). All Class 4 trees recorded in this survey have a DBH greater than cm.

Table 11. Number, Species, Size, and Class of Significant Trees within the Survey Area

Species	Tree Class		Total
	Class 4	Class 5	
DBH between 30 and 50 cm			
Stag	-	10	10
<i>Eucalyptus gomphocephala</i>	-	24	24
<i>Eucalyptus marginata</i>	-	127	127
<i>Eucalyptus rudis</i>	-	1	1
Subtotal	-	162	162
DBH > 50 cm			
Stag	2		2
<i>Eucalyptus gomphocephala</i>		10	10
<i>Eucalyptus marginata</i>	2	21	23
Subtotal	4	31	35
Total	4	193	197

Figure 8 provides the locations of all trees with a DBH greater than 30 cm within the Survey Area. Appendix I provides details of tree locations, species, and DBH for all trees with a DBH greater than 30 cm.

The nearest known breeding site to the Survey Area is more than 15 km to the north east, as shown on Figure 9.

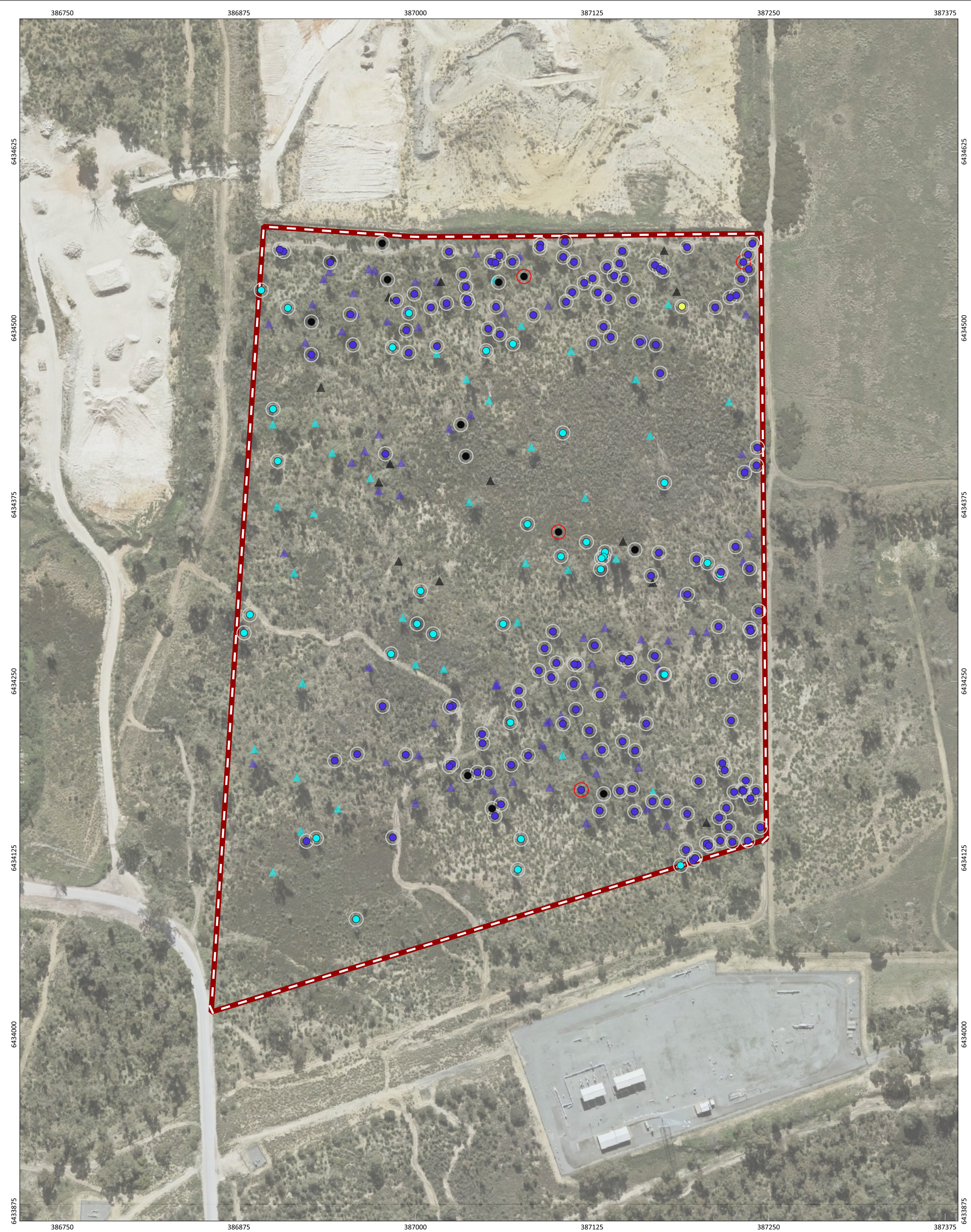


Figure 9: Black Cockatoo Potential Breeding Habitat

0

20

40

60

80 m

N

SCALE

1:2,500

SHEET SIZE

A3 COLOUR

PROJECT/REPORT NAME

Biological survey technical report
Abercrombie Road

CLIENT

WA Limestone

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

LANDGATE AERIAL IMAGERY Summer 2023

PROJECT NUMBER

A23.096

VERSION

0

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DATE

8/3/2024

Legend

Survey Area

Bamford Tree Class

4

5

Tree Species

Dead

Flooded Gum

Jarrah

Tuart

Tree Species (Harewood, 2018)

Dead

Jarrah

Tuart

No

Description

Drawn

Approved

Date

A

Original issue

SM

LT

8/3/2024

NOTES:

Cadastral boundary (LGATE-002). Label corresponds to the vegetation association number.

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3.3.2 Black Cockatoo Hollow Inspection

The previous black cockatoo habitat assessment undertaken by Harewood (2018) recorded one tree with a potentially suitable hollow where some chew marks were present. Black cockatoo expert Tony Kirkby was engaged to undertake a detailed inspection of the hollow, together with two others that contained 'possible' hollows (Wpt 1, 6, and 66).

Tony Kirkby found that all three had been reduced to stumps during a bushfire in 2021. The locations were double-checked against Harewood (2018) maps and were all correct. Results of the follow-up hollow inspection including a photograph of each tree is provided in Table 11.

3.3.3 Roosting Trees

DAWE (2022) states that any tall tree (particularly eucalyptus over 10 m in height) may provide potential roosting habitat. Details of all trees with a DBH greater than 30 cm were recorded, which are considered to satisfy this definition of potential roosting habitat. As such, the Survey Area contains 197 trees that may comprise potential roosting habitat. No evidence of roosting (e.g. scats) were recorded.

A number of potential roosting sites are situated within 12 km of the Survey Area (Figure 9). The nearest confirmed roosting site is situated 4.0 km to the southeast (KWIWELR001) of the Survey Area. This is a joint roost used by both white-tailed and Forest red-tailed black cockatoos (Birdlife, 2023). No distinction is made between Carnaby's black cockatoo and Baudin's black cockatoo in the data provided by Birdlife, however records on the Swan Coastal Plain are assumed to be Carnaby's black cockatoo.

Table 12. Results of Follow-up Hollow Inspection Showing Trees Burnt in 2021 Fire

Tree no. (Wpt)	Description from Harewood (2018)	Image from Harewood (2018)	Image from November 2023
1	Tree contains possible hollow. Observations made in the field indicate that possible hollows in this tree are unlikely to be used by black cockatoos for nesting purposes. Hollow 1: Vertical spout in branch with an opening of about 20cm. Several other smaller/unsuitably orientated hollows. No evidence of use (e.g. chew marks around hollow entrances) are evident suggesting no black cockatoo activity. Overhanging branches lessen the likelihood that this hollow (if suitable) would be used by black cockatoos as they hinder approach and departure angles. Other smaller hollows were in use by galahs and an eastern barn owl.		Tree reduced to stump in 2021 bushfire. 

Tree no. (Wpt)	Description from Harewood (2018)	Image from Harewood (2018)	Image from November 2023
6	Tree contains possible hollows. Observations made in the field indicate that this tree is very unlikely to contain any hollows currently suitable for black cockatoos to use for nesting purposes. Hollow 1: • Vertical spout 20 to 30 cm opening. • Appears very shallow with a plant growing in its base. • No evidence of use (e.g. chew marks around hollow entrance). Hollow 2: • Vertical spout ~15 cm opening. • Entrance appears large enough to allow entry of a black cockatoo. • Maximum internal diameter of the hollow at depth appears unfavourable (<20 cm). • No evidence of use (e.g. chew marks around hollow entrance).	Hollow 1  	Tree reduced to stump in 2021 bushfire.

Tree no. (Wpt)	Description from Harewood (2018)	Image from Harewood (2018)	Image from November 2023
		Hollow 1  Hollow 2 	

Tree no. (Wpt)	Description from Harewood (2018)	Image from Harewood (2018)	Image from November 2023
66	Observations made in the field indicate that this tree may contain a hollow suitable for black cockatoos to use for nesting purposes with some signs of possible previous use. Hollow 1: • Near vertical broken off cut branches with a ~15-20 cm opening. • Appears to provide entry into a suitably sized tree trunk though no evidence of use. Hollow 2: • Near vertical broken off cut branches with a ~15-20 cm opening. • Numerous chew marks suggesting it may have been used by black cockatoos.	 Hollow 1 	Tree reduced to stump in 2021 bushfire. 

Tree no. (Wpt)	Description from Harewood (2018)	Image from Harewood (2018)	Image from November 2023
		Hollow 2 	

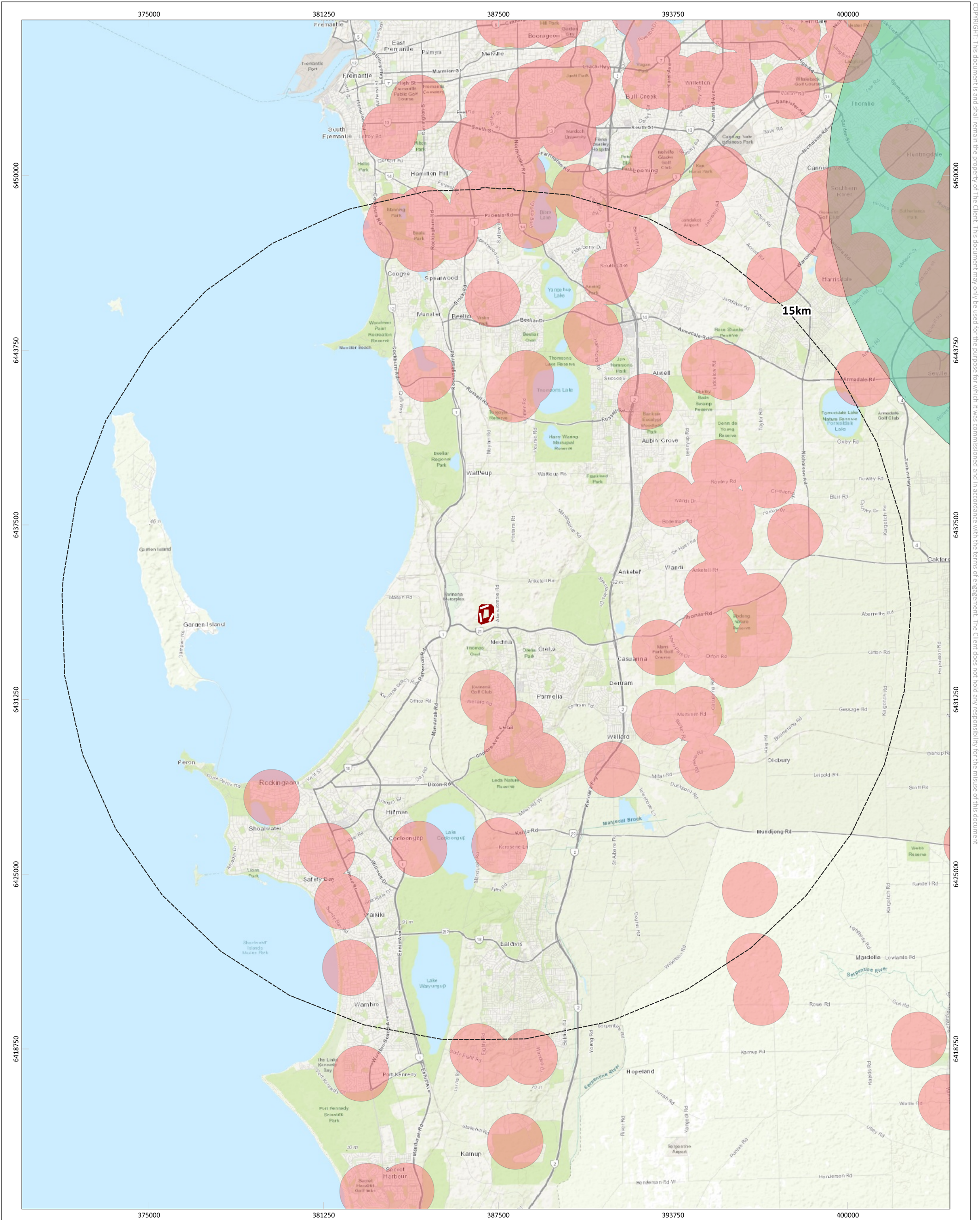


Figure 8: Known Breeding Sites for Black Cockatoos

0

1

2

3 km

N

SCALE

1:125,000

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

LANDGATE AERIAL IMAGERY Summer 2023

PROJECT/REPORT NAME

Biological survey technical report
Abercrombie Road

CLIENT

WA Limestone

PROJECT NUMBER

A23.096

VERSION

0

DRAWN BY / REVIEWED BY

SM/LT

DATE

8/3/2024

Legend

Survey Area

Black Cockatoo Roosting Sites - Buffered (DBCA-064)

Carnabys Cockatoo Confirmed Breeding Areas within the Swan Coastal Plain and Jarrah Forest IBRA Regions (DBCA-054)

No	Description	Drawn	Approved	Date
A	Original issue	SM	LT	8/3/2024

NOTES:
Cadastral boundary (LGATE-002). Label corresponds to the vegetation association number.

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3.3.4 Black Cockatoo Foraging Habitat Quality Assessment

Foraging habitat quality was assessed in accordance with the HQS tool developed by DCCEEW (n.d.). The HQS tool describes elements indicative of suitable foraging habitat for WA black cockatoo species and is supported by habitat assessments undertaken by qualified and experienced ecologists.

The Survey Area was found to provide 17.41 ha of foraging habitat for Carnaby's black cockatoo and Forest red-tailed black cockatoo. The remaining 0.76 does not provide foraging habitat for either species.

A breakdown of foraging habitat quality (site condition score) and extent for Carnaby's black cockatoo and Forest red-tailed black cockatoo is presented in Table 13. A detailed overview of the assessment is provided in Table 14.

Table 13. Foraging Habitat Quality (Site Condition) for Carnaby's and Forest Red-tailed Black Cockatoo

Site Condition Score	Carnaby's black cockatoo		Forest Red-tailed Black Cockatoo	
	Area (ha)	% of Total	Area (ha)	% of Total
4	2.19	12.0%	N/A	N/A
3	10.47	57.7%	11.42	62.9%
2	0.61	3.3%	1.84	10.1%
1	4.14	22.8%	4.14	22.8%
0	0.76	4.2%	0.76	4.2%

The weighted average site condition score for Carnaby's black cockatoo across the proposed action area is 2.51 (low to moderate). For Forest red-tailed black cockatoo, the weighted average site context score is 2.32 (low).

The proposed action area receives a site context score of 3, given that it is situated within 12 km of other foraging resources with a site condition greater than 3. Both Carnaby's and Forest red-tailed black cockatoo are known to occur within the proposed action area, and foraging evidence was observed.

A detailed summary of the foraging habitat quality scoring is provided in Table 14 and shown on Figure 10 for Carnaby's black cockatoo and Figure 11 for Forest red-tailed black cockatoo.

Table 14. Black Cockatoo Foraging Habitat Quality Assessment

Indicator	Score	Description and Area (ha)	
		Carnaby's black cockatoo	Forest Red-tailed Black Cockatoo
Vegetation Condition and structure	4	Intact native vegetation comprising 30% foliage cover of mixed Banksia sp. and Jarrah woodland. Seedlings and regrowth of Banksia present throughout the area. Total area: 2.19 ha (12.04%)	N/A
	3	Intact native vegetation comprising of Jarrah and Tuart. dominated woodland. Foliage cover of foraging trees ranges from 10-15 %. Lower foliage cover of Banksia through his area, mainly young seedlings that has potential to increase the foraging value. Estimated area as class 3 is 10.47 ha (57.66%)	Intact vegetation units providing foraging value as Jarrah and Tuart. dominated woodland. Foliage cover of foraging trees ranges from 6-12%. Estimated area as class 3 is 11.42 ha (62.91%)
	2	This portion of the Survey Area has reduced canopy cover and hence reduced foraging value. Estimated area as class 2 is 0.61 ha (3.34%)	Foraging tree foliage cover decreased to 2%. Estimated area as class 2 is 1.84 ha (10.13%)
	1	The areas associated with Class 1 foraging value score are vegetation types that do not hold any foraging value for Black Cockatoos (vegetation type Ar from the PGV [2020] report). Estimated cover of class 1 is 4.14 ha (22.79%).	
	0	Areas associated with cleared paths. Estimated cover 0.76 ha (4.18%).	
Indicator	Score	Description	
		Carnaby's black cockatoo	Forest Red-tailed Black Cockatoo
Proximity of the site in relation to other habitat	3	The Survey Area is located within 2 km of jarrah/banksia woodlands with a projected foliage cover of over 50%.	The Survey Area is located within 2 km of jarrah/banksia woodlands with a projected foliage cover of > 50%
Indicator	Score	Description	

Indicator	Score	Description and Area (ha)	
		Carnaby's black cockatoo	Forest Red-tailed Black Cockatoo
Confirm presence/ absence of species	Yes	Species is seen or reported regularly and/or there is abundant foraging evidence, e.g. chewed nuts can be identified as this species. Regularly is when the species is seen at intervals of every few days or weeks for at least several months of the year.	

4. Discussion

4.1 Targeted Search for Threatened Orchids

The Department requested further information regarding the presence or absence of Threatened orchid species known of likely to occur within 2 km of the Survey Area through either additional targeted searches for species that may occur, or a robust argument negating the need for further surveys for species not likely to occur. The Department requested specific information regarding the following species:

- Dwarf Bee-orchid (*Diuris micrantha*) – Vulnerable;
- King Spider-orchid (*Caladenia huegelii*) – Endangered;
- Purdie's Donkey-orchid (*Diuris purdiei*) – Endangered; and
- Glossy-leafed Hammer Orchid (*Drakaea elastica*) – Endangered.

A targeted survey was undertaken in accordance with the Draft survey guidelines for Australia's threatened orchids (Commonwealth of Australia, 2013). Following a detailed likelihood of occurrence assessment and advice from local orchid expert Andrew Brown, it was determined that *Caladenia huegelii* (King Spider Orchid – Endangered) is the only Threatened orchid species for which suitable habitat occurs within the Survey Area. No Threatened orchid was recorded during the targeted survey. It is considered unlikely that any Threatened orchids would be present within the Survey Area given the survey effort was adequate and conditions were favourable (as indicated by the presence of common species).

Based on the absence of suitable habitat from the Survey Area (see Table 8) additional targeted surveys for *Diuris drummondii*, *D. micrantha* and *D. purdiei* is not considered necessary. These species are associated with winter-wet swamps and, as such, the habitat present within the Survey Area is not suitable for any of the three species. This assessment was supported by orchid expert Andrew Brown (see Appendix J).

4.2 Habitat Quality Scoring Attributes for Banksia Woodland TEC

The Department requested further information regarding the quality of Banksia TEC that is present within the Survey Area. Specifically, the Department requested further information regarding the habitat quality scoring attributes of the TEC ensuring that the methodology identifies key characteristics that are specific to Banksia TEC.

To provide this information, WEPL undertook a follow-up survey of Banksia TEC within the Survey Area to supplement the flora and vegetation survey undertaken by PGV (2020). Information was gathered to facilitate assessment against a HQS tool developed by DCCEEW (n.d.) that covers the key characteristics of Banksia TEC.

The quality of Banksia TEC within the Survey Area was assessed as 3.6 (out of a possible 10) indicating the quality is relatively low. This was primarily a result of the 'Good' vegetation condition with considerable disturbance, low species richness, and absence of Threatened taxa or State-listed TECs or PECs (see Table 9).

DBCA database mapping identifies that the nearest likely Banksia TEC occurrence is 1.5 km to the east. The patch of Banksia TEC within the Survey Area does not form part of a larger patch. Approximately 2 ha of *Eucalyptus marginata* and *Banksia attenuata* woodland is present within the lot immediately east of the Survey Area, however the vegetation condition was observed to be Degraded to Completely Degraded. Therefore, the vegetation is not representative of Banksia TEC (DotEE, 2016).

4.3 Habitat Quality Scoring Attributes of Tuart TEC

The Department requested further information regarding the quality of Tuart TEC that is present within the Survey Area. Specifically, the Department requested further information regarding the habitat quality scoring attributes of the TEC ensuring that the methodology identifies key characteristics that are specific to Tuart TEC.

To provide this information, WEPL undertook a follow-up survey of Tuart TEC within the Survey Area to supplement the flora and vegetation survey undertaken by PGV (2020). Information was gathered to facilitate assessment against a HQS tool developed by DCCEEW (n.d.) that covers the key characteristics of Tuart TEC.

According to PGV (2020) and Table 2 of the Conservation Advice (DoEE, 2019) both patches of Tuart TEC within the Survey Area are medium-sized (covering between 2 and 5 ha) with high condition understorey (between 8 and 12 native species per 100 m² plot).

Patch 1 and Patch 2 were both assessed to have a HQS of 6 out of a possible 10 (moderate). The complete assessment is provided in Table 10.

The patch of Tuart TEC extends beyond the boundary of the Survey Area by a total of 2.33 ha (2.14 ha of Patch 1 and 0.19 ha of Patch 2). DBCA database mapping identifies that the nearest likely Tuart TEC occurrence is approximately 250 m to the south (DBCA-048).

4.4 Black Cockatoo Habitat Assessment

4.4.1 Foraging Habitat Quality

The Department requested further information regarding the habitat quality of the Survey Area for Carnaby's black cockatoo and Forest red-tailed black cockatoo. Specifically, the Department requested further information regarding the habitat quality scoring attributes, ensuring that the methodology recognises key characteristics that are specific to each species, separately.

Foraging habitat quality was assessed in accordance with the HQS tool developed by DCCEEW (n.d.) which describes elements indicative of suitable foraging habitat for WA black cockatoo species.

The Survey Area provides 17.41 ha of foraging habitat for Carnaby's black cockatoo and Forest red-tailed black cockatoo. Foraging habitat for Carnaby's black cockatoo within the Survey Area ranges from Low (1) to High (7) quality (combined site condition and site context score). The majority is of Moderate (6) quality (10.47 ha; 57.7%).

Foraging habitat for Forest red-tailed black cockatoo within the Survey Area ranges from Low (4) to Moderate (6), with the majority being of Moderate (6) quality (11.42 ha; 62.9%).

Due to the degraded nature of the Survey Area, there is relatively low foliage cover (< 30%) of important foraging species such as marri and jarrah (both black cockatoo species) and *Banksia* spp. (Carnaby's black cockatoo).

4.4.2 Potential Breeding Trees

The Department requested further details of trees that are suitable to develop a nest hollow in the future, with DBH between 30 cm and 50 cm (in addition to potential breeding trees with DBH greater than 50 cm that were previously recorded by Harewood [2018]).

During the survey, WEPL recorded all trees with a DBH greater than 30 cm. The Survey Area contains a total of 197 trees with a DBH greater than 30 cm, of which 162 have a DBH between 30 and 50 cm and the remaining 35 have a DBH greater than 50 cm. None of the trees within the Survey Area contain hollows that are suitable for black cockatoo nesting, however four contain hollows that are of insufficient size (two stag and two jarrah trees).

Harewood (2018) had previously recorded 119 potential habitat trees (with a DBH greater than 50 cm) within the Survey Area. The Survey Area was subject to a bushfire in 2021 which resulted in significant damage and loss of large, old trees.

4.4.3 Potential Roosting Trees

The Department requested details (number, type and size) of potential roosting trees within the Survey Area.

As defined in the referral guidelines for black cockatoo species (DAWE, 2022) any tall tree may provide potential roosting habitat. All trees with a DBH greater than 30 m were recorded during the survey, which are considered the most suitable to comprise potential roosting habitat given their size. As such, the Survey Area contains 197 trees that may comprise roosting habitat for black cockatoos, with the majority (76.1%) being jarrah with 150 trees.

No evidence of current roosting was identified during the survey.

4.4.4 Regional Black Cockatoo Habitat

Foraging Habitat

The presence and extent of foraging habitat for Carnaby's and Forest red-tailed black cockatoo within 12 km of the proposed action was estimated based on vegetation complex mapping (DBCA-046) and the mapped

extent of remnant native vegetation (DPIRD-005). The description of vegetation complexes within 12 km of the proposed action were reviewed to identify those with dominant species that are known to provide foraging habitat for Carnaby's and Forest red-tailed black cockatoo (GoWA, 2018). Further, the habitat quality of each complex was inferred by assessing plant species against those known to provide high, moderate, or low-quality foraging habitat as reported by DAWE (2022) and Groom (2011).

Table 15 provides a detailed description of vegetation complexes within 12 km of the proposed action that contain species known to provide foraging habitat for Carnaby's black cockatoo, together with the inferred habitat value and extent within a 6 km and 12 km radius. The same is provided for Forest red-tailed black cockatoo in Table 16.

Table 15. Vegetation Complexes within 12 km of the Proposed Action Comprising Potentially Suitable Habitat for Carnaby's black cockatoo (DBCA-057; DPIRD-005)

Vegetation Complex	Description	Species used by Carnaby's black cockatoo	Inferred Habitat Quality	Extent within 12 km (ha)
Bassendean Complex – Central and South	Vegetation ranges from woodland of <i>Eucalyptus marginata</i> (Jarrah) - <i>Allocasuarina fraseriana</i> (Sheoak) - <i>Banksia</i> species to low woodland of <i>Melaleuca</i> species, and sedgeland on the moister sites. This area includes the transition of <i>Eucalyptus marginata</i> (Jarrah) to <i>Eucalyptus tottiana</i> (Pricklybark) in the vicinity of Perth.	<i>Eucalyptus marginata</i> <i>Banksia</i> species <i>Eucalyptus tottiana</i>	High	4,407.17
Cottesloe Complex – Central and South	Mosaic of woodland of <i>Eucalyptus gomphocephala</i> (Tuart) and open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri); closed heath on the Limestone outcrops.	<i>Eucalyptus gomphocephala</i> <i>Eucalyptus marginata</i> <i>Corymbia calophylla</i>	High	2,566.99
Guildford Complex	A mixture of open forest to tall open forest of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus wandoo</i> (Wandoo) - <i>Eucalyptus marginata</i> (Jarrah) and woodland of <i>Eucalyptus wandoo</i> (Wandoo) (with rare occurrences of <i>Eucalyptus lane-poolei</i> (Salmon White Gum)). Minor components include <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark).	<i>Corymbia calophylla</i> <i>Eucalyptus wandoo</i> <i>Eucalyptus marginata</i> <i>Eucalyptus rudis</i>	High	37.44
Herdsmen Complex	Sedgeland and fringing woodland of <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca</i> species.	<i>Eucalyptus rudis</i>	Low	476.28
Karakatta Complex – Central and South	Predominantly open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri) and woodland of <i>Eucalyptus marginata</i> (Jarrah) - <i>Banksia</i> species. <i>Agonis flexuosa</i>	<i>Eucalyptus gomphocephala</i> <i>Eucalyptus marginata</i> <i>Corymbia calophylla</i> <i>Banksia</i> species	High	693.26

Vegetation Complex	Description	Species used by Carnaby's black cockatoo	Inferred Habitat Quality	Extent within 12 km (ha)
	(Peppermint) is co-dominant south of the Capel River.			
Serpentine River Complex	Closed scrub of Melaleuca species and fringing woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca raphiophylla (Swamp Paperbark) along streams.	Eucalyptus rudis	Low	175.83
Total				9,872.92

Table 16. Vegetation Complexes within 12 km of the Proposed Action Comprising Potentially Suitable Habitat for Forest Red-tailed Black Cockatoo (DBCA-057; DPIRD-005)

Vegetation Complex	Description	Species used by Forest Red-tailed Black Cockatoo	Inferred Habitat Quality	Extent within 12 km (ha)
Bassendean Complex – Central and South	Vegetation ranges from woodland of Eucalyptus marginata (Jarrah) - Allocasuarina fraseriana (Sheoak) - Banksia species to low woodland of Melaleuca species, and sedgelands on the moister sites. This area includes the transition of Eucalyptus marginata (Jarrah) to Eucalyptus tottiana (Pricklybark) in the vicinity of Perth.	Eucalyptus marginata Allocasuarina fraseriana	High	4,953.69
Cottesloe Complex – Central and South	Mosaic of woodland of Eucalyptus gomphocephala (Tuart) and open forest of Eucalyptus gomphocephala (Tuart) - Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri); closed heath on the Limestone outcrops.	Eucalyptus marginata Corymbia calophylla Eucalyptus gomphocephala	High	3,018.36
Guildford Complex	A mixture of open forest to tall open forest of Corymbia calophylla (Marri) - Eucalyptus wandoo (Wandoo) - Eucalyptus marginata (Jarrah) and woodland of Eucalyptus wandoo (Wandoo) (with rare occurrences of Eucalyptus lane-poolei (Salmon White Gum)). Minor components include Eucalyptus rudis (Flooded Gum) - Melaleuca raphiophylla (Swamp Paperbark).	Corymbia calophylla Eucalyptus marginata Eucalyptus wandoo	High	47.97
Karakatta Complex – Central and South	Predominantly open forest of Eucalyptus gomphocephala (Tuart) - Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri) and woodland of Eucalyptus marginata (Jarrah) - Banksia species. Agonis flexuosa (Peppermint) is co-dominant south of the Capel River.	Eucalyptus marginata Corymbia calophylla Eucalyptus gomphocephala	High	762.96

Vegetation Complex	Description	Species used by Forest Red-tailed Black Cockatoo	Interred Habitat Quality	Extent within 12 km (ha)
Serpentine River Complex	Closed scrub of Melaleuca species and fringing woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca raphiophylla (Swamp Paperbark) along streams.	Eucalyptus rudis	Low	175.83
Total				8,782.97

Within 12 km of the proposed action, there is an estimated 9,872.92ha of potential foraging habitat for Carnaby's black cockatoo and an estimated 8,782.97 ha for Forest red-tailed black cockatoo (DBCA-046; DPIRD-005).

Significant conservation areas within 12 km of the proposed action in providing habitat for both species are:

- Leda Nature Reserve.
- Thompsons Lake Nature Reserve.
- Harry Waring Marsupial Reserve.
- Modong Nature Reserve.

Breeding Habitat

There are no records of Carnaby's or Forest red-tailed black cockatoo breeding within a 12 km radius of the Survey Area (Birdlife, 2023), however this is not surprising as there are very few locations where black cockatoos breed successfully on the Swan Coastal Plain. The closest known breeding locations are approximately 15 km north and 14 km south of the proposed action (Birdlife, 2023). The specific locations of these sites are sensitive and cannot be displayed graphically. The buffered locations are shown on Figure 9.

Roosting Habitat

There are a total of 17 roosting sites utilised by white-tailed black cockatoos (assumed to be Carnaby's black cockatoo) within 12 km of the Survey Area, and nine utilised by Forest red-tailed black cockatoos (Birdlife, 2023). Of these, seven are joint roosts. The closest roosting site is situated 4.0 km southeast of the Survey Area.

The location of potential and known roosting sites in relation to the Survey Area is shown on Figure 9.

5. Conclusions

In summary, the survey recorded the following:

- Three Threatened orchid species were found to have a 'medium' likelihood of occurrence within the Survey Area (*Caladenia huegelii*, *Drakaea elastica*, and *D. micrantha*). No Threatened orchid species were found to have a 'high' likelihood of occurrence.
- No Threatened orchid species were recorded during the field survey, and none are considered to occur given the absence of suitable habitat.
- One patch of Banksia TEC (9.10 ha) with a habitat quality score of 3.6 (out of 10).
- Two patches of Tuart TEC covering a total area of 7.51 ha (noting this area extends outside of the Survey Area). Patch 1 is 4.52 ha in size with a habitat quality score of 6.05 (out of 10). Patch 2 is 2.99 ha with a habitat quality score of 6.05.
- A total of 17.41 ha of foraging habitat for Carnaby's black cockatoo and Forest red-tailed black cockatoo.
- The weighted average site condition score for Carnaby's black cockatoo is 2.51 (low to moderate), and for Forest red-tailed black cockatoo is 2.32 (low). The Survey Area has a site context score of 3 given the proximity to other foraging resources.
- There are 197 potential breeding trees with a DBH greater than 30 cm. Of those, 162 have a DBH greater than 30 cm and less than 50 cm, and 35 have a DBH greater than 50 cm.
- Four trees contain small hollows of insufficient size to support black cockatoo nesting. No suitable nesting hollows were identified.
- The trees Harewood (2018) identified as containing 'possible' black cockatoo nesting hollows (Wpt 1, Wpt 6, and Wpt 66) were reduced to stumps during a bushfire in 2021.

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Appendix A EPBC 2023/09465 Request for Further Information

Appendix E Environmental Management Plan

Appendix F Fauna Likelihood of Occurrence Assessment

Likelihood of Occurrence Fauna

Scientific name	Common name	Conservation status		Record Source		Likelihood of Occurrence	Justification
		State	Cwlth	DBCA database	PMST		
BIRD							
<i>Actitis hypoleucos</i>	Common sandpiper	Mi	Mi	X		Low	No suitable habitat
<i>Apus pacificus</i>	Fork-tailed swift	Mi	Mi	X		Low	May fly over the site, but not considered critical habitat for the species.
<i>Arenaria interpres</i>	Ruddy turnstone	Mi	Vu, mi	X	X	Low	No suitable habitat
<i>Botaurus dubius</i>	Australian little bittern	P4		X		Low	No suitable habitat
<i>Botaurus poiciloptilus</i>	Australasian bittern		En		X	Low	No suitable habitat
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	Mi	Vu & mi	X	X	Low	No suitable habitat
<i>Calidris canutus</i>	Red knot, knot		Vu		X	Low	No suitable habitat
<i>Calidris ferruginea</i>	Curlew sandpiper	Cr	Cr & mi	X	X	Low	No suitable habitat
<i>Calidris melanotos</i>	Pectoral sandpiper	Mi	Mi	X		Low	No suitable habitat
<i>Calidris ruficollis</i>	Red-necked stint	Mi	Mi	X		Low	No suitable habitat
<i>Calidris subminuta</i>	Long-toed stint	Mi	Mi	X		Low	No suitable habitat
<i>Calidris tenuirostris</i>	Great knot	Cr	Vu & mi	X	X	Low	No suitable habitat
<i>Calyptorhynchus banksii naso</i>	Forest red-tailed black cockatoo	Vu	Vu	X	X	Recorded	Evidence of foraging was observed at several locations within the project area by harewood (2018) and WEPL (2024). The project area provides suitable foraging, breeding and roosting habitat for the species.
<i>Charadrius cucullatus</i>	Hooded plover, hooded dotterel	P4		X		Low	No suitable habitat
<i>Charadrius leschenaultii</i>	Greater sand plover, large sand plover		Vu		X	Low	No suitable habitat
<i>Charadrius mongolus</i>	Lesser sand plover, mongolian plover		En		X	Low	No suitable habitat
<i>Chlidonias leucopterus</i>	White-winged black tern	MI	MI	X		Low	No suitable habitat

Scientific name	Common name	Conservation status		Record Source		Likelihood of Occurrence	Justification
		State	Cwlth	DBCA database	PMST		
<i>Falco peregrinus</i>	Peregrine falcon	OS		X		Medium	The species are considered potential only to utilise the habitat very infrequently for foraging and the habitat is not considered likely to be significant in supporting the local population of the species.
<i>Leipoa ocellata</i>	Malleefowl		VU		X	Low	No present in this area. No suitable habitat.
<i>Limosa lapponica menzbieri</i>	Northern siberian bar-tailed godwit, russkoye bar-tailed godwit		EN		X	Low	No suitable habitat
<i>Limosa limosa</i>	Black-tailed godwit	MI	MI, EN	X	X	Low	No suitable habitat
<i>Numenius madagascariensis</i>	Eastern curlew	CR	CR & MI	X	X	Low	No suitable habitat
<i>Oxyura australis</i>	Blue-billed duck	P4		X		Low	No suitable habitat
<i>Pachyptila turtur subantarctica</i>	Fairy prion (southern)		VU		X	Low	No suitable habitat
<i>Pandion haliaetus</i>	Osprey	MI	MI	X		Low	No suitable habitat
<i>Plegadis falcinellus</i>	Glossy ibis	MI	MI	X		Low	No suitable habitat
<i>Pluvialis squatarola</i>	Grey plover		VU		X	Low	No suitable habitat
<i>Rostratula australis</i>	Australian painted snipe		EN		X	Low	No suitable habitat
<i>Sternula albifrons</i>	Little tern		VU		X	Low	No suitable habitat
<i>Sternula nereis nereis</i>	Australian fairy tern		VU		X	Low	No suitable habitat
<i>Thalasseus bergii</i>	Crested tern	MI	MI	X		Low	No suitable habitat
<i>Tringa glareola</i>	Wood sandpiper	MI	MI	X		Low	No suitable habitat
<i>Tringa nebularia</i>	Common greenshank	MI	MI, EN	X	X	Low	No suitable habitat
<i>Tringa stagnatilis</i>	Marsh sandpiper	MI	MI	X		Low	No suitable habitat
<i>Tyto novaehollandiae novaehollandiae</i>	Masked owl (southwest)	P3		X		Low	Very rare to locally extinct on the SCP.
<i>Xenus cinereus</i>	Terek sandpiper		VU		X	Low	No suitable habitat

Scientific name	Common name	Conservation status		Record Source		Likelihood of Occurrence	Justification
		State	Cwlth	DBCA database	PMST		
<i>Zanda baudinii</i>	Baudin's cockatoo	EN	EN	X	X	Low	Outside of known range. Single historical record from 1939.
<i>Zanda latirostris</i>	Carnaby's cockatoo	EN	EN	X	X	Recorded	Evidence of foraging was observed at several locations within the project area by harewood (2018) and WEPL (2024). The project area provides suitable foraging, breeding and roosting habitat for the species.
INVERTEBRATE							
<i>Leioproctus douglasiellus</i>	A short-tongued bee		CR		X	Low	Outside of known habitat range.
<i>Idiosoma sigillatum</i>	Swan coastal plain shield-backed trapdoor spider	P3		X		High	Banksia woodland provides suitable habitat on site.
<i>Synemon gratiosa</i>	Graceful sunmoth	P4		X		High	Banksia woodland provides suitable habitat on site.
<i>Westralunio carteri</i>	Carter's freshwater mussel	VU	VU	X	X	Low	No suitable habitat
MAMMAL							
<i>Bettongia penicillata ogilbyi</i>	Woylie		EN		X	Low	No records within 10km. Nearest population is a managed population in Whiteman park.
<i>Dasyurus geoffroii</i>	Chuditch, western quoll	VU	VU	X	X	Medium	Expected to be a vagrant. Species is wide-ranging and likely to be present within the site as a vagrant only.
<i>Falsistrellus mackenziei</i>	Western false pipistrelle, western falsistrelle	P4		X		Low	Very rare on SCP. Most records are in jarrah forest.
<i>Hydromys chrysogaster</i>	Water-rat, rakali	P4		X		Low	No suitable habitat
<i>Isodon fusciventer</i>	Quenda, southwestern brown bandicoot	P4		X		High	Expected to be a resident of the site. Recorded extensively within 10 km of the site and suitable habitat is present.
<i>Myrmecobius fasciatus</i>	Numbat, walpurti	EN	EN	X		Low	Locally extinct
<i>Notamacropus eugenii derbianus</i>	Tammar wallaby	P4		X		Low	Unlikely to occur in survey area. Records are likely to be of a reintroduced population.

Scientific name	Common name	Conservation status		Record Source		Likelihood of Occurrence	Justification
		State	Cwlth	DBCA database	PMST		
<i>Notamacropus irma</i>	Western brush wallaby	P4		X		High	Expected to be a regular visitor to the site.
<i>Phascogale tapoatafa wambenger</i>	South-western brush-tailed phascogale, wambenger	CD		X		Medium	Large trees in survey area provide suitable habitat. Low records, but species can be hard to detect.
<i>Pseudocheirus occidentalis</i>	Western ringtail possum, ngwayir, womp, woder, ngoor, ngoolangit		CR		X	Low	No records within 10km, not suitable habitat.
REPTILE							
<i>Lerista lineata</i>	Perth slider, lined skink	P3		X		High	Banksia woodland habitat within the survey area is core habitat for this species.
<i>Neelaps calonotos</i>	Black-striped snake, black-striped burrowing snake	P3		X		Medium	Survey area within the ambiguous extant population area and banksia woodland provides suitable habitat on site.

