

ATTACHMENT 5

2026 ENVIRONMENTAL MANAGEMENT

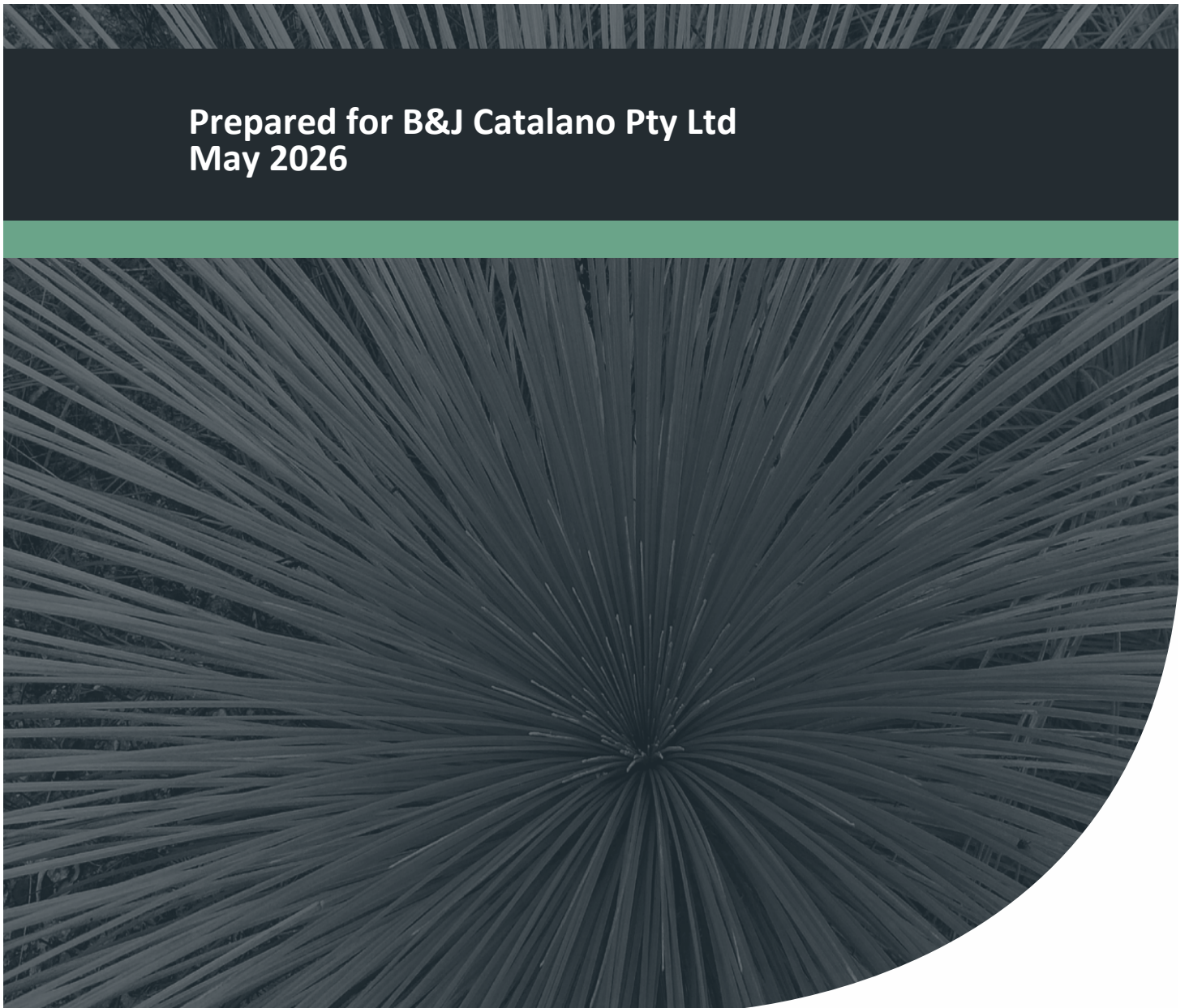
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Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup

Project No: EP25-070(04)

**Prepared for B&J Catalano Pty Ltd
May 2026**



Environmental Management Plan

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Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Executive Summary

B&J Catalano Pty Ltd (the proponent) is lodging a Development Application (DA) and an Extractive Industry Licence (EIL) application to facilitate expansion of existing limestone extractive operations within part Lot 4 and Lot 5 Ludlow Road, Myalup, approximately 50 km north of Bunbury within the Shire of Harvey, Western Australia (WA). The proposed expansion will operate within a 7.98 ha parcel of land (herein referred to as ‘the site’) directly south of existing extractive operations within a portion of Lot 5.

The expansion of existing extractive works (herein referred to as ‘the proposed expansion’) includes the following:

- The clearing of 3.57 ha of native vegetation.
- The mining of approximately 150,000 tonnes per year of limestone to a depth of 6 m AHD, including crushing and screening onsite via mobile plant for approximately six weeks per annum.
- Progressive rehabilitation of the site involving stabilising and recontouring landforms, followed by revegetation using pasture grasses and native species.

The staged approach allows rehabilitation works to commence prior to exhaustion of the entire limestone resource within the site boundary, thereby reducing the duration for which land remains clear of vegetation and reducing potential associated environmental impacts such as erosion and sedimentation, dust, and edge effects.

This EMP has been prepared to support the proponent’s application for a DA and EIL from the Shire of Harvey in accordance with the Shire’s Extractive Industry – Application Checklist (SoH 2024a). The plan outlines the potential environmental risks associated with the implementation of the proposed expansion, and details how these will be minimised and managed appropriately.

This EMP establishes a framework of management measures and controls to avoid, minimise and manage potential environmental impacts associated with the proposed expansion. The framework applies to all activities undertaken within the site and its immediate surrounds and is supported by the following key management components:

- **Vegetation management** – Activities within the site will be managed to protect vegetation beyond the approved clearing footprint. This will be achieved through the installation of visual markers and/or fencing to demarcate the site boundary, identify the extent of works and protect adjacent vegetation. All site personnel will ensure demarcation measures are in place prior to works commencing.
- **Fauna management** – The site contains habitat values for fauna species, including potential black cockatoo nesting trees. Pre-clearing hollow inspections will be completed, and a fauna spotter will be on site for during clearing works to minimise the risk of fauna death or injury.
- **Weed and dieback management** - Physical disturbance, import of fill, and additional movement of vehicles and equipment within the site may result in the introduction of dieback and/or weed species or the spread of existing weed populations. Proposed management includes monitoring the site for weeds, implementing weed control programs and ensuring equipment and materials brought to site are free of weed and soil material.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



- **Erosion and sedimentation** – Soils will become exposed during extractive operations and have the potential to be subject to erosion during rainfall, high wind, or through vehicle movements. Regular inspection of any soil stockpiles and areas of exposed soil will be undertaken to check for erosion or sedimentation. Sediment control measures such as sediment traps (sandbags or filter socks) and sedimentation fencing (such as shade cloth), will be implemented where required to prevent sediment runoff entering the wetland buffer area or surrounding vegetation.
- **Stormwater** – No surface water bodies occur within the site and the collection of stormwater within the pit is not anticipated due to the high permeability of soil within the site. Any stormwater runoff is anticipated to be contained within the pit with no further management or monitoring proposed.
- **Dust** – Dry sandy soils can be subject to wind erosion and may generate dust, particularly when vegetation is cleared. Dust will be managed through measures such as dust suppression fencing, watering of dry soils, monitoring wind conditions that requires stopping work during high-wind events and managing stockpile sizes.
- **Noise and vibration** – The site is within 500 m of one residence. Noise and vibration generated during operation will be consistent with previously approved extractive operations immediately adjacent to the site. Noise will be managed in accordance with the *Environmental Protection (Noise) Regulations 1997*, including maintenance of equipment and designated operating hours.

The actions within this EMP and its associated subplans are the responsibility of the proponent. All contractors engaged to undertake works within the site will be required to adhere to this plan.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Table of Contents

1	Introduction	1
1.1	Background	1
1.2	Purpose of this Plan	1
2	Overview of proposed development	2
2.1	Existing Development	2
2.2	Operation Expansion.....	2
2.3	Access and traffic	2
3	Existing Environment	4
3.1	Geomorphology and Soils	4
3.1.1	Topography	4
3.1.2	Landforms, soils and geology	4
3.1.3	Acid sulfate soils and land contamination	4
3.2	Hydrology.....	5
3.2.1	Surface water	5
3.2.2	Groundwater	5
3.2.3	Wetlands	5
3.3	Flora and Vegetation.....	6
3.3.1	Regional vegetation	6
3.3.2	Site specific vegetation and flora survey.....	7
3.3.2.1	Vegetation units	7
3.3.2.2	Threatened and priority ecological communities	8
3.3.2.3	Conservation significant flora	9
3.4	Fauna	9
3.4.1	Black cockatoo habitat	10
3.4.1.1	Foraging habitat	10
3.4.1.2	Roosting habitat.....	11
3.4.1.3	Breeding habitat.....	11
3.5	Pests and weeds	11
3.6	Heritage	11
3.6.1	Aboriginal heritage.....	11
3.6.2	Non-indigenous heritage.....	12
3.7	Bushfire.....	12
3.8	Land use capability.....	12
3.8.1	Historical context	12
3.8.2	Land zoning and planning context	12
3.8.3	Sensitive land use.....	13
4	Potential Environmental Impacts and Management	14
4.1	Erosion and sedimentation	14
4.2	Contamination	14
4.3	Air Quality – Dust	14
4.4	Noise and vibration	15
4.5	Flora and vegetation	15
4.6	Fauna	15
4.6.1	Pre-clearing inspection.....	15
4.6.2	Fauna spotting.....	16
4.7	Hydrology.....	16
4.7.1	Stormwater management.....	16
4.7.2	Groundwater management	17

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



4.8	Weeds and Dieback	17
4.9	Visual impact.....	17
4.9.1	Heritage.....	17
4.10	Environmental monitoring and management	18
5	Corrective actions.....	22
6	References	24
6.1	General references	24

List of Tables

Table 1:	Approximate operational values for the proposed action	3
Table 2:	Geomorphic Wetlands of the Swan Coastal Plain management categories (Hill et al. 1996)	6
Table 3:	Vegetation units and extent (Ecoedge 2025)	7
Table 4:	Summary of fauna habitat types recorded within the site	9
Table 5:	Black Cockatoo foraging habitat extent within the site and survey area	10
Table 6:	Environmental objectives, management actions and performance targets.	19
Table 7:	Corrective actions.....	22

Figures

Figure 1:	Site Location
Figure 2:	Existing Development
Figure 3:	Surrounding Land Use
Figure 4:	Vegetation Units
Figure 5:	Vegetation Condition
Figure 6:	Threatened and Priority Ecological Communities
Figure 7:	Priority Flora
Figure 8:	Fauna Habitat
Figure 9:	Carnaby’s Black Cockatoo Foraging Habitat
Figure 10:	Baudin’s Black Cockatoo Foraging Habitat
Figure 11:	Forest Red-tailed Black Cockatoo Foraging Habitat
Figure 12:	Black Cockatoo Habitat Trees
Figure 13:	Environmental Management Features

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Appendices

Appendix A

Water Management Report

Appendix B

Weed Management Plan

Appendix C

Noise Management Plan

Appendix D

Dust Management Plan

Appendix E

Rehabilitation Management Plan

Appendix F

Detailed and Targeted Flora and Vegetation Survey

Appendix G

Basic Fauna and Targeted Black Cockatoo and Western Ringtail Possum Survey

Appendix H

Phytophthora Dieback and Extractive Industries Information Brochure

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



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Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Abbreviation Tables

Table A1: Abbreviations – Organisations

Organisations	
DFCA	Department of Biodiversity, Conservation and Attractions
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
SoH	Shire of Harvey

Table A2: Abbreviations – General terms

General terms	
ACH	Aboriginal Cultural Heritage
ACHIS	Aboriginal Cultural Heritage Inquiry System
ASS	Acid sulfate soils
CCW	Conservation category wetland
DA	Development Application
DMP	Dust Management Plan
EIL	Extractive Industries Licence
EMP	Environmental Management Plan
ESA	Environmentally sensitive area
GBRS	Greater Bunbury Region Scheme
IBRA	Interim Biogeographic Regionalisation of Australia
LPS 2	Shire of Harvey Local Planning Scheme No. 2
MUW	Multiple use wetland
NMP	Noise Management Plan
PEC	Priority ecological community
SCA	Special Control Area
REW	Resource enhancement wetland
RMP	Rehabilitation Management Plan
T	Threatened
TEC	Threatened ecological community

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Table A2: Abbreviations – General terms (continued)

General terms	
UFI	Unique feature identifier
WMP	Weed Management Plan
WMR	Water Management Report
WoNS	Weed of National Significance

Table A3: Abbreviations – Legislation

Legislation	
ACH Act	Aboriginal Cultural Heritage Act 2021
AH Act	Aboriginal Heritage Act 1972
BAM Act	Biosecurity and Agriculture Management Act 2007
BC Act	Biodiversity Conservation Act 2016
EP Act	Environmental Protection Act 1986
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
WSL Act	Water Services Licence Act

Table A4: Abbreviations – units of measurement

Units of measurement	
cm	Centimetre
ha	Hectare
m	Metre
m ²	Square metre
m AHD	m in relation to the Australian height datum
mm	Millimetre

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



1 Introduction

1.1 Background

B&J Catalano Pty Ltd (the proponent) is lodging a Development Application (DA) and an Extractive Industries Licence (EIL) application to facilitate expansion of existing limestone extractive operations within part Lot 4 and Lot 5 Ludlow Road, Myalup, approximately 50 km north of Bunbury within the Shire of Harvey, Western Australia (WA) (herein referred to as the 'site'). The existing limestone extraction operates under the approved DA (P217/25) and EIL (EX/009) issued by the Shire of Harvey in 2025, as well as prescribed premises licence (L8831/2014/3) issued by the Department of Water and Environmental Regulation (DWER).

A new and separate DA and EIL are proposed to be obtained for the expansion, while the processing of limestone will be managed under the existing prescribed premise licence (L8831/2014/3). The proposed development will involve mining of approximately 150,000 tonnes per annum to a depth of 6 m AHD, over an estimated 10-year period, depending on market demand.

The proposed pit will operate within a 7.98 ha parcel of land directly south of existing extractive operations within a portion of Lot 5 (herein referred to as 'the site'), as shown in **Figure 1**. The site and surrounding land are zoned 'Rural' under the Greater Bunbury Region Scheme (GBRS) and 'Priority Agriculture' under the Shire of Harvey Local Planning Scheme No. 2 (LPS 2). The site is also located within Special Control Area No. 2 (SCA 2 – Basic Raw Materials) and Special Control Area No. 6A (SCA 6A – Landscape Protection Area).

1.2 Purpose of this Plan

This EMP has been prepared to support the proponent's DA and EIL application to the Shire of Harvey. The plan outlines the potential environmental risks associated with the implementation of the proposed expansion, and details how these will be minimised and managed appropriately.

Specifically, this EMP details:

- The existing and proposed extractive operations within the site and surrounds
- A summary of the existing environment values relevant to the site
- Environmental management measures and associated monitoring and reporting requirements
- Contingency measures and proposed corrective actions.

A series of sub-plans have been prepared to support this EMP and ensure compliance with Shire's Extractive Industry – Application Checklist (SoH 2024a). These sub-plans provide more detailed information on the existing environment, management objectives, and management measures relevant to key environmental values, and include:

- Water Management Report (**Appendix A**)
- Weed Management Plan (**Appendix B**)
- Noise Management Plan (**Appendix C**)
- Dust Management Plan (**Appendix D**)
- Rehabilitation Management Plan (**Appendix E**).

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



2 Overview of proposed development

2.1 Existing Development

The existing extractive limestone operation within part Lots 4 and 5 currently cover an area of approximately 34 ha and are anticipated to be operational until 2030 in accordance with DAP217/25 and EX009 issued by the Shire of Harvey and prescribed premises licence (L8831/2014/3) issued by the DWER. The proponent has undertaken limestone extraction within the area since 2009. The extent of existing extraction operations immediately north of the site is shown on **Figure 2**.

2.2 Operation Expansion

The proponent is proposing a southern expansion to the existing extractive operations (herein referred to as 'the proposed expansion'), which will include:

- The clearing of 3.57 ha of native vegetation.
- The mining of approximately 150,000 tonnes per year of limestone to a depth of 6 m AHD.
- Crushing and screening onsite via mobile plant for approximately six weeks per annum.

As extractive operations near the finished depth of 6 m AHD, impacted areas will be progressively rehabilitated. During extractive works, landforms will be recontoured and stabilised, with batter slopes of no more than 1:3 maintained throughout the site to ensure long term stability and compatibility with the surrounding landscape.

When the site has been depleted of resources, topsoil stockpiles will be respread over the stabilised slopes and pit floors, followed by surface ripping to alleviate compaction and promote seedling emergence. Revegetation works involve sowing the pit floor to pasture grasses and stabilise batters with native vegetation informed by historical species occurrences within the area. Weed monitoring and maintenance will be implemented in accordance with the Rehabilitation Management Plan (RMP) (**Appendix E**) to support vegetation establishment.

The staged approach allows rehabilitation works to commence prior to exhaustion of the entire limestone resource within the site, thereby reducing the duration for which land remains clear of vegetation and reducing potential associated environmental impacts such as erosion and sedimentation, dust, and edge effects.

2.3 Access and traffic

Access to the site will be via Ludlow Road, which is connected to Forrest Highway to the east. As the proposed expansion is directly adjacent to existing operations, the existing haulage and access tracks will be utilised to access the site, consistent with approved operations to the north (DAP217/25 and EX009).

Standard operating times will be Monday to Friday 0630 to 1800 and Saturday 0700 to 1200, excluding public holidays. Approximate operational statistics are detailed in **Table 1** below.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Table 1: Approximate operational values for the proposed action

Operation work	Approximate value
Total annual limestone removal	150,000 tonnes
No. working days per month	24 days
Vehicle payloads	Standard rigid truck (14 tonnes) Single semi-loader (24 tonnes) Road trains (50 tonnes)
Proportional use	14 tonners (20 %), 24 tonners (30 %), 50 tonners (50 %)

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



3 Existing Environment

3.1 Geomorphology and Soils

3.1.1 Topography

The site has a generally undulating topography, with elevations ranging from 15 m in relation to the Australian height datum (m AHD) in the southern central portion to 25 m AHD in the north eastern portion of the site (DoW 2008) as shown on **Figure 3**.

3.1.2 Landforms, soils and geology

The site occurs within the Perth Coastal Zone on the western edge of the Swan Coastal Plain, which is bounded by the Darling Scarp to the east, Indian Ocean to the west, Moore River to the north and Dunsborough to the south. The Swan Coastal Plain is built up of two belts of sediments that differ in origin, the aeolian sediments in the west and the alluvial sediments in the east. The aeolian sediments comprise three major dune systems, the Bassendean Dune System (the most easterly and oldest system), the Quindalup System (the most westerly and youngest system) and the Spearwood system which is located in between. These wind deposited dunes press up against the Pinjarra plain, which is built up of alluvium deposited by streams from the Darling Plateau.

Soil Landscape mapping provided by the Department of Primary Industries and Regional Development (DPIRD) (DPIRD 2025) has identified that the site is within the Spearwood dune and sandplain system, which is characterised by a series of gently to moderately inclined low hills and undulating plains associated with Pleistocene Tamala Limestone that have formed in five phases. These phases have been classified according to relief and soil profiles, with S1, S2 and S3 composed of well drained dune swales and ridges of pale to deep yellow brown sands and S4 and S5 composed of sandplains with minor limestone outcrops to stony plains (relict beach ridges) of siliceous yellow brown sands.

The environmental geology of the site is predominantly sandy and has been mapped by the Geological Survey of Western Australia (Gozzard 1986), which classifies soil within the site as occurring within the S1a phase. The S1a phase is further described as: 'dune ridges with shallow to moderately deep siliceous yellow-brown sands, very common limestone outcrop and slopes up to 15%'.

3.1.3 Acid sulfate soils and land contamination

Acid sulfate soils (ASS) refer to naturally occurring soils and sediment containing iron sulphide (iron pyrite) materials. In their natural state, present in waterlogged and/or anoxic conditions, ASS generally do not present any risk to the environment. However, when oxidised, ASS can pose issues through sulphuric acid production, which can present a range of risks for the surrounding environment, infrastructure, and human health.

A review of the DWER Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER 2025a) has identified the site as having no risk of ASS occurring within 3 m of the natural soil surface. Therefore, no ASS management considerations are expected to be required.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



A review of the DWER Contaminated Sites Database (DWER 2025b) indicates that the site is not registered as a contaminated site pursuant to the *Contaminated Sites Act 2003*.

3.2 Hydrology

3.2.1 Surface water

There are no surface water features such as rivers, creeks, streams or wetlands mapped within the site (DWER 2025c). The nearest mapped surface water feature, Lake Preston, is located approximately 290 m to the west of the site and is classified as a 'Lake' and is assigned the management category 'conservation' (UFI 15480) (DBCA 2025) (**Figure 3**).

The impact site is underlain by highly permeable sandy soils, which promote rapid infiltration of rainfall. As a result, the occurrence of surface water ponding or runoff from the impact site is considered unlikely, including during periods of heavy winter rainfall. The proposed pit and final post-mining landform are expected to be internally draining due to the required battering, such that stormwater is retained and infiltrates within the impact site. Accordingly, stormwater runoff to areas outside the project boundary is not anticipated.

3.2.2 Groundwater

The site is situated within the Lake Preston north subarea of the South West Coastal groundwater area, underlain by the Perth-Superficial Swan aquifer and the Perth-Leederville aquifer as indicated by DWER's Water Register (DWER 2025d).

There are no groundwater monitoring bores for the site. A review of the Water Management Plan prepared by Lundstrom Environmental (2018) for the site, which calculated site groundwater levels using off-site bores within the same catchment, has been used to provide an approximate groundwater level. Based on this information, groundwater within the site is estimated to have a maximum water table level of between 0.15 - 0.5 m AHD (west to east) (discussed further in **Appendix A**).

3.2.3 Wetlands

Wetlands are areas which are permanently, seasonally or intermittently waterlogged or inundated with water. Naturally occurring wetland features are common across the Swan Coastal Plain and can contain fresh or salty water, which may be flowing or still. Wetlands can be further categorised based on their hydrological characteristics and physical structure.

Wetlands of national or international significance may be afforded special protection under Commonwealth or international agreements. A review of the Department of Biodiversity Conservations and Attractions (DBCA) *Ramsar List of Wetlands of International Importance* and *A Directory of Important Wetlands in Australia – Western Australia* indicate that the 'Peel–Yalgorup System' Ramsar site associated with Lake Preston is located approximately 290 m to the west of the site. (DBCA 2017, 2018). No Ramsar or listed 'important wetlands' are located within the site.

The DBCA maintains the *Geomorphic Wetlands of the Swan Coastal Plain* (DBCA 2020) database, which categorises geomorphic wetland features into specific management categories based on their

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



attributes and management objectives. The management categories of wetlands are conservation, resource enhancement and multiple use, and are detailed in **Table 2** below.

Table 2: Geomorphic Wetlands of the Swan Coastal Plain management categories (Hill et al. 1996)

Management category	Description of wetland	Management objectives
Conservation (CCW)	Support high levels of attributes	Preserve wetland attributes and functions through reservation in national parks, crown reserves and state-owned land. Protection provided under environmental protection policies.
Resource Enhancement (REW)	Partly modified but still supporting substantial functions and attributes	Restore wetland through maintenance and enhancement of wetland functions and attributes. Protection via crown reserves, state or local government owned land, environmental protection policies and sustainable management on private properties.
Multiple Use (MUW)	Few wetland attributes but still provide important hydrological functions	Use, development and management considered in the context of water, town and environmental planning through land care.

A review of the Geomorphic Wetlands on the Swan Coastal Plain dataset (DBCA 2025) indicates that no geomorphic wetlands occur within the site. One CCW (UFI 15480) associated with Lake Preston occurs approximately 290 m to the west of the site, and several basin dampland MUWs occur over 1000 m to the east of the site.

CCWs are the highest priority wetlands, described as wetlands supporting a high level of values, attributes and functions (DBCA 2021). The EPA generally recommend a buffer of 50 m, consistent with the WAPC's draft *Guideline for the Determination of Wetland Buffer Requirements* (2005) and the EPA's *Guidance Statement No. 33 Environmental Guidance for Planning and Development* (2008).

The location of wetland features in relation to the site are shown in **Figure 3**.

3.3 Flora and Vegetation

3.3.1 Regional vegetation

Vegetation complex mapping prepared by Heddle *et al.* (1980) and subsequently updated by Webb *et al.* (2016) indicates that vegetation within the site is comprised of the 'Cottesloe – Central and South Complex'; which is described as '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'. Vegetation immediately to the east of the site is identified as the 'Yoongarillup Complex'; described as 'woodland to tall woodland of *Eucalyptus gomphocephala* (Tuart) with *Agonis flexuosa* in the second storey. Less consistently an open forest of *Eucalyptus gomphocephala* (Tuart) – *Eucalyptus marginata* (Jarrah) – *Corymbia calophylla* (Marri). South of Bunbury is characterised by *Eucalyptus rudis* (Flooded Gum)-*Melaleuca* species open forests'.

The 'Cottesloe – Central and South Complex' is well represented at both the Swan Coastal Plain and Shire of Harvey level, with 32.16 % of its pre-European vegetation extent remaining in the Swan

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Coastal plain and 41.84 % remaining within the Shire of Harvey. These values exceed the Commonwealth’s 30 % retention target (Government of Western Australia 2019).

The ‘Yoongarillup Complex’ also exceeds the Commonwealth vegetation retention target at the Swan Coastal Plain level, with 35.81 % of its pre-European vegetation extent remaining. However, representation at the Shire level is slightly below the target, with 29.80 % of the pre-European extent remaining (Government of Western Australia 2019).

3.3.2 Site specific vegetation and flora survey

Ecoedge Environmental Services (trading as Ecoedge) was engaged to undertake a detailed and targeted spring flora and vegetation assessment with part Lot 5. The assessment encompassed the site and surrounding area (herein referred to as ‘the survey boundary’).

The assessment was completed to a ‘detailed’ survey standard in accordance with the Environmental Protection Authority’s (EPA’s) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016). Ecoedge completed the detailed and targeted flora and vegetation assessment with surveys conducted during spring 2024 and 2025, during which the composition of vegetation and occurrences of conservation significant flora and vegetation were recorded. The survey is attached as **Appendix F**.

3.3.2.1 Vegetation units

The detailed and targeted flora and vegetation survey (Ecoedge 2025) identified eight (8) vegetation units within the survey boundary, five (5) of which occur within the site. All vegetation within the survey boundary was determined to be in ‘degraded’ or ‘completely degraded’ condition.

Vegetation unit descriptions, condition and extent within the site and survey area are detailed in **Table 3** and shown on **Figure 4** and **Figure 5**.

Table 3: Vegetation units and extent (Ecoedge 2025)

Vegetation units and description	Vegetation condition	Survey area	Site area (ha)
AffW - <i>Agonis flexuosa</i> var. <i>flexuosa</i> low open woodland to woodland over <i>Hibbertia cuneiformis</i> isolated to sparse mid to tall shrubs * <i>Bromus diandrus</i> , * <i>Ehrharta longiflora</i> , * <i>Lolium perenne</i> tussock grassland to closed tussock grassland with * <i>Geranium molle</i> , * <i>Euphorbia peplus</i> , * <i>Arctotheca calendula</i> sparse to open herbland on stony and sandy rises and slopes.	‘Degraded’	1.84 ha	0.96 ha
EdAffW - <i>Eucalyptus decipiens</i> , +/- <i>Agonis flexuosa</i> var. <i>flexuosa</i> , +/- <i>E. marginata</i> subsp. <i>marginata</i> low open woodland to woodland over * <i>Bromus diandrus</i> , * <i>Ehrharta longiflora</i> , * <i>Lagurus ovatus</i> tussock grassland to closed tussock grassland with * <i>Geranium molle</i> , * <i>Euphorbia peplus</i> , * <i>Trachyantra divaricate</i> sparse to open herbland on stony and sandy rises and slopes.	‘Degraded’	1.61 ha	1.57 ha

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Table 3: Vegetation units and extent (Ecoedge 2025) (continued)

Vegetation units and description	Vegetation condition	Survey area (ha)	Site area (ha)
EdAffWMsTrs – <i>Eucalyptus foecunda</i> subsp. <i>foecunda</i> low mallee woodland with <i>Agonis flexuosa</i> var. <i>flexuosa</i> low open woodland to woodland over <i>Hibbertia cuneiformis</i> isolated to sparse mid to tall shrubs over <i>*Ehrharta longiflora</i> , <i>*Bromus diandrus</i> , <i>*Lolium perenne</i> tussock grassland to closed tussock grassland with <i>*Geranium molle</i> , <i>*Arctotheca calendula</i> , <i>*Euphorbia peplus</i> sparse to open herbland on outcropping limestone uplands and slopes.	‘Degraded’	1.44	0.48
EffAffW – <i>Eucalyptus gomphocephala</i> mid woodland to open forest over <i>Agonis flexuosa</i> var. <i>flexuosa</i> low open woodland to woodland over <i>*Bromus diandrus</i> , <i>*Ehrharta longiflora</i> , <i>*Hordeum leporinum</i> tussock grassland to closed tussock grassland with <i>*Geranium molle</i> , <i>*Euphorbia peplus</i> sparse to open herbland on sandy rises and slopes.	‘Degraded’	0.37	0.37
EgAffW – <i>Eucalyptus gomphocephala</i> mid woodland to open forest over <i>Agonis flexuosa</i> var. <i>flexuosa</i> low open woodland to woodland over <i>*Bromus diandrus</i> , <i>*Ehrharta longiflora</i> , <i>*Hordeum leporinum</i> tussock grassland to closed tussock grassland with <i>*Geranium molle</i> , <i>*Euphorbia peplus</i> sparse to open herbland on sandy rises and slopes.	‘Degraded’	2.17	N/A
EgW – <i>Eucalyptus gomphocephala</i> mid sparse to open woodland over <i>Hibbertia cuneiformis</i> , <i>*Solanum linnaeanum</i> isolated mid to tall shrubs over <i>*Bromus diandrus</i> , <i>*Ehrharta longiflora</i> , <i>*Lolium perenne</i> tussock grassland to closed tussock grassland over <i>*Trachyandra divaricata</i> , <i>*Geranium molle</i> , <i>*Trifolium campestre</i> var. <i>campestre</i> open herbland to herbland on low sandy slopes and valleys.	‘Completely Degraded’	0.61	N/A
EgWMhMsS – <i>Eucalyptus gomphocephala</i> low to mid woodland over <i>Melaleuca huegelii</i> subsp. <i>huegelii</i> , <i>Hibbertia cuneiformis</i> tall open shrubland to shrubland over <i>M. systema</i> , <i>Templetonia retusa</i> mid sparse shrubland to open shrubland over <i>*Bromus diandrus</i> , <i>*Ehrharta longiflora</i> , <i>*Lolium perenne</i> tussock grassland with <i>*Trifolium campestre</i> var. <i>campestre</i> , <i>*Erodium botrys</i> , <i>*Gomphocarpus fruticosus</i> herbland on outcropping limestone uplands and slopes.	‘Degraded’	0.03	N/A
TrMsHpS – <i>Templetonia retusa</i> , +/- <i>Melaleuca systema</i> , +/- <i>Hakea prostrata</i> mid isolated shrubs to sparse shrubland over <i>*Bromus diandrus</i> , <i>*Ehrharta longiflora</i> , <i>*Lolium perenne</i> tussock grassland to closed tussock grassland with <i>*Gomphocarpus fruticosus</i> tall isolated to sparse herbland and <i>*Geranium molle</i> , <i>*Arctotheca calendula</i> , <i>*Erodium botrys</i> low sparse to open herbland on low stony uplands and slopes.	‘Completely Degraded’	0.69	0.22

3.3.2.2 Threatened and priority ecological communities

One patch of critically endangered ‘Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain’ TEC (Tuart Woodlands TEC) was identified to occur within the survey area in accordance with key diagnostic characteristics and condition thresholds of the Tuart Woodlands TEC (DoEE 2019). The Tuart Woodlands TEC patch covers an 8.5 ha area within the survey area and does

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



not extend into the site, as shown on **REF_Ref225413289 \h Figure 6** Vegetation condition within the patch was recorded as being ‘degraded’ to ‘completely degraded’.

Additionally, the Tuart Woodlands TEC is also representative of the State listed Priority 3 PEC. The description, area and condition thresholds that apply to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed TEC of the same name, also apply to this PEC, but is not identified as a TEC pursuant to the Western Australian *Biodiversity Conservation Act 2016* (BC Act).

3.3.2.3 Conservation significant flora

No threatened flora species were recorded within the survey area during the field survey. One priority flora species, *Eucalyptus foecunda* subsp. *foecunda* (P4), was identified within the site. A total of 41 individuals were recorded as a single population associated with low mallee woodland on a limestone outcrop within vegetation unit **EffAffW**, which was assessed as being in ‘degraded’ condition (**Figure 7**).

3.4 Fauna

A fauna survey (SW Environmental 2025) was undertaken within part Lot 5 on 18 November 2025, which has been used to inform fauna values within the site (attached as **Appendix G**). The survey was conducted to a ‘basic’ level with targeted black cockatoo and western ringtail possum assessments in accordance with *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020) and the EPBC Act black cockatoo and western ringtail possum referral guidelines (DAWE 2022).

The survey identified four (4) distinct habitat types as occurring within the site. General fauna habitat quality within the site ranged from poor to moderate due to low connectivity, lack of native understory, low habitat complexity and lack of suitable nesting hollows. Descriptions of identified fauna habitats and their extent are listed in **Table 4** below and shown on **Figure 8**.

Table 4: Summary of fauna habitat types recorded within the site

Fauna habitat type description	Site (ha)
Peppermint low open woodland and paddock trees over weedy understory on sandy soils – Peppermint (<i>Agonis flexuosa</i>) low open woodland to woodland over <i>Hibbertia cuneiformis</i> isolated to sparse to tall shrubs on stony and sandy rises and slopes.	1.19
Coastal dune mallee with occasional Peppermint over weedy understorey on limestone uplands and slopes - <i>Eucalyptus foecunda</i> low mallee woodland with <i>Agonis flexuosa</i> low open woodland to woodland over <i>Hibbertia cuneiformis</i> isolated to sparse mid to tall shrubs over weed grass on outcropping limestone uplands and slopes.	1.05
Redheart and Peppermint mid open woodland to woodland over weedy understorey on limestone soils - Redheart (<i>Eucalyptus decipiens</i>), <i>Agonis flexuosa</i> mid open woodland to woodland over <i>Melaleuca systema</i> , <i>Templetonia retusa</i> mid sparse to open shrubland on outcropping limestone uplands and slopes.	0.35
Jarrah trees over weedy understorey - Jarrah (<i>Eucalyptus marginata</i>) paddock trees.	0.16

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



3.4.1 Black cockatoo habitat

3.4.1.1 Foraging habitat

Vegetation within and adjacent to the impact site provides foraging habitat for all three species of black cockatoo. Foraging habitat was classified as either native 'primary' or 'secondary' foraging habitat based on black cockatoo foraging preferences. Primary food plants were defined as those with historical and contemporary records of regular consumption by a black cockatoo species. Secondary food plants were defined as plants that black cockatoo species have been recorded consuming occasionally or that, based on their limited extent or agricultural origin, should not be considered a sustaining resource.

The majority of the available foraging habitat within the site is associated with the *Eucalyptus marginata* (jarrah) trees. Jarrah trees constitute native 'primary' foraging habitat for both CBC and FRTBC, while also providing native 'secondary' foraging habitat for BBC, for which jarrah species are considered supplementary rather than a primary foraging resources.

Additional foraging resources within the site and within the broader survey area include *Agonis flexuosa* (peppermint), which provides native 'secondary' foraging habitat for both CBC and FRTBC, as well as *Eucalyptus decipiens* (redheart) which constitutes native 'secondary' foraging habitat for FRTBC.

The extent of foraging habitat within the site, as well as the broader survey area is summarised below in **Table 5**, and shown on **Figure 9**, **Figure 10** and **Figure 11**.

Table 5: Black Cockatoo foraging habitat extent within the site and survey area

Potential Impacts	Site (ha)	Survey area (exclusive of site) (ha)
Carnaby's Black Cockatoo		
Foraging habitat - Primary native (ha)	0.20	0
Foraging habitat - Secondary native (ha)	1.32	3.87
Baudin's Black Cockatoo		
Foraging habitat - Primary native (ha)	0	0
Foraging habitat - Secondary native (ha)	0.20	0
Forest Red-tailed Black Cockatoo		
Foraging habitat - Primary native (ha)	0.20	0
Foraging habitat - Secondary native (ha)	1.47	3.76
Habitat Trees		
Potential nesting tree	40	Unsurveyed
Suitable nesting tree	0	0

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



3.4.1.2 Roosting habitat

No evidence of roosting was recorded during the field survey. The nearest recorded black cockatoo roosting site is located approximately 5.8 km to the southeast, and as such there is no evidence to suggest that roosting by black cockatoos occurs within the impact site.

3.4.1.3 Breeding habitat

The site contains 40 potential nesting trees, none of which currently contain hollows suitable for black cockatoo breeding, as shown on **Figure 12**. The potential nesting trees consist of 35 *Eucalyptus decipiens* (redheart) and five (5) *Eucalyptus marginata* (jarrah). The redheart trees are considered unlikely to develop hollows suitable for black cockatoo breeding as they were observed to be of low stature and occur predominantly in mallee form.

3.5 Pests and weeds

The terms 'pest' can refer to any plant or animal that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. A particularly invasive or detrimental pest species may be listed as a 'declared pest' pursuant to Western Australia's *Biosecurity and Agriculture Management Act 2007* (BAM Act), indicating that it warrants special management to limit its spread.

The BAM Act is the principal legislation guiding weed management in Western Australia and lists declared pest species. At a national level, the Australian government has compiled a list of 32 Weeds of National Significance (WoNS) (DAFF 2024), of which many are also listed under the BAM Act.

Two weed species listed as a declared pest pursuant to the BAM Act: *Gomphocarpus fruticosus* (Cotton Bush) and *Solanaum linneanum* (Apple of Sodom) were recorded throughout the survey area, including within the site (Ecoedge 2025).

3.6 Heritage

3.6.1 Aboriginal heritage

The site is located within an area under the traditional ownership of the Noongar people, the traditional owners of the south-west region of Western Australia. More specifically, the site lies within the traditional lands of the Bindjareb People (also spelled Binjareb, Pinjarup or Pinjareb) of the Gnaala Karla Booja region, whose Country extends across the Shire of Harvey and encompasses the site.

The Department of Planning, Lands and Heritage (DPLH) maintains the Aboriginal Cultural Heritage Inquiry System (ACHIS), which is a directory containing locations and information about Aboriginal Cultural Heritage (ACH) in Western Australia. A review of the ACHIS indicates that there are no registered or lodged Aboriginal heritage sites within or in close proximity to the site.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



3.6.2 Non-indigenous heritage

Based on a review of available information at a federal, state and local government level, there are no recorded non-indigenous heritage sites found within the site.

3.7 Bushfire

The Map of Bush Fire Prone Areas published by the Office of Bushfire Risk Management (OBRM, 2019) identifies the majority of the site and surrounding area as a 'bushfire prone area'.

Development within an area identified as bushfire prone is subject to consideration under the *Planning and Development Act 2005*, and in turn *State Planning Policy 3.7 – Planning in Bushfire Prone Areas* (SPP 3.7) (WAPC 2015) and its guidelines.

The threat of bushfire from this operation is considered low as no habitable buildings or any other structure is to be developed within the site.

3.8 Land use capability

3.8.1 Historical context

Historical and current land use patterns indicate that the site and surrounds have been subject to varying levels of disturbance associated with past and current agricultural and extractive industry activities. The broader region has a long history of vegetation clearing for agricultural purposes, with parts of the site and surrounding land having been cleared prior to the earliest available aerial imagery from 2000 (Landgate 2026).

Further review of available aerial imagery from 2000 onwards indicates that the native vegetation extent remaining within the site is highly disturbed due to historical agricultural land use. Remnant vegetation is largely limited to scattered native trees within predominantly cleared areas.

3.8.2 Land zoning and planning context

The site and surrounding land to the north, east and west are zoned 'Rural' under the Metropolitan Region Scheme (MRS), and 'Priority Agriculture' under the Shire of Harvey LPS No. 2 (LPS2). Under LPS2, the site is also within Special Control Area No. 2 (SCA 2 – Basic Raw Materials) and Special Control Area No. 6A (SCA 6A – Landscape Protection Area).

In relation to Basic Raw Materials, LPS No. 2 (SoH 2024b) seeks to:

- Ensure that the strategic resources of State or regional significance are not sterilised from incompatible land uses and development.
- Encourage the mining of strategic resources in accordance with acceptable environmental standards.
- Promote the rehabilitation and restoration of mining and mining sites after works have been completed, in a way that is consistent with the long-term use of the land.

The site is also located within a designated Basic Raw Materials (BRM) area as identified under *State Planning Policy 2.4 – Planning for Basic Raw Materials* (SPP 2.4) (WAPC 2000).

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup

3.8.3 Sensitive land use

There is one residence approximately 500 m northwest of the site (shown on **Plate 1**), owned by the landowner. EPA Guidance Statement no. 3 *Separation Distances Between Industrial and Sensitive Land Uses* (EPA 2005) specifically addresses generic separation distances between industrial and sensitive land uses to avoid conflicts between these land uses.

The generic buffer distance for extractive industries where ‘grinding and milling works but no blasting’ is proposed as 300 – 500 m dependant on the type of processing. The proposed operation will involve crushing and screening of limestone with no blasting, and thus the generic buffer applies.



Plate 1: Proximity of nearby residence to the site

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



4 Potential Environmental Impacts and Management

To avoid, mitigate and minimise potential impacts, a range of management actions have been identified. The schedule of all prescribed management actions required for implementation of this EMP are summarised in **Table 6**.

4.1 Erosion and sedimentation

It is possible that erosion and/or sedimentation could occur during extractive operations, during vegetation clearing, or where soil is stockpiled on site and is moved by wind and water. While it is anticipated that any stormwater runoff and associated sedimentation will be contained within the site, sediment traps will be installed where there is the potential for sedimentation. To further prevent erosion or sedimentation, soil should be stabilised through temporary measures such as binding agents or the planting of vegetation as part of rehabilitation.

Monitoring of bare ground, stockpiles and newly contoured land will be undertaken to inspect for signs of erosion. Moderate slopes of maximum 1:3 will be maintained during operational works and will remain after mining. Inspections will be undertaken on a regular basis or after significant rainfall events (greater than 15 mm in 60 minutes). Where erosion or sedimentation is identified as moving offsite, control measures will need to be implemented.

Erosion and sedimentation management measures are further detailed in the Water Management Report (**Appendix A**) and the Dust Management Plan (**Appendix D**).

4.2 Contamination

Spills and leaks of hydrocarbons or chemicals (fuels, herbicides, and other substances required as part of operation or rehabilitation works) have the potential to occur as a result of incorrect storage and handling, or poor vehicle and equipment maintenance. This has the potential to result in the contamination of soil, groundwater and surface water.

To minimise the risk of such incidents, onsite storage of fuels, lubricants or other toxic/hazardous chemicals will be avoided where practicable. Where temporary onsite storage is required, these materials will be stored within appropriately sealed and bunded areas designed to contain any spills or leaks. Refuelling will be undertaken within designated areas by mobile refuelling vehicles. Spill kits will be available and maintained throughout extractive operations and rehabilitation works.

4.3 Air Quality – Dust

If unmanaged, the proposed limestone extraction operation has the potential to produce dust, especially during dry periods or severe winds. Dust will be managed through a range of measures, including use of water carts (or similar) as required, implementation of wind fencing and modifying site activities if weather conditions indicate risk is high.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



A Dust Management Plan (DMP) is presented in **Appendix D** and outlines management actions for dust impacts. Visual monitoring will be undertaken to confirm dust management measures are effectively managing dust emissions at acceptable levels.

4.4 Noise and vibration

The proposed expansion activities will generate noise as a result of vegetation clearing, excavation, crushing and screening, and haulage (such as loaders and haulage trucks). The closest 'rural – residential' area is approximately 13 km from the site. There is one structure (residence) approximately 500 m northwest of the site, shown on **Figure 3**. This residence is used as holiday accommodation by the landowner.

Works will be managed in accordance with the *Environmental Protection (Noise) regulations 1997* and the Noise Management Plan (NMP) (**Appendix C**).

4.5 Flora and vegetation

The proposed expansion will require the clearing of 3.57 ha of native vegetation, as defined under the *Environmental Protection Act 1986* (EP Act). There is potential for both direct and indirect impacts to vegetation adjacent to the site, including the Tuart Woodlands TEC, during clearing and extractive operations if appropriate management measures are not implemented.

Vegetation clearing will be completed in accordance with a Native Vegetation Clearing Permit issued by DWER, which will be obtained prior to the commencement of any clearing.

Management measures to mitigate impacts to adjacent vegetation include the installation and maintenance of demarcation fencing to clearing define the approved clearing extent, implementation of dust management measures (**Section 4.1**), and application of hygiene protocols to prevent the introduction or spread of weeds and dieback (**Section 4.8**).

4.6 Fauna

The proposed expansion requires the clearing of 3.57 ha of fauna habitat comprising 1.52 ha of black cockatoo foraging habitat (0.20 ha native 'primary' and 1.32 ha native 'secondary') and 40 potential nesting trees. Of these potential nesting trees, five (5) trees are considered to have the potential to develop suitable hollows over time. While the removal of this habitat is unavoidable, management measures will be implemented to minimise the risk any addition direct or indirect impacts.

Management measures will include the installation and maintenance of demarcation fencing to clearly define the approved clearing extent and prevent unauthorised clearing of fauna habitat adjacent to the site. Pre-clearing inspections and fauna spotting will also be implemented as outlined below.

4.6.1 Pre-clearing inspection

Prior to clearing, all trees (including habitat trees) on site will be inspected for hollows and, if present, an internal hollow inspection will be undertaken within seven days prior to these trees

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



being felled. If hollows are observed to be currently in use for breeding by native vertebrate fauna, a 10 m 'tree protection zone' will be clearly marked around the tree(s) until the young have left the hollow and no machinery will enter the zone.

Any nest encountered will be inspected for native nestlings by a suitable ecologist or fauna specialist. If nests are occupied, they will be safely removed and young will be transported to a wildlife carer or if removal is not possible a 10 m 'tree protection zone' will be clearly marked around the tree(s) until the nestlings have fledged and no machinery will enter the zone. Once the nest is not in use, it will be removed. If any nestlings are displaced by clearing works, they will be rescued and taken to a registered wildlife carer.

A post-clearing assessment will be undertaken of any trees with hollows. Once felled, hollows will be inspected by the fauna spotter and any vertebrate fauna within the hollow will be removed and translocated appropriately.

4.6.2 Fauna spotting

Clearing will be completed in a uniform direction to stop the creation of vegetation islands during works allowing any ground dwelling fauna to disperse to nearby adjacent habitat.

An experienced ecologist will be present during the clearing of vegetation that is considered suitable and likely to support fauna to actively search for fauna for relocation. If encountered, these animals will be assisted to disperse to nearby vegetation or captured and released out of harm's way into nearby vegetation.

4.7 Hydrology

The proposed extractive activities have the potential to alter the local hydrological processes through changes to surface water flow, groundwater interaction, and water quality through potential pollution events.

Management measures to mitigate potential impacts to the sites hydrological values are contained in the Water Management Report included as **Appendix A**, and are summarised below.

4.7.1 Stormwater management

The site is located in proximity to Lake Preston (CCW UFI 15480) which occurs approximately 290 m to the west of the site. Lake Preston is CCW and a key component of the Peel-Yalgorup System, a Ramsar-listed wetland of international importance. The separation distance between the proposed expansion and Lake Preston exceeds the 200 m buffer previously determined to be appropriate by both DWER and DCCEEW through State and Commonwealth approval processes for existing operations (L8821/2014/2 and EPBC 2019/8388).

Due to the highly permeable nature of soils within the site, in combination with the proposed landform contours within the extraction area, stormwater runoff is expected to infiltrate on site, with no discharge to surrounding areas. Accordingly, runoff is not anticipated to enter Lake Preston, the 200m wetland buffer or other adjacent environmental receptors.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



4.7.2 Groundwater management

No dewatering is proposed as part of the proposed expansion. Existing operations in part Lot 4 and 5 have not exposed groundwater, and the proposed expansion will ensure a clearance greater than 2 m will remain between the historic maximum groundwater level (GWL) of the superficial aquifer and the pit floor.

Management measures have been designed to ensure no groundwater contamination occurs as a result of the proposed extractive operations as described in **Section 4.2**.

4.8 Weeds and Dieback

There is no evidence to suggest that dieback occurs within the site or immediate surrounds. However, hygiene procedures will be adopted during site operations to ensure that dieback is not introduced to the site or, if already present, spread within or outside of the site. Best practice management for the extraction and transport of basic raw materials will be implemented in accordance with the Dieback Working Group's *Best Practice Guidelines for Management of Phytophthora Dieback in the Basic Raw Materials Industries* (Dieback Working Group Inc 2021).

The proponent's Phytophthora Dieback and Extractive Industries Information Brochure (**Appendix H**) approved by the Shire will be supplied to all personnel entering the site.

Control of identified weeds, including isolated instances of the pest weeds Cotton Bush (**Gomphocarpus fruticosus*) and Apple of Sodom (**Solanum linnaeanum*) will be undertaken by the proponent. A Weed Management Plan, attached as **Appendix B**, will be implemented for weed management of the site.

4.9 Visual impact

The proposed extractive works are undertaken within the limestone pit, which ensures the natural undulation of the landscape screens the visual impact. The nearest main road, Forrest Highway, is located approximately 2 km east of the proposed extraction area. There is an existing buffer zone of native vegetation and ongoing revegetation works between Ludlow Road and the proposed expansion area which provides additional screening of the site.

Furthermore, rehabilitation works are currently ongoing within the historical extractive operation site and will commence within proposed expansion area when resources are exhausted.

4.9.1 Heritage

A search of the Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS) shows no registered sites or other heritage places on Lot 4 Ludlow Road (DPLH 2026).

If during the works, an Aboriginal cultural heritage site is discovered, the Proponent will immediately advise the Department of Planning, Lands and Heritage (DPLH) and abide by the *Aboriginal Heritage Act 1972*.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



4.10 Environmental monitoring and management

The proponent has identified key monitoring actions to monitor the potential impacts of the proposed expansion on environmental values within and surrounding the site. All monitoring will be undertaken by suitably qualified individuals. **Table 6** summarises the management and monitoring actions to be implemented as part of this EMP to address the objectives and targets identified in the preceding sections.

The environmental management and associated monitoring actions set out to achieve the following environmental objectives:

- Ensure all personnel are aware of environmental obligations and site procedures
- Prevent erosion and sedimentation beyond the site boundary
- Prevent contamination of soil and water from spills and leaks
- Minimise dust emissions and prevent off site dust impacts
- Minimise disturbance to surrounding receptors as a result of noise and vibration
- Prevent unauthorised clearing or disturbance to vegetation beyond the site boundary
- Maintain natural hydrological regimes and protect the values of Lake Prestons and the surrounding wetland buffer
- Protect fauna and minimise injury or mortality during vegetation clearing and operation
- Prevent the introduction and spread of weeds and dieback
- Protect Aboriginal and non-Aboriginal heritage values from disturbance
- Minimise visual impacts to surrounding receptors.

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Table 6: Environmental objectives, management actions and performance targets.

Management aspect	Environmental objective	Management action	Monitoring and recording	Performance target	Responsibility
General	Ensure all personnel are aware of environmental obligations and site procedures	<ul style="list-style-type: none"> All personnel undertaking works associated with implementation, operation or rehabilitation of the proposed expansion, including visitors, will undertake site induction training and participate in targeted toolbox talks. 	<ul style="list-style-type: none"> Maintain training records Review induction registers and training records 	All personnel complete environmental induction prior to commencing works.	Proponent site personnel and contractors
Erosion and Sediment	Prevent erosion and sedimentation beyond the site boundary	<ul style="list-style-type: none"> Implement sediment controls measures, such as sediment fencing, where sedimentation risk is identified Stabilise stockpiles and exposed surfaces using hydro mulch or similar where significant erosion or sedimentation is recorded Restrict vehicle movements to defined areas (i.e. access tracks and work area) 	<ul style="list-style-type: none"> Undertake inspections following rainfall events to monitor for erosion and sedimentation and review the efficacy of controls installed 	No visible erosion or sedimentation beyond the site boundary.	Proponent site personnel and contractors
Contamination	Prevent contamination of soil and water from spills and leaks	<ul style="list-style-type: none"> Maintain spill response kits on site Store fuels and chemicals within a sealed and bunded areas or suitable containers Ensure vehicles and machinery are suitably maintained and pre-start inspections are completed 	<ul style="list-style-type: none"> Inspect machinery and storage areas for signs of leaks and spills Inspect any fuel or chemical storage areas to ensure they are management appropriately 	No release of fuels, oils or chemicals to the environment.	Proponent, site personnel and contractors
Air quality (dust)	Minimise dust emissions and prevent off site dust impacts	<ul style="list-style-type: none"> Install wind barrier fencing as required. Implement dust suppression measures including water carts and soil stabilisation where required. Cease dust generating activities during strong winds where dust cannot be controlled Implement and enforce vehicle speed limits on site 	<ul style="list-style-type: none"> Undertake daily visual inspection for dust emissions leaving the site Undertaken inspection of wind barrier fencing to ensure it is installed, maintained and effective. 	No visible dust emissions leaving the site and no dust complaints received.	Proponent, site personnel and contractors
Noise and vibration	Minimise disturbance to surrounding receptors as a result of noise and vibration	<ul style="list-style-type: none"> Restrict work to designated hours (0630-1800 on weekdays and 0700-1200 on Saturdays). Ensure machinery is appropriately maintained and fitted with noise attenuation equipment where required. 	<ul style="list-style-type: none"> Undertake regular inspection to ensure works are occurring within designated hours and noise attenuation devices are installed where required. Maintain and review records of vehicle servicing and inspection. 	No noise complaints received.	Proponent, site personnel and contractors

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Table 6: Environmental objectives, management actions and performance targets (continued)

Management aspect	Environmental objective	Management action	Monitoring and recording	Performance target	Responsibility
Flora and vegetation	Prevent unauthorised clearing or disturbance to vegetation beyond the site boundary	<ul style="list-style-type: none"> • Ensure the site boundary is clearly demarcated with fencing or flagging and communicated to operators. • Ensure all vehicle movement and stockpiling of material is contained within the site boundary. 	<ul style="list-style-type: none"> • Undertake visual inspection of the site and surrounding areas to identify evidence of authorised clearing or disturbance beyond the site boundary. 	No clearing or disturbance of vegetation beyond the site boundary.	Proponent, site personnel and contractors
Hydrology	Maintain natural hydrological regimes and protect the values of Lake Prestons and the surrounding wetland buffer	<ul style="list-style-type: none"> • Design and operate the proposed expansion to ensure stormwater is contained within the pit and does not discharge to surrounding areas. • Implement temporary stormwater management measures (e.g. bunding or containment where required) to direct runoff away from the wetland buffer. • Minimize disturbance to natural drainage patterns where practicable. 	<ul style="list-style-type: none"> • Undertake visual inspections of the site and surrounding areas, including the wetland buffer, to identify evidence of uncontrolled stormwater discharge. • Inspect site following significant rainfall events to confirm stormwater is contained within the pit. 	No uncontrolled stormwater discharge beyond the site boundary or into the wetland buffer, including Lake Preston.	Proponent site personnel and contractors
Fauna	Protect fauna and minimise injury or mortality during vegetation clearing and operation	<ul style="list-style-type: none"> • Ensure the site boundary is clearly demarcated with fencing or flagging and communicated to operators prior to commencement of clearing. • Undertake pre-clearing fauna inspection immediately prior to the commencement of clearing (same day). • Ensure appropriately qualified fauna spotter (i.e. zoologist or ecologist) is present during any clearing works. • Maintain site hygiene to avoid attracting pests to site. 	<ul style="list-style-type: none"> • Maintain records of pre-clearing fauna inspections, fauna spotting, and any fauna interactions/incidents. • Undertake regular inspection throughout all phase of operation to ensure management actions are implemented. 	No fauna injury or mortality as a result of vegetation clearing or operations.	Proponent and zoologist/ecologist
Weeds and dieback	Prevent the introduction and spread of weeds and dieback	<ul style="list-style-type: none"> • Implement vehicle hygiene procedures and ensure vehicles and equipment area free of soil and vegetative matter prior to entering site. • Ensure any imported materials are free of weeds and dieback. • Undertaken weed control as required. 	<ul style="list-style-type: none"> • Inspect disturbed areas for weeds and confirm hygiene procedures are followed. 	No pest weeds, WoNS or dieback are introduced as a result of clearing	Proponent, site personnel and contractors

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Table 6: Environmental objectives, management actions and performance targets (continued)

Management aspect	Environmental objective	Management action	Monitoring and recording	Performance target	Responsibility
Heritage	Protect Aboriginal and non-Aboriginal heritage values from disturbance	<ul style="list-style-type: none"> • Ensure all works are confined to the approved disturbance footprint • Provide site personnel with information regarding known or potential heritage values and obligations, and unexpected finds procedure. • Cease works in the area and implement unexpected finds procedure in the event of a potential heritage find. • Protect any potential heritage finds with physical demarcation and do not disturb the find until appropriate advice regarding management has been obtained. 	<ul style="list-style-type: none"> • Undertake site inspection to confirm works remain within approved disturbance areas • Record and report any potential heritage finds. 	No disturbance to heritage sites or artefacts. Unexpected finds procedure is established and implemented.	Proponent and contractors
Visual impact	Minimize visual impacts to surrounding receptors	<ul style="list-style-type: none"> • Restrict disturbance to the approved work area (within the pit). • Retain native vegetation screening where practicable. • Minimise the height and extent of stockpiles • Undertake progressive rehabilitation of disturbed area. 	<ul style="list-style-type: none"> • Undertake periodic visual inspection from key viewpoints (e.g. site boundary and nearby roads) • Record and investigate any complaints regarding impact to visual amenity. 	No substantiated complaints regarding visual impacts and no unnecessary visual disturbance beyond the approved works area.	Proponent and contractors

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



5 Corrective actions

In the event that monitoring identifies the management actions outlined in **Table 6** have not achieved the environmental objectives and performance targets detailed, corrective actions may be required. The corrective actions detailed in **Table 7** will be implemented where trigger scenarios occur, indicating that performance targets have not been met.

Table 7: Corrective actions

Management aspect	Performance target	Trigger scenario	Corrective action	Responsibility
General	All personnel complete environmental induction prior to commencing works.	Personnel have commenced works without completing induction.	<ul style="list-style-type: none"> Personnel not inducted to completed necessary training and inductions. Audit training records to confirm all personnel have completed site induction. 	Proponent, contractors and site personnel
Erosion and sedimentation	No visible erosion or sedimentation beyond the site boundary.	Evidence of soil erosion and/or sedimentation off-site.	<ul style="list-style-type: none"> Undertake maintenance or replace controls where inspection shows ineffective capability or capacity. Conduct a review of management measures to ensure all steps are taken to prevent reoccurrence. Investigate and implement use of additional controls as required. 	Proponent, contractors and site personnel
Contamination	No uncontrolled release of fuels, oils or chemicals to the environment.	Spill or leak observed.	<ul style="list-style-type: none"> Stop work in area where spill occurred (temporarily). Stop the source of the spill (turn off valves or machinery, tighten caps etc.) Use spill kits to contain and clean up spill/leak. Review plant/machinery maintenance records and implement maintenance required. Investigate and implement use of additional controls as required. 	Proponent, contractors and site personnel
Air quality (dust)	No visible dust emissions leaving the site and no dust complaints received.	Dust observed leaving the site causing impact, or complaint received.	<ul style="list-style-type: none"> Stop work (temporarily), to allow dust to subside. Visually monitor ambient air across the site and boundaries. Implement relevant control measures, including wetting down bare ground or excavated material. 	Proponent, contractors and site personnel
Noise and vibration	No noise complaints received.	Noise complaint received by public or excessive noise observed.	<ul style="list-style-type: none"> Identify the source of the noise and isolate if possible. Review maintenance records to ensure vehicles and/or machinery have been appropriately maintained if relevant. Modify the actions of the source of noise if possible. 	Proponent, contractors and site personnel

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



Table 7: Corrective actions (continued)

Management aspect	Performance target	Trigger scenario	Corrective action	Responsibility
Flora and Vegetation	No clearing or disturbance of vegetation beyond the site boundary.	Vehicles and machinery observed operating outside of the approved works area, or unapproved clearing of vegetation occurs.	<ul style="list-style-type: none"> • Cease all work activities (temporarily). • Investigate cause of the breach. • Ensure required environmental training has occurred. • Undertake reporting to the relevant regulator (i.e. DWER) where required. 	Proponent, contractors and site personnel
Hydrology	Maintain natural hydrological regimes and protect the values of Lake Prestons and the surrounding wetland buffer.	Stormwater during rainfall events enters the wetland buffer, or is uncontrolled/ discharged throughout the site.	<ul style="list-style-type: none"> • Implemented preventative measures to ensure stormwater inflows are diverted (e.g. temporary compensation basins). • Review stormwater management measures across the site. • Undertake reporting to the relevant regulator (i.e. DBCA) where required. 	Proponent, contractors and site personnel
Fauna	No fauna injury or mortality as a result of vegetation clearing or operations.	Injury or death of fauna.	<ul style="list-style-type: none"> • Cease all work activities (temporarily). • Any injured fauna shall be humanely euthanised or taken to an experienced wildlife veterinarian. • Call DBCA Wildcare Helpline on 9474 9055 for advice regarding injured fauna. 	Proponent, contractors and site personnel
Weeds and Dieback	No pest weeds, WoNS or dieback are introduced as a result of clearing	Significant increase of pest weeds of WoNS are present within the site or plant dieback observed.	<ul style="list-style-type: none"> • Review the existing weed/disease control process and identify the potential causes for lack of control. • Ensure required weed and dieback training has occurred. • Implement further weed and disease control as required in approved management plans. 	Proponent, contractors and site personnel
Visual impact	Protect Aboriginal and non-Aboriginal heritage values from disturbance	Complaint received regarding visual amenity impacts.	<ul style="list-style-type: none"> • Investigate source and nature of visual impact. • Implement additional mitigation measures (e.g. reduce stockpile height, retain all operations within the pit). 	Proponent, contractors and site personnel
Heritage	Minimize visual impacts to surrounding receptors	Discovery of potential previously unknown heritage site or artefact.	<ul style="list-style-type: none"> • Cease all work in the vicinity of the find immediately. • Secure the area to prevent further disturbance. • Seek advice from a suitably qualified heritage specialist. 	Proponent, contractors and site personnel

Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



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Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



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Environmental Management Plan

Part Lot 5, Ludlow Road, Myalup



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Figures



Figure 1: Site Location

Figure 2: Existing Development

Figure 3: Surrounding Land Use

Figure 4: Vegetation Units

Figure 5: Vegetation Condition

Figure 6: Threatened and Priority Ecological Communities

Figure 7: Priority Flora

Figure 8: Fauna Habitat

Figure 9: Carnaby's Black Cockatoo Foraging Habitat

Figure 10: Baudin's Black Cockatoo Foraging Habitat

Figure 11: Forest Red-tailed Black Cockatoo Foraging Habitat

Figure 12: Black Cockatoo Habitat Trees

Figure 13: Environmental Management Features



Figure 1: Site Location

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F21
Drawn: WJC
Date: 09/03/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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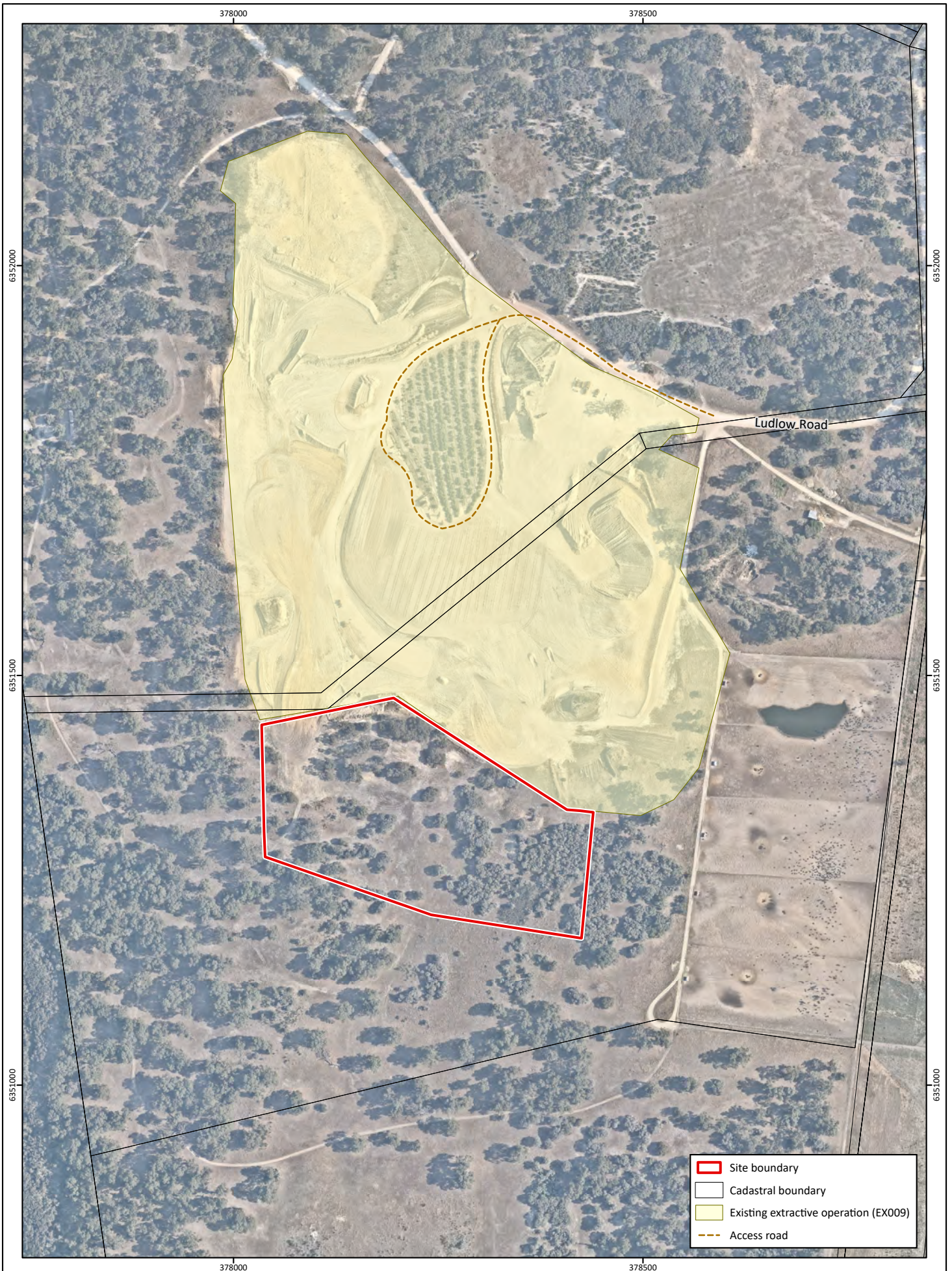


Figure 2: Existing Development

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup

Client: B & J Catalano

Plan Number: EP25-070(04)--F34
Drawn: WJC
Date: 20/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



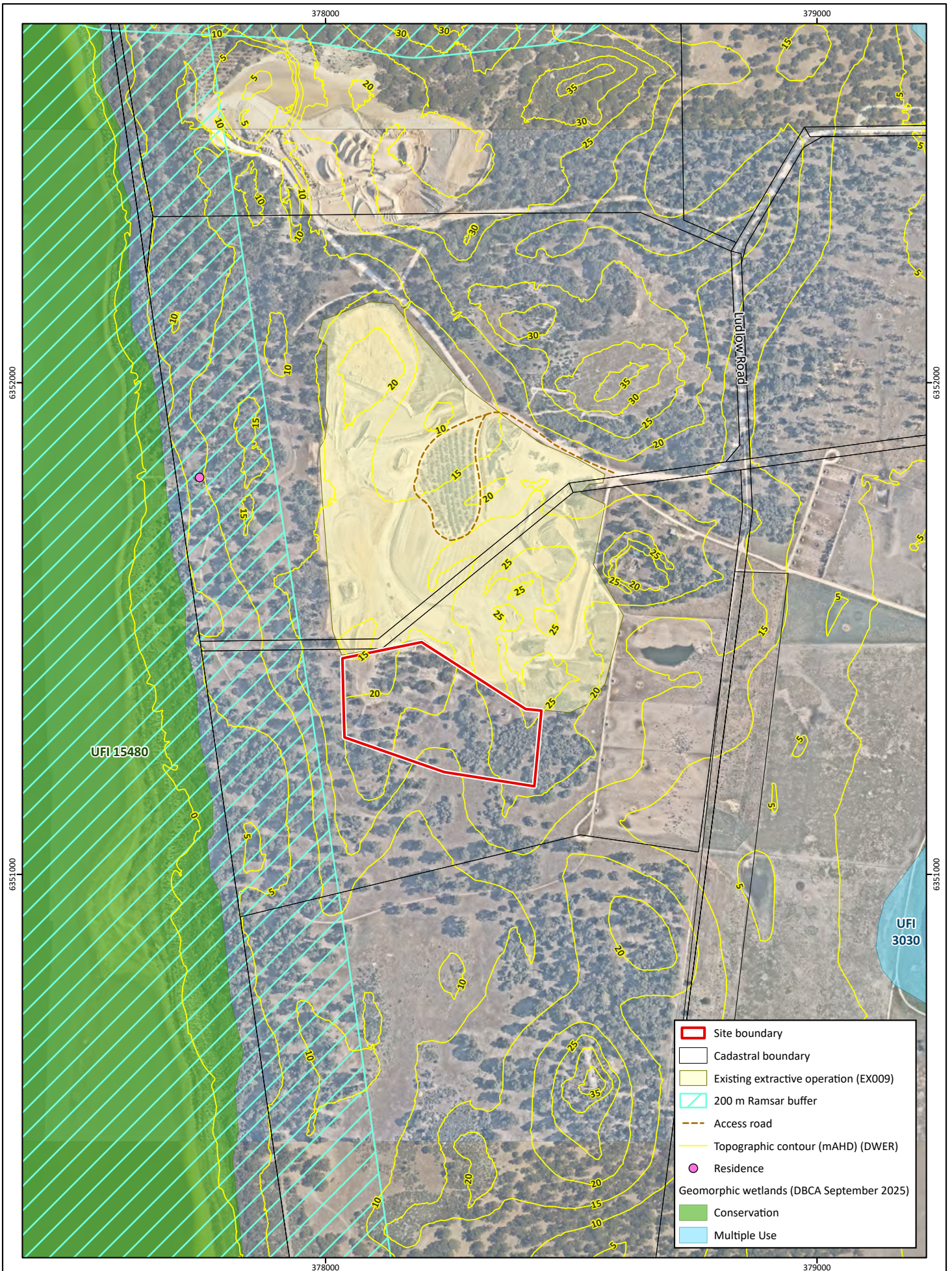


Figure 3: Surrounding Land Use

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup

Client: B & J Catalano

Plan Number: EP25-070(04)-F22
Drawn: WJC
Date: 09/03/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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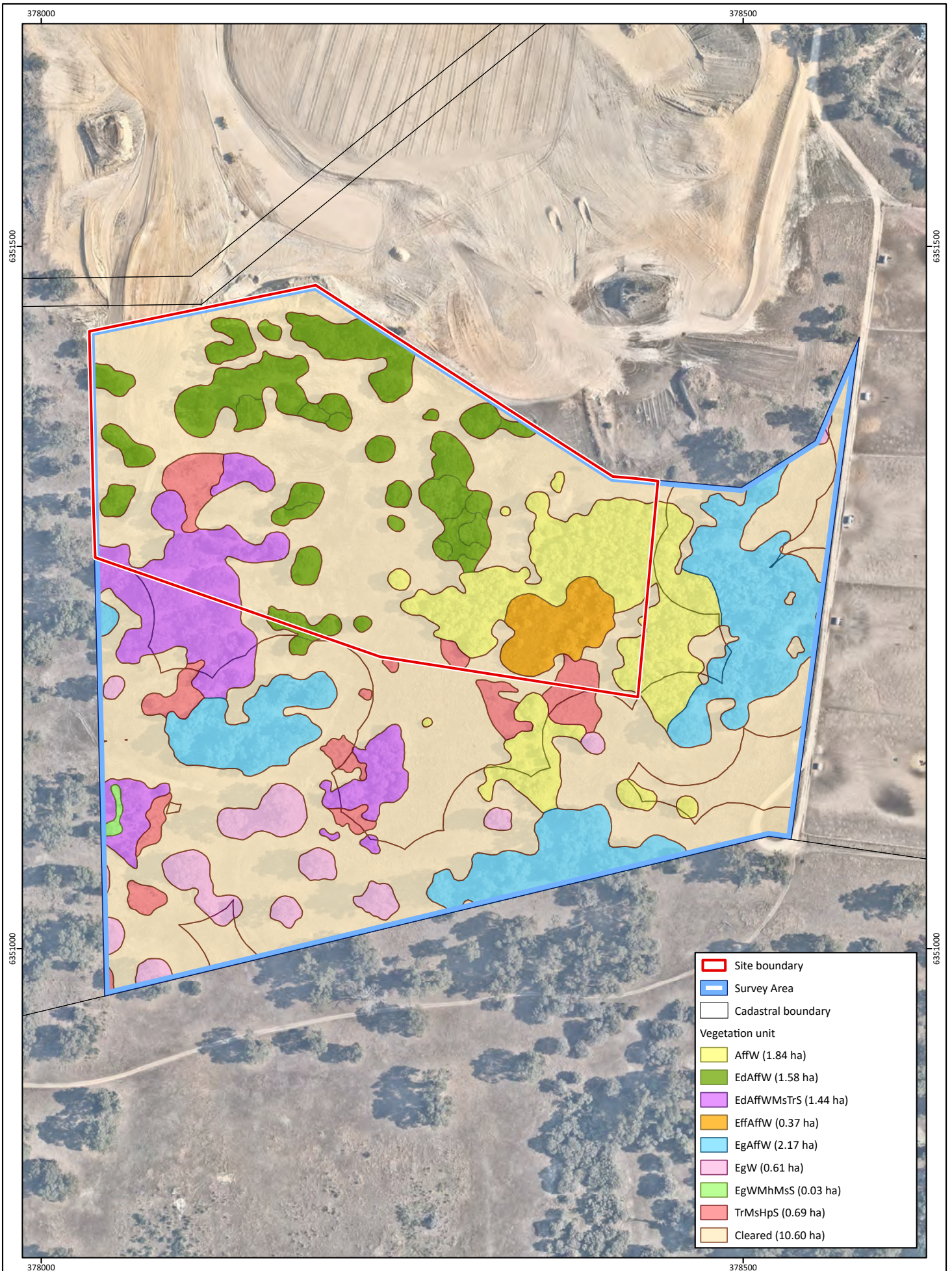


Figure 4: Vegetation Units

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F35
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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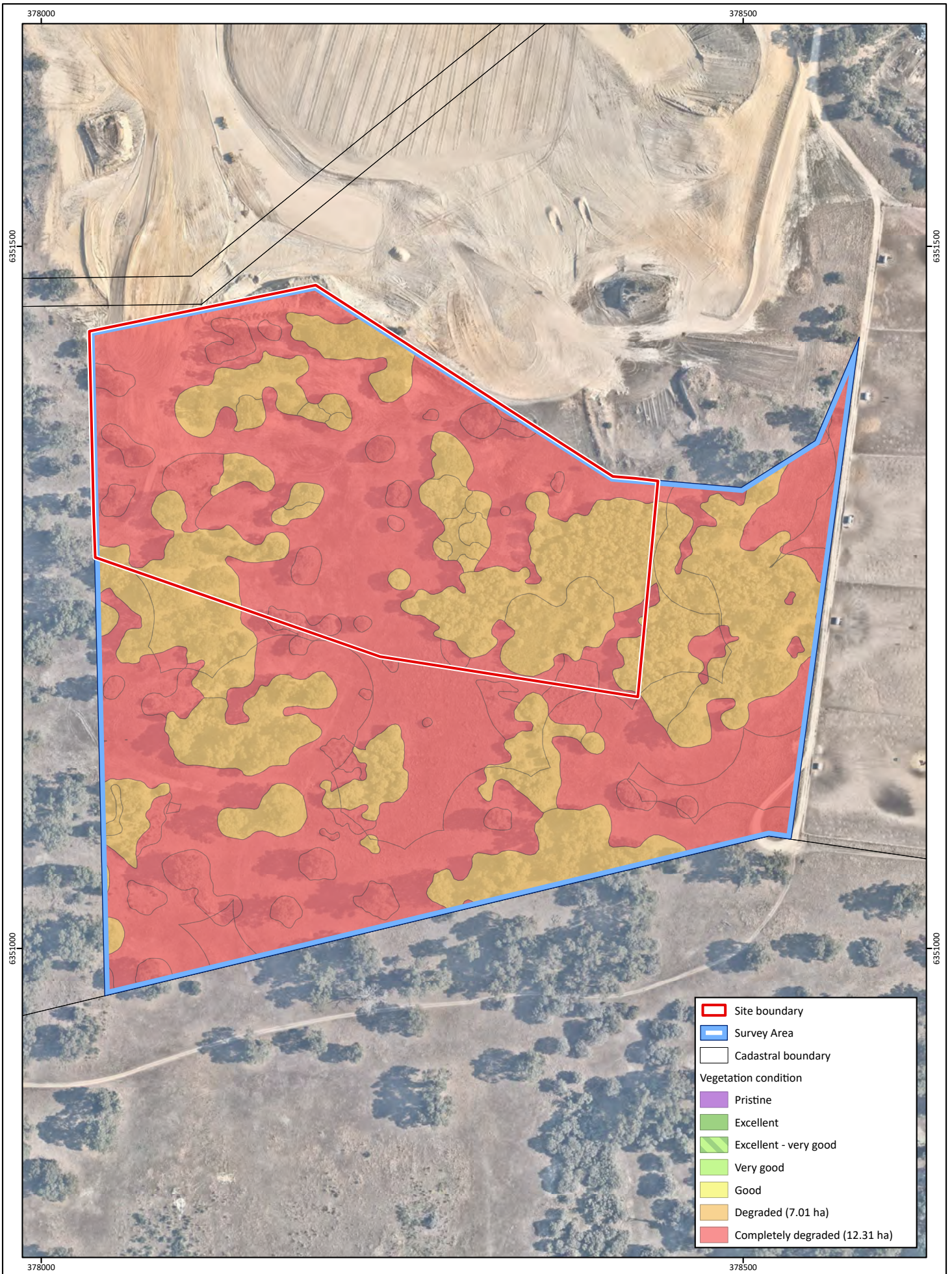


Figure 5: Vegetation Condition

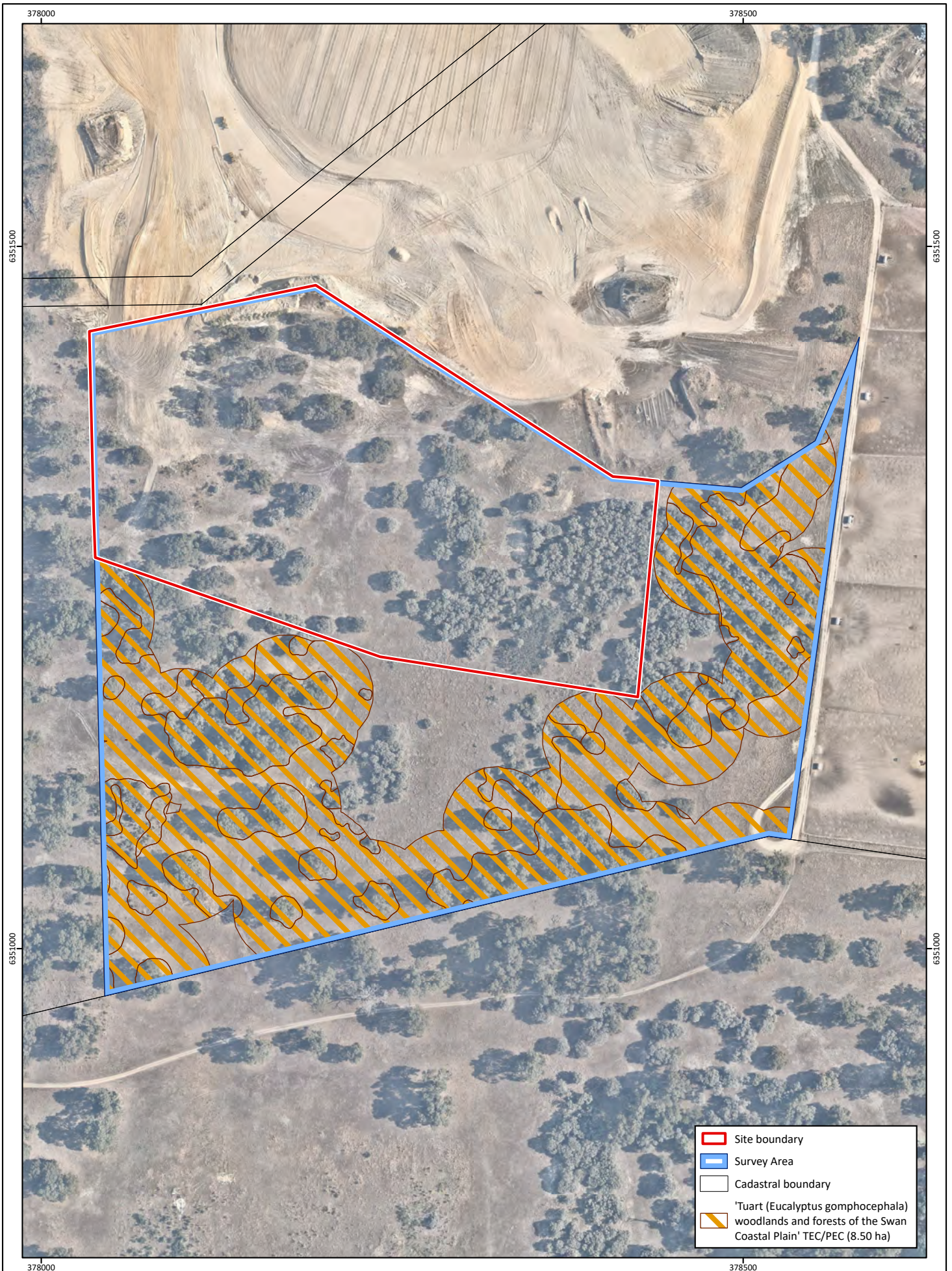
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Client: B & J Catalano

Plan Number: EP25-070(04)--F36
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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GDA2020 MGA Zone 50





	Site boundary
	Survey Area
	Cadastral boundary
	'Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain' TEC/PEC (8.50 ha)

Figure 6: Threatened and Priority Ecological Community

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F37
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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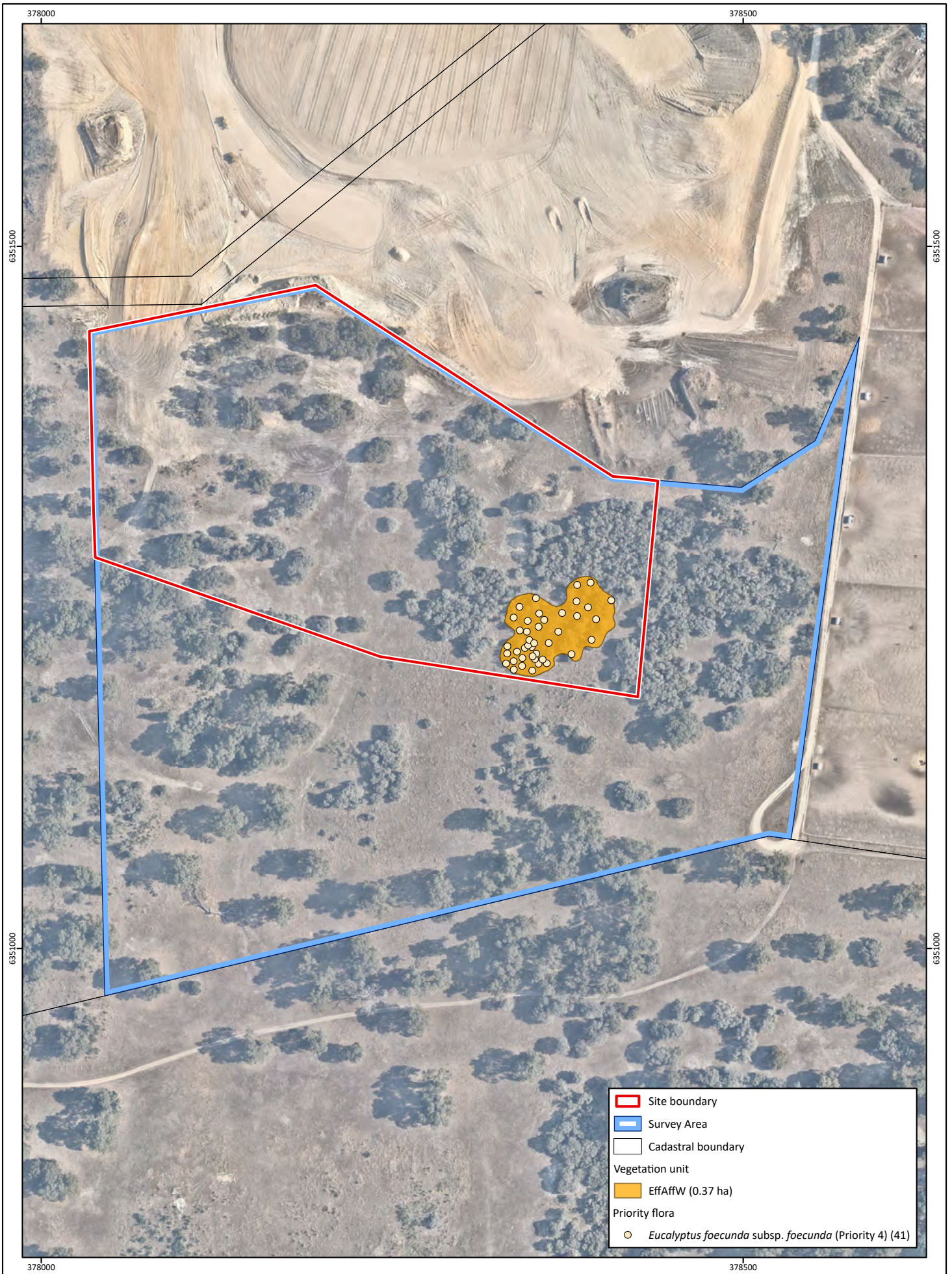


Figure 7: Priority Flora

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F38
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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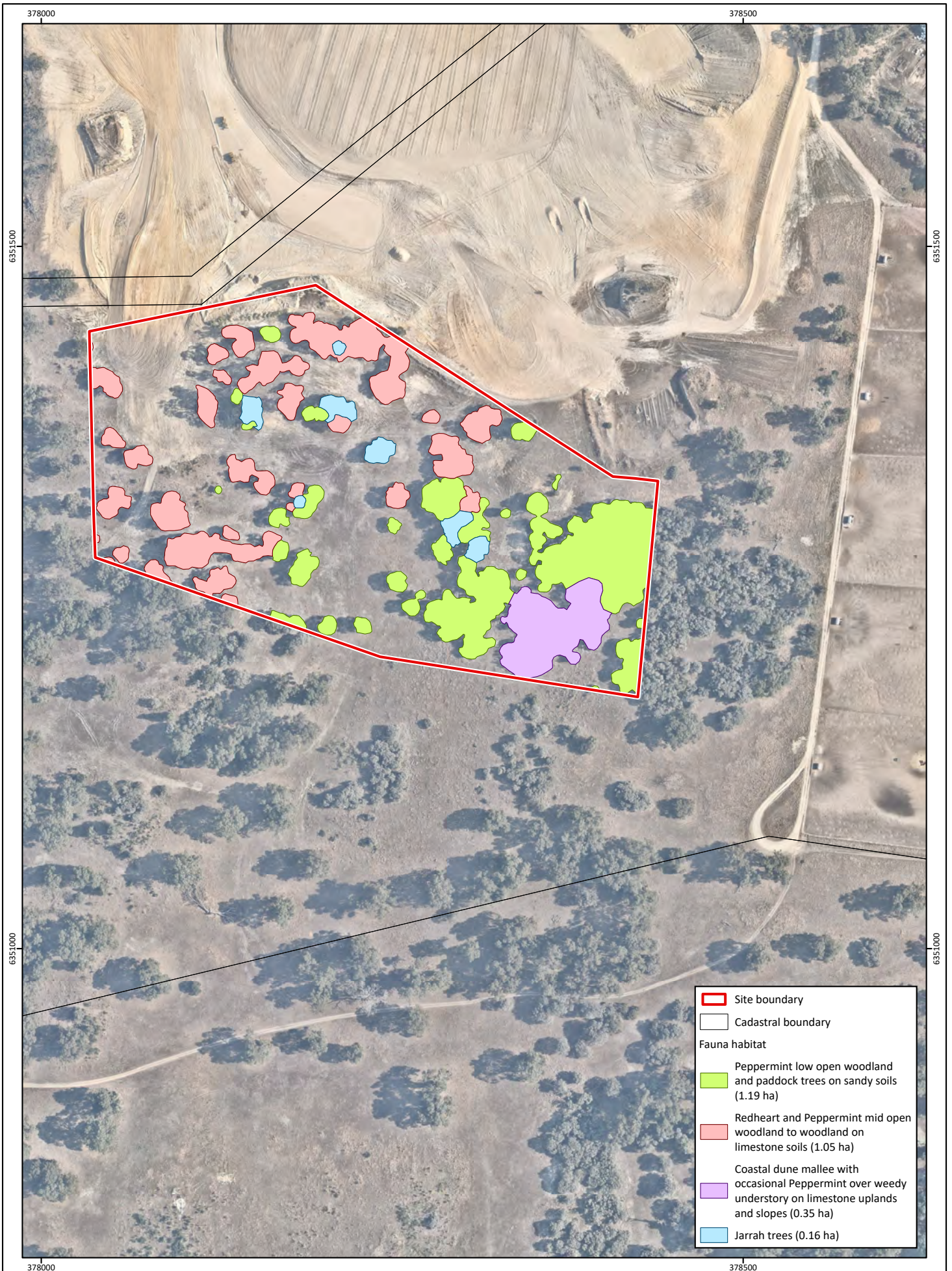


Figure 8: Fauna Habitat

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F39
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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GDA2020 MGA Zone 50





Figure 9: Carnaby's Black Cockatoo Foraging Habitat

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup

Client: B & J Catalano

Plan Number: EP25-070(04)--F40
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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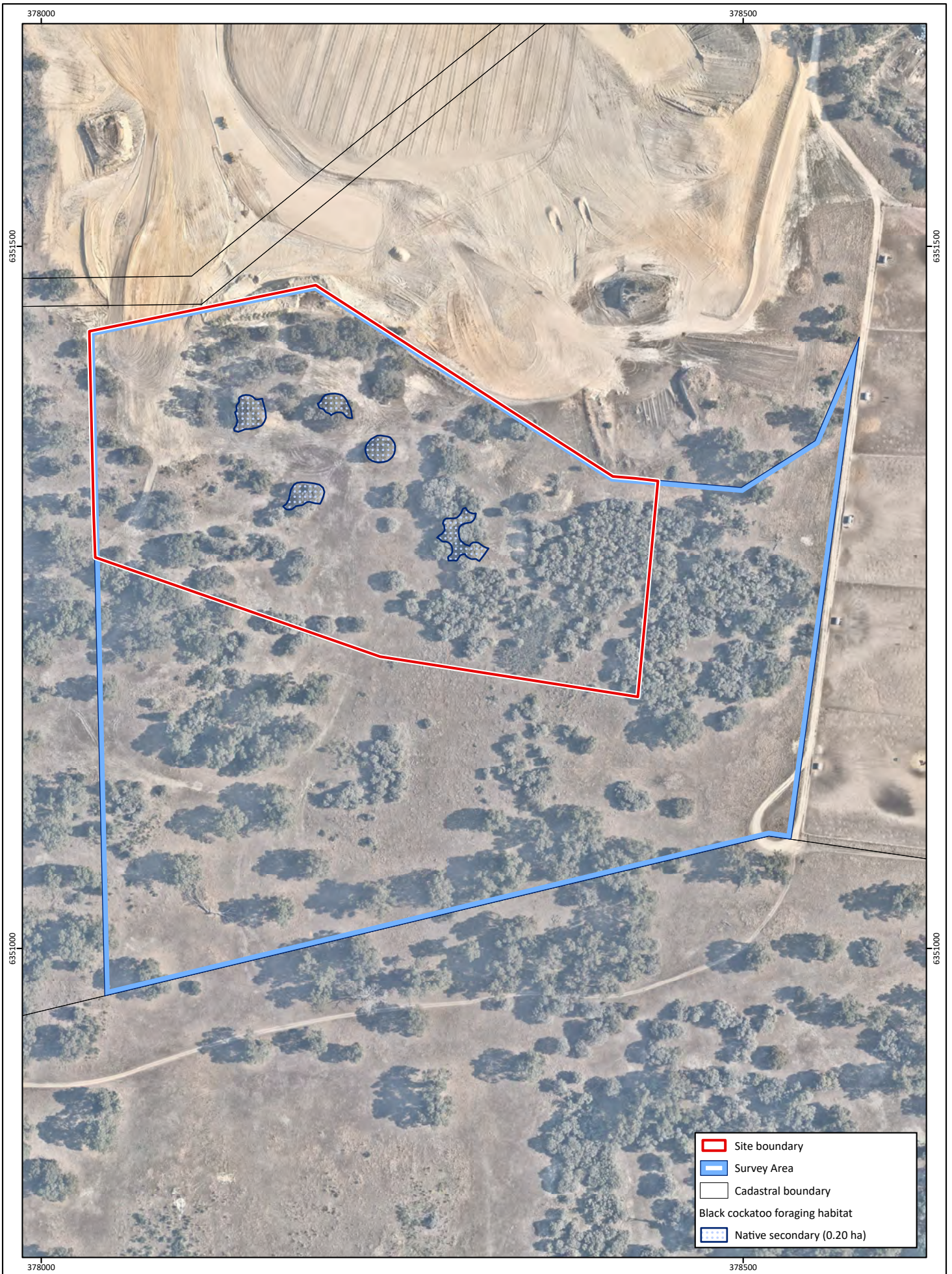


Figure 10: Baudin's Black Cockatoo Foraging Habitat

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup

Client: B & J Catalano

Plan Number: EP25-070(04)--F41
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026

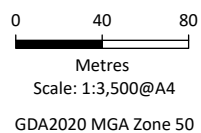




Figure 11: Forest Red-tailed Black Cockatoo Foraging Habitat

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F42
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026

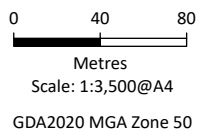




Figure 12: Black Cockatoo Habitat Trees

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F43
Drawn: WJC
Date: 21/04/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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Figure 13: Environmental Management Features

Project: Environmental Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F23
Drawn: WJC
Date: 09/03/2026
Checked: LRF
Approved: CIB
Date: 22/04/2026



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Scale: 1:3,500@A4
GDA2020 MGA Zone 50



Appendix A

Water Management Report



Document Reference: EP25-070(04)—007 LRF

Emerge contact: Jason Hick 0488 223 306

13 May 2026

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Emerge Environmental Services Pty Ltd ABN
57144772510 trading as Emmerge Associates

Attention: Chief Executive Officer
Shire of Harvey
102 Uduc Road
HARVEY WA 6220

Delivered by email to: shire@harvey.wa.gov.au

Dear Sir/Madam,

WATER MANAGEMENT REPORT: B&J CATALANO LIMESTONE EXTRACTION OPERATIONS – PART LOT 5, LUDLOW ROAD, MYALUP

1 INTRODUCTION

1.1 Background

B&J Catalano Pty Ltd (the proponent) is lodging a Development Application (DA) and an Extractive Industries Licence (EIL) application to facilitate expansion of existing limestone extractive operations within part Lot 4 and Lot 5 Ludlow Road, Myalup (herein referred to as ‘the proposed expansion’), approximately 50 km north of Bunbury within the Shire of Harvey, Western Australia (WA). The existing limestone extraction operates under the approved DA (P217/25) and EIL (EX/009) issued by the Shire of Harvey in 2025, as well as prescribed premises licence (L8831/2014/3) issued by the Department of Water and Environmental Regulation (DWER).

The proposed expansion will operate within a 7.98 ha parcel of land directly south of existing extractive operations within a portion of Lot 5 (herein referred to as ‘the site’), as shown in **Figure 1**. The site and surrounding land are zoned ‘Rural’ under the Greater Bunbury Region Scheme (GBRS) and ‘Priority Agriculture’ under the Shire of Harvey Local Planning Scheme No. 2 (LPS 2). The site is also located within Special Control Area No. 2 (SCA 2 – Basic Raw Materials) and Special Control Area No. 6A (SCA 6A – Landscape Protection Area).

1.2 Purpose

This *Water Management Report* (WMR) has been prepared to support the application of a DA and EIL by the proponent, and should be read in conjunction with the *Environmental Management Plan* (EMP) (Emerge Associates 2026).

The overall objective for this document is to support the expansion of operations whilst ensuring the proposed change in land use does not have negative impacts to the hydrological values within the site and surrounding area.

1.3 Policy framework

There are a number of State Government policies of relevance to the site, these include:

- *State Water Strategy* (Government of WA 2003)

- *State Water Plan* (Government of WA 2007)
- *Water Quality Protection Note 65 Toxic and Hazardous Substances* (DoW 2015)
- *State Planning Policy 2.4 Basic Raw Materials* (DPLH 2018)
- *Water Quality Protection Note 15 Basic Raw Materials Extraction* (DWER 2019)
- *State Planning Policy 2.9 Water* (DPLH 2025b)
- *State Planning Policy 2.9 Planning for Water Guidelines* (DPLH 2025a).

1.4 Responsibilities

The implementation of the management actions within this plan is the responsibility of the proponent and their various contractors.

1.5 Previous investigations

A *Water Management Plan* was prepared to support the EIL application for limestone extraction over a 25 ha area within part Lots 4 and 5, Ludlow Road, Myalup (Lundstrom Environmental 2018). Groundwater level estimates were calculated using four (4) offsite bores (associated with Lake Clifton) that lie within the same catchment as the site.

It was determined that hydraulic gradients and flows within the within the site and surrounding area are influenced by groundwater discharge to Lake Preston to the west. While the previously mentioned bores are approximately 5.5 km south and 5.5 km north of the site, the uniformity of the groundwater gradient north to south indicates they are representative of groundwater conditions within the site.

The historic maximum groundwater level for the existing extractive operations was determined by Lundstrom Environmental (2018) to be between 0.15 mAHD and 0.5 mAHD, well below the proposed extraction depth of 6 m AHD (**Figure 2**).

2 PROPOSED WORKS

The proponent is proposing a southern expansion to the existing extractive operations which will include:

- The clearing of 3.57 ha of native vegetation
- The mining of approximately 150,000 tonnes per year of limestone to a depth of 6 m AHD
- Crushing and screening onsite via mobile plant for approximately six weeks per annum.

The proposed expansion will be consistent with previous operations, as such there will be no dewatering. No fuels, hydrocarbons or other toxic and hazardous substances (THS) will be stored on site. The proposed expansion does not involve construction of any additional buildings.

As extractive operations near the finished depth of 6 m AHD, impacted areas will be progressively rehabilitated. During extractive works, landforms will be recontoured and stabilised, with batter slopes of no more than 1:3 maintained throughout the site to ensure long term stability and compatibility with the surrounding landscape.

When the pit has been exhausted, topsoil stockpiles will be respread over the stabilised slopes and pit floors, following by surface ripping to alleviate compaction and promote seedling emergence. Revegetation works involve sowing the pit floor to pasture grasses and stabilised batters with native vegetation informed by historical species occurrences within the area. Weed monitoring and maintenance will be implemented as required to support vegetation establishment.

The staged approach allows rehabilitation works to commence prior to exhaustion of the entire limestone resource within the site boundary, thereby reducing the duration for which land remains clear of vegetation and impacts on local amenity.

3 EXISTING ENVIRONMENT

Existing environmental features across the site that relate to this WMR are summarised in **Table 1**.

Table 1: Summary of significant existing environmental features within the site

Feature	Values within site
Current and historic landuse	Prior to sand extraction operations the site and surrounds were cleared to support agricultural use. Sand extraction activities in proximity to the site commenced in 2009.
Topography	The site has a generally undulating topography, with elevations ranging from 15 m in relation to the Australian height datum (mAHD) in the southern central portion to 25 mAHD in the north eastern portion of the site (DoW 2008) as shown on Figure 2 .
Soils and geology	The environmental geology of the site is predominantly sandy and has been mapped by the Geological Survey of Western Australia (Gozzard 1986), which classifies soil within the site as occurring within the S1a phase.
Wetlands	<p>A review of the Geomorphic Wetlands on the Swan Coastal Plain dataset (DBCA 2025) indicates that no geomorphic wetlands occur within the site. One CCW (UFI 15480) associated with Lake Preston occurs approximately 290 m to the west of the site, and several basin dampland MUW's occur over 1000 m to the east of the site (shown on Figure 3).</p> <p>A review of the Department of Biodiversity Conservations and Attractions (DBCA) <i>Ramsar List of Wetlands of International Importance</i> and <i>A Directory of Important Wetlands in Australia – Western Australia</i> indicate that the 'Peel–Yalgorup System' Ramsar site associated with Lake Preston is located approximately 290 m to the west of the site. (DBCA 2017, 2018). No Ramsar or listed 'important wetlands' are located within the site (shown on Figure 3).</p> <p>During State and Commonwealth approval processes for existing operations (L8821/2014/2 and EPBC 2019/8388), a separation distance of 200 m between extractive operations and Lake Preston was deemed appropriate for protecting the values associated with Lake Preston. The separation distance between the proposed expansion and Lake Preston is greater than 200 m.</p>
Acid sulfate soils	Regional acid sulfate soil (ASS) risk mapping (DWER 2025) indicates that there is no risk of ASS occurring within the site.
Surface water	There are no surface water bodies or channels within the site. The nearest mapped surface water feature, Lake Preston, is located approximately 290 m to the west of the site and is classified as a 'Lake' and is assigned the management category 'conservation' (UFI 15480) (DBCA 2025) (Figure 3). The site is characterised by highly permeable sandy soils, resulting in no overland flow or runoff. Rainfall will be intercepted by existing vegetation and infiltrate on-site.
Groundwater	<p>A review of the Water Register (DWER 2025c) indicates that the site underlain by the Perth-Leederville aquifer within the South West Coastal Groundwater Area and the Lake Preston North Groundwater Subarea.</p> <p>There are no publicly available groundwater contours for the site. Previous groundwater investigations (Lundstrom Environmental 2018) indicate a MGL for the site is between 0.15 – 0.5 m AHD (shown on Figure 2).</p>

4 MANAGEMENT OBJECTIVES

The proponent and any associated site operators/contractors shall be responsible for water, erosion, sediment, and spill management during site operations. The following objectives have been identified to satisfy the objectives outlined in **Section 1.2**.

- Minimise the risk of erosion occurring from site operations.
- Minimise localised surface water runoff toward adjacent land and neighbouring operations.
- Maintain groundwater quality through appropriate management and storage of fuels and chemicals.
- Protect human health, neighbouring land uses, and the environment from effects caused by erosion, sediment mobilisation, or spills associated with site operations.

5 MANAGEMENT ACTIONS

5.1 Erosion control

The aim of implementing erosion control measures is to prevent sand and fine particles from being mobilised by wind or mobilised by stormwater runoff. The following management measures will be implemented to mitigate the potential for erosion:

- The area of exposed ground will be minimised by limiting clearing and disturbance to that required for extraction operations. Areas to be cleared will be clearly marked and other areas excluded from access.
- Provision of windbreak fencing along exposed site boundaries and around active extraction or stockpile areas where required will minimise wind erosion.
- Disturbed areas will be progressively stabilised through measures such as reshaping batters, contouring pit floors, and applying surface stabilisation to minimise erosion and dust generation and achieve a stable, non-eroding final landform.
- Haul roads, traffic routes, stockpiles and disturbed areas will be kept watered as required to minimise dust emissions and prevent wind erosion. Noting that temporary stockpiles may not be in place long enough to warrant such treatment.
- Surface runoff within extraction areas will be directed to low points within the site to minimise erosion. Given the permeable sandy soil profile, significant runoff from the site is unlikely.
- Vehicle and equipment movements will be restricted to designated haul roads, operational traffic routes, and approved entry/exit points to minimise compaction of the soil profile.
- Topsoil and other excavated materials will be stockpiled in designated areas, separated from active extraction zones and operational traffic routes. Topsoil will be stored separately and reapplied to rehabilitated areas.
- Trucks carrying sand or other dust-generating material will be wetted/conditioned prior to transport and fitted with covers when leaving the site.
- All transport of materials off-site will comply with relevant road transport regulations, including load restraint and dust control requirements.
- In the event that extreme weather conditions make the control of wind-blown sand difficult, consideration will be given as to whether operation should be temporarily suspended.
- Ensure no operational works, vehicle movement or other impact are present within the historic 200 m buffer between Lake Preston and the site (as determined by DWER and DCCEEW).

A schedule of the erosion management actions and responsibilities is summarised in **Table 2**.

Table 2: Erosion and dust control management actions

Management action	Proposed scheduling	Location	Responsibility
Minimise extent of clearing to that which is needed/ stage clearing	During clearing	The site	Proponent
Implement appropriate stabilisation measures	Following clearing/stockpiling	Disturbed areas/stockpiles	Proponent
Undertake dust suppression by watering cart	During operation	Haul roads, operational traffic routes, stockpiles, and other disturbed areas	Proponent
Surface runoff to be directed to low points within the site	During operation	The site	Proponent

Table 2: Erosion and dust control management actions (continued)

Management action	Proposed scheduling	Location	Responsibility
Restrict movement of vehicles to designated areas and approved entry/exit location	During operation	The site	Proponent
Stockpiles to be located in designated areas separate to extraction operations	During operation	The site	Proponent
Trucks to be conditioned prior leaving the site	During operation	The site	Proponent
Off-site soil transport to comply with transport regulations	During operation	The site	Proponent
Suspend operation	When required, in response to weather conditions	The site	Proponent

5.2 Material management

Debris generated during vegetation clearing and sand extraction has the potential to be dispersed by wind or vehicle movement, contributing to dust generation and localised sediment accumulation if not appropriately managed. The following material management measures will be implemented:

- Locate stockpiles within designated areas away from haul roads and operational traffic routes.
- Ensure stockpiles are stabilised or covered, if possible.
- Minimise debris accumulation on site, with material removed or reused as soon as practicable.
- Stockpiles, topsoil and other materials will be managed with materials reused where practicable to stabilise disturbed areas and contribute to the formation of a stable final landform.

A schedule of the materials management actions and responsibilities is summarised in **Table 3**.

Table 3: Material management actions

Management action	Proposed scheduling	Location	Responsibility
Identify appropriate locations for any stockpiles	Prior to works	The site	Proponent
Stabilise stockpiles	Immediately after stockpiling	Stockpile area	Proponent
Minimise the duration of stockpiles on site	After stockpiling	Stockpile area	Proponent
Reuse materials, where practicable	After operation	The site	Proponent

5.3 Sediment transport

The aim of implementing sediment transport measures is to prevent windborne erosion and sediments from being transported beyond the active extraction and operational areas. The following management measures will be implemented:

- Manage localised surface runoff within extraction areas, directing runoff toward low points where infiltration can occur.

- Sediment accumulation in low points, will be inspected regularly and removed as required to maintain effectiveness.
- Water generated from vehicle washing will be managed within designated washdown areas incorporating temporary settling and/or separation measures prior to infiltration through sandy soils, as appropriate.
- Regular visual monitoring will be undertaken during operation activities to ensure no sediment or dust is migrating beyond the site boundary.
- Sediment control measures will be maintained throughout operations to prevent uncontrolled dispersion of sand or fine material.
- Progressive stabilisation of disturbed areas will be undertaken to reduce the potential for wind-blown sand or sediment mobilisation beyond the operational area and to achieve a stable, non-eroding final landform.

A schedule of the sediment transport management actions and responsibilities is summarised in **Table 4**.

Table 4: Sediment transport management actions

Management action	Proposed scheduling	Location	Responsibility
Manage localised surface runoff toward infiltration points	During operation	The site	Proponent
Collection of sediments and disposal offsite	During operation	The site	Proponent
Use dedicated washdown area for vehicles and equipment	During operation	The site	Proponent
Ensure no sediment or dust migrates beyond site boundary	During operation	The site	Proponent
Maintain sediment control measures	Following regular inspection	The site	Proponent
Stabilisation to achieve non-eroding final landform	After operation	The site	Proponent

5.4 Spill management

Accidental spills or leaks of fuels, oils or hydraulic fluids from plant and equipment may occur within the site, with the potential to contaminate soils with hydrocarbons and, if not appropriately managed, may pose a low risk to underlying groundwater. The following actions are proposed to mitigate the risk:

- Refuelling activities will be undertaken in designated areas where practicable, with major vehicle or machinery repairs or maintenance performed off-site
- All plant and equipment will be maintained in accordance with manufacturer specifications to minimise the risk of leaks or spills.
- Spill kits will be available on-site and located near refuelling and high-risk areas.
- Any spills will be contained and cleaned up promptly, with contaminated material removed and disposed of in accordance with the proponent's Hydrocarbon Spill Response Procedure (SAF-SP-029) (refer **Attachment A**).
- Spill incidents will be recorded and reviewed to prevent recurrence.
- Fuels, THS's and hydrocarbons will be stored off-site.

A schedule of the spill management actions and responsibilities is summarised in **Table 5**.

Table 5: Spill management actions

Management action	Proposed scheduling	Location	Responsibility
Plant refuelling to be undertaken in designated areas	During operation	The site	Proponent
Plant equipment to be maintained	During operation	The site	Proponent
Spill kits on-site	During operation	The site	Proponent
Spill incidents to be reported	During operation	The site	Proponent

5.5 Groundwater management

As discussed in **Section 2**, extraction operations will proceed to a minimum pit level of 6 m AHD. Groundwater levels for extraction operations immediately north of the site were inferred by Lundstrom Environmental (2018) to range between 0.15 and 0.5 m AHD, well below the proposed extraction depth. These levels are considered representative of site conditions, indicating that excavation to 6 m AHD will maintain an approximate separation of 5.5 m from groundwater, significantly greater than the minimum required separation of 1 m.

A schedule of the groundwater management actions and responsibilities is summarised in **Table 6**.

Table 6: Groundwater management actions

Management action	Proposed scheduling	Location	Responsibility
Maintain minimum clearance (1 m) to local groundwater conditions	During operation	The site	Proponent

5.6 Monitoring

Monitoring to ensure compliance with the proposed management actions will be undertaken during site operations. Monitoring will occur on a monthly basis, though it is noted that monitoring parameters may be required more frequently to satisfy other processes and approvals.

Parameters that will be monitored will include:

- Inspection of the erosion control and sediment transport management measures.
- Following heavy rainfall (exceeding 15 mm/day) or significant wind events, inspections, maintenance, and necessary adjustments of erosion control measures will be carried out.
- Following any unexpected observable impacts onsite (e.g. dust, sediment, spill, etc.).
- If a significant spill occurs (>50L or in proximity to sensitive receivers), collect samples from the affected area following remediation (i.e. excavation of contaminated material) to check for hydrocarbons.
 - Soil testing will focus on Total Petroleum Hydrocarbons (TPH), and depending on material stored, BTEX compounds (benzene, toluene, ethylbenzene, xylene).
 - Collect groundwater samples at downstream bore where possible to test the same parameters.
- In the event that groundwater is exposed, site activities will be immediately suspended, with a notice issued to the Shire within 24 hours.

The Shire will be informed prior to the implementation of any contingency measures.

A schedule of the monitoring is summarised in **Table 7**.

Table 7: Monitoring summary

Management action	Proposed scheduling	Location	Responsibility
Inspection of sediment management measures	Prior and during operation plus post-extreme rainfall events	The site	Proponent
Maintenance of erosion control measures	Weekly and in response to observations	The site	Proponent
Removal of accumulated sediments	In response to observations/inspections	The site	Proponent
Monitor for mobilised sediments	During operation	The site	Proponent
If a spill occurs, soil and groundwater testing	In response to a spill event	The site	Proponent

6 REVIEW AND ONGOING MANAGEMENT

It is not anticipated that this WMR will require review. Changing circumstances and unforeseen factors could potentially lead to additional environmental impacts that will require consideration through amendment/revision of this plan. However, this plan will only undergo review and potential amendment if the approach to erosion, material, sediment and spill management changes, or a significant change in circumstances/unforeseen event occurs. In this instance changes to the erosion, material, sediment and spill management approach would be first discussed with the Shire.

Yours sincerely
Emerge Associates



Jason Hick

PRINCIPAL ENVIRONMENTAL CONSULTANT

Encl: **Figure 1:** Site Location
Figure 2: Topographic and Groundwater Contours
Figure 3: Hydrological Features

Attachment A – Hydrocarbon Spill Response

General References

- Department of Biodiversity, Conservation and Attractions (DBCA) 2017, *Ramsar Sites (DBCA-010)*.
- Department of Biodiversity, Conservation and Attractions (DBCA) 2018, *Directory of Important Wetlands in Australia - Western Australia (DBCA-045)*.
- Department of Biodiversity, Conservation and Attractions (DBCA) 2025, *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*, Perth, WA,
<https://catalogue.data.wa.gov.au/dataset/geomorphic-wetlands-swan-coastal-plain>.
- Department of Water (DoW) 2008, *LiDAR Elevation Dataset, Swan Coastal Plain*, Perth.
- Department of Water (DoW) 2015, *Water Quality Protection Note 65: Toxic and hazardous substances - storage and use*, Perth.
- Department of Planning, Lands and Heritage (DPLH) 2018, *Draft State Planning Policy 2.4 - Basic Raw Materials Policy*.
- Department of Planning, Lands and Heritage, (DPLH) 2025a, *Planning for Water Guidelines - For the implementation of State Planning Policy 2.9 Water* Western Australian Planning Commission, Perth, Western Australia.
- Department of Planning, Lands and Heritage (DPLH) 2025b, *State Planning Policy 2.9 - Water*, Western Australian Planning Commission, Perth, Western Australia.
- Department of Water and Environmental Regulation (DWER) 2019, *Water Quality Protection Note 15 Basic Raw Materials Extraction* Perth.
- Department of Water and Environmental Regulation (DWER) 2025, *Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)*, <https://catalogue.data.wa.gov.au/dataset/acid-sulphate-soil-risk-map-swan-coastal-plain-dwer-055>.
- Emerge Associates 2026, *Environmental Management Plan - Part Lot 5, Ludlow Road, Myalup*, EP25-070(04)--006 LRF, Version 1.
- Government of WA 2003, *A State Water Strategy for Western Australia*, Perth.
- Government of WA 2007, *State Water Plan*, Perth.
- Gozzard, J. R. 1986, *Perth Metropolitan Region* Geological Survey of Western Australia, Perth.
- Lundstrom Environmental 2018, *Water Management Plan - Lots 4 and 5 Ludlow Road, Myalup, Shire of Harvey*.

Figures



Figure 1: Site Boundary

Figure 2: Topographic and Groundwater Contours

Figure 3: Hydrological Features



Figure 1: Site Location

Project: Water Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number:
EP25-070(04)--F24
Drawn: WJC
Date: 23/04/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 50 100 150
Metres
Scale: 1:6,000@A4
GDA2020 MGA Zone 50





Figure 2: Topographic and Groundwater Contours

Project: Water Management Plan
Part Lot 5, Ludlow Road, Myalup

Client: B & J Catalano

Plan Number: EP25-070(04)-F25
Drawn: WJC
Date: 09/03/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 150 300 450
 Metres
 Scale: 1:15,000@A4
 GDA2020 MGA Zone 50



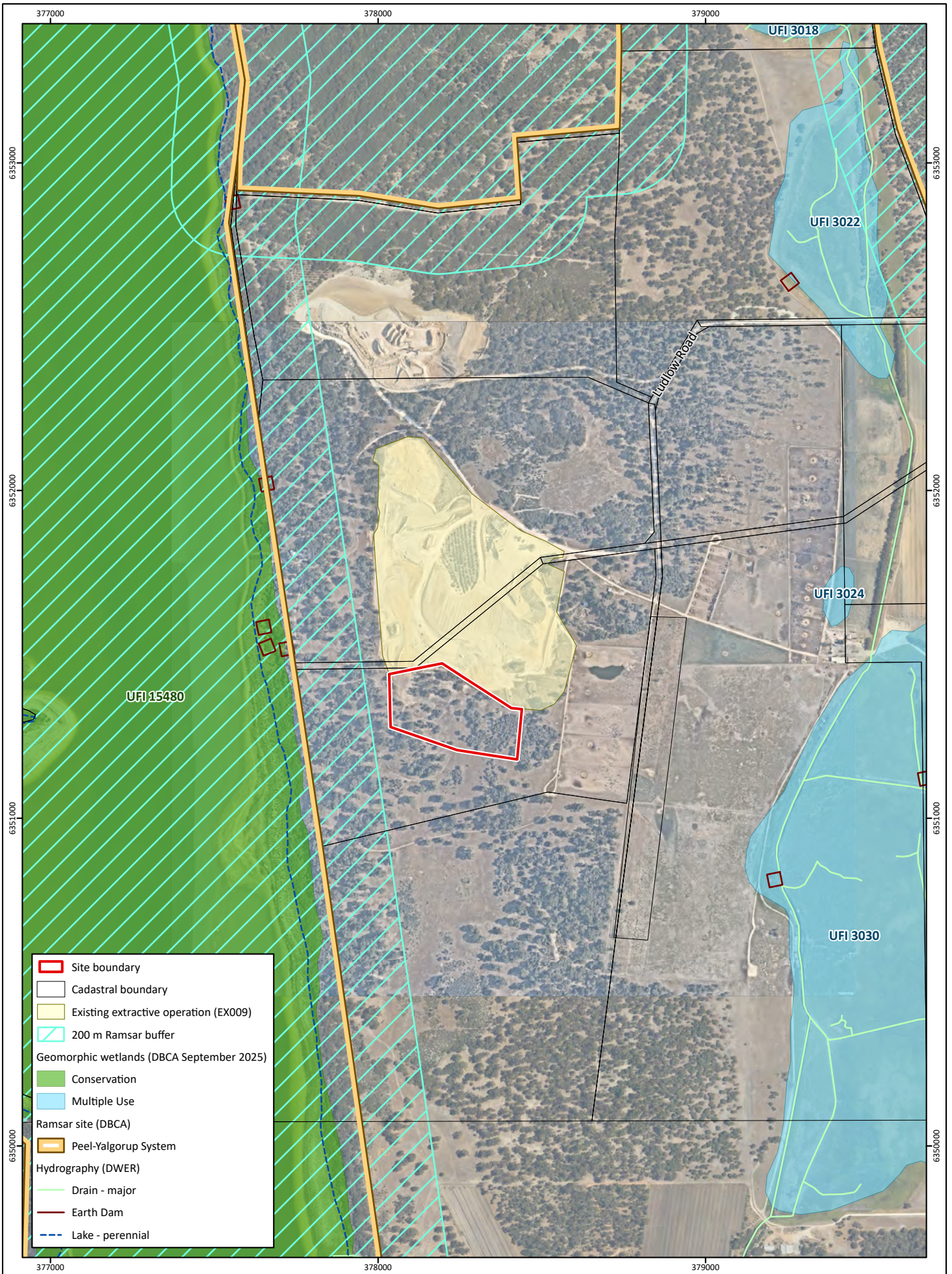


Figure 3: Hydrological Features

Project: Water Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)-F26
Drawn: WJC
Date: 09/03/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 150 300 450
Metres
Scale: 1:15,000@A4
GDA2020 MGA Zone 50



Attachment A

Hydrocarbon Spill Response



Safety Practice

SAF-SP-029 HYDROCARBON SPILL RESPONSE

PURPOSE

This procedure summarises the safety practice of B & J Catalano to control the personal and environmental hazard posed by hydrocarbon spills. It outlines the correct procedure for controlling, recovering and reporting hydrocarbon spills to ensure compliance with West Australian legislative requirements.

SCOPE

This safety practice will apply to all B & J Catalano areas and employees.

DEFINITIONS

MSDS: Material Safety Data Sheet - A document which describes the properties and use of a substance, i.e., its identity, chemical and physical properties, health hazard information, precautions for use and safe handling information.

Hydrocarbon: An organic compound containing only carbon and hydrogen including diesel, oil, petrol, grease, solvent-based degreasers, hydraulic fluids and transformer oils.

Hydrocarbon Spill: Any uncontrolled release of hydrocarbon products.

Bund: An embankment or wall that may form part or the entire perimeter of a compound. Usually made of concrete, bunds are placed around storage tanks to contain spills.

INFORMATION

Under the general and specific provision of duty of care an employer shall, so far as is practicable, provide and maintain a working environment in which his employees are not exposed to hazards existing in the workplace. This requirement includes the hazards associated with hydrocarbons spills.

It is the responsibility of ALL employees and contractors to manage hydrocarbon spills as they occur. Supervisors are accountable if their immediate areas are found to have poor hydrocarbon management practices (this includes the clean-up of minor spills).

Spills involving hydrocarbons have the potential to produce adverse consequences to human health and/or the environment. Environmental spills can lead to contamination of water (both surface and aquifers), soil and habitats. The effect is higher closure costs, loss of a potable resource, death of flora and fauna, requirement for remediation, classification into Western Australia's Contaminated Sites database and prosecution by the Department of Environment and Conservation (DEC).

Document No.	Doc Type	Approved	Rev. No.	Rev. Date	Page
SAF-SP-29	SAF	May 2011	1.0	May 2012	1 of 4

This safety practise outlines:

- Action required when a spill is identified
- Techniques to restrict the extent of the contamination
- Techniques to collect spilled material
- Techniques to collect and dispose of contaminated material
- Techniques to treat soils contaminated by hydrocarbon
- Reporting requirements in regard to hydrocarbon spills

REQUIREMENTS

1 Action required when a spill is identified

- 1.1 Isolate the spill area
- 1.2 Identify the spilt substance
- 1.3 Identify hazards and PPE requirements – consult the appropriate MSDS.
- 1.4 If safe to do so, the source of the spill should be restricted or stopped (i.e. shutdown machinery, switch off pumps, close valves).
- 1.5 If suitable equipment is readily available and can be operated in a safe manner, the extent of the spill is to be contained.
- 1.6 Contact immediate Supervisor as soon as possible and advise of spill.

2 Techniques to restrict the extent of the contamination

- 2.1 If possible restrict the source of the spill to ensure the flow of hydrocarbon is stopped.
- 2.2 If the spill is occurring outside a containment bund, use earthmoving equipment to construct additional earthen bunds to contain the extent of the flow.
- 2.3 Isolate drains.
- 2.4 On advice of Environmental Department, pump source material from either or both of the source container or the bunded containment into a safe container.

3 Techniques to collect spilled hydrocarbon

- 3.1 On advice of Environmental Department, pump source material from either or both of the source container or the bunded containment into a safe container.
- 3.2 Use absorbent materials to soak up residual hydrocarbon.
- 3.3 If the spill occurs in an area where a water body has become contaminated, use mini air booms to contain the spread of hydrocarbon on the surface of the water.
- 3.4 Use a skimmer to collect contained hydrocarbon in a triple oil separator or retain on the surface of the water body and pump to a waste oil tank or other safe container.
- 3.5 Hydrocarbon absorbents are to be collected and disposed of as decided by the Environmental Department and according to site requirements.

Document No.	Doc Type	Approved	Rev. No.	Rev. Date	Page
SAF-SP-29	SAF	May 2011	1.0	May 2012	2 of 4

4 Techniques to treat soils contaminated by hydrocarbon

- 4.1 Dependent on site requirements and on advice from the Environmental Department, contaminated soils may be treated in the following ways:
- Collected and disposed of
 - Encapsulated in the waste dump
 - Collected or remain in situ and treated by bioremediation to breakdown the hydrocarbon.
- 4.2 On completion of the rehabilitation program the Environmental Department must inspect and verify that the spill has been successfully remediated.

5 Reporting requirements in regard to hydrocarbon spills

- 5.1 All incidents of hydrocarbon spills are to be reported to the immediate Supervisor as soon as possible and followed up with the completion of the B&J Catalano Incident Report Form which requires an incident investigation to determine root cause and assists in the prevention of a reoccurrence.
- 5.2.1 The immediate Supervisor must then report the incident to the Environmental Department to determine what reporting to external departments is required i.e. Department of Conservation.

Table 1: Suggested Spill Equipment

Type of Spill	Recommended Spill Equipment
Spill on rocks / dirt	<ul style="list-style-type: none"> • Use earthen bunds or booms to contain spill • Polypropylene pads to mop up excess oil at the outset • Global Peat or Enretec to treat contaminated soil in-situ
Spill on concrete / hardstand area e.g. workshop	<ul style="list-style-type: none"> • Polypropylene pads (easiest and quickest) • Floorsorb / kitty litter if pads not available (this must be swept up and disposed of in hydrocarbon bins immediately, as these products are not hydrophobic and will not contain the spill if they become wet)
Spill in containment bund	<ul style="list-style-type: none"> • Polypropylene pads or pillows • Bund can be drained or sucked out to waste oil receptacle if the spill is large
Spill occurs when raining or on a water body	<ul style="list-style-type: none"> • Polypropylene pads

Document No.	Doc Type	Approved	Rev. No.	Rev. Date	Page
SAF-SP-29	SAF	May 2011	1.0	May 2012	3 of 4

RELATED DOCUMENTS

- a. B&J Catalano Incident Report Form

REFERENCES

- a. Occupational Safety and Health Act (WA) 1984
- b. Occupational Safety and Health Regulations (WA) 1996
- c. Mines Safety and Inspections Act (WA) 1994
- d. Mines Safety and Inspections Regulations (WA) 1995
- e. Environmental Protection Act 1986
- f. Environmental Protection (Unauthorised Discharges) Regulations 2004
- g. AS 1940 : 2004 Storage and handling of flammable and combustible liquids

DOCUMENT CONTROL

Approval			
Role	Name	Date	
General Manager	Nunzio Giunta	Sept 2011	
HSE/HR Manager	Doriann Walls	Sept 2011	
Revision Events			
Rev.	Author	Changes	Date
1.0	Nic Henley		May 2011
2.0	Ian Prosser	Definitions / Table 1	March 2012

Document No.	Doc Type	Approved	Rev. No.	Rev. Date	Page
SAF-SP-29	SAF	May 2011	1.0	May 2012	4 of 4

Appendix B

Weed Management Plan



Document Reference: EP25-070(04)—008 LRF

Emerge contact: Jason Hick 0488 223 306

8 May 2026

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Emerge Environmental Services Pty Ltd ABN
57144772510 trading as Emmerge Associates

Attention: Chief Executive Officer
Shire of Harvey
102 Uduc Road
HARVEY WA 6220

Delivered by email to: shire@harvey.wa.gov.au

Dear Sir/Madam,

WEED MANAGEMENT PLAN: B&J CATALANO LIMESTONE EXTRACTION OPERATIONS – PART LOT 5, LUDLOW ROAD, MYALUP

1 INTRODUCTION

1.1 Background

B&J Catalano Pty Ltd (the proponent) is lodging a Development Application (DA) and an Extractive Industries Licence (EIL) application to facilitate expansion of existing limestone extractive operations within part Lot 4 and Lot 5 Ludlow Road, Myalup (herein referred to as ‘the proposed expansion’), approximately 50 km north of Bunbury within the Shire of Harvey, Western Australia (WA). The existing limestone extraction operates under the approved DA (P217/25) and EIL (EX/009) issued by the Shire of Harvey in 2025, as well as prescribed premises licence (L8831/2014/3) issued by the Department of Water and Environmental Regulation (DWER).

The proposed expansion will operate within a 7.98 ha parcel of land directly south of existing extractive operations within a portion of Lot 5 (herein referred to as ‘the site’), as shown in **Figure 1**. The site and surrounding land are zoned ‘Rural’ under the Greater Bunbury Region Scheme (GBRS) and ‘Priority Agriculture’ under the Shire of Harvey Local Planning Scheme No. 2 (LPS 2). The site is also located within Special Control Area No. 2 (SCA 2 – Basic Raw Materials) and Special Control Area No. 6A (SCA 6A – Landscape Protection Area).

1.2 Purpose

This Weed Management Plan (WMP) has been prepared to support the application of a DA and EIL by the proponent, and should be read in conjunction with the *Environmental Management Plan* (EMP) (Emerge Associates 2026).

The overall objective for this document is to support the expansion of operations within the site while mitigating the impact of weeds during clearing, operation and rehabilitation stages of the proposed expansion within the site and the surrounding environment.

1.3 Relevant Documents

The proposed management measures within this WMP have been written in accordance with the following relevant documents:

- *Biosecurity and Agriculture Management Act 2007 (BAM Act)*
- *Department of Agriculture and Food WA guideline for weed control procedures for extractive industries licence (DAFWA 2014).*

1.4 Responsibilities

The implementation of the management actions within this plan is the responsibility of the proponent and their various contractors.

2 PROPOSED WORKS

The proponent is proposing a southern expansion to the existing extractive operations which will include:

- The clearing of 3.57 ha of native vegetation.
- The mining of approximately 150,000 tonnes per year of limestone to a depth of 6 m AHD.
- Crushing and screening onsite via mobile plant for approximately six weeks per annum.

As extractive operations near the finished depth of 6 m AHD, impacted areas will be progressively rehabilitated. During extractive works, landforms will be recontoured and stabilised, with batter slopes of no more than 1:3 maintained throughout the site to ensure long term stability and compatibility with the surrounding landscape.

When landforms have been depleted of resources, topsoil stockpiles will be respread over the stabilised slopes and pit floors, following by surface ripping to alleviate compaction and promote seedling emergence. Revegetation works involve sowing the pit floor to pasture grasses and stabilised batters with native vegetation informed by historical species occurrences within the area. Weed monitoring and maintenance will be implemented as required to support vegetation establishment.

The staged approach allows rehabilitation works to commence prior to exhaustion of the entire limestone resource within the site boundary, thereby reducing the duration for which land remains clear of vegetation and impacts on local amenity.

3 EXISTING WEED STATUS OF THE SITE

The term 'weed' can refer to any plant that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. Many non-native flora species and some native species are considered to be weeds. A particularly invasive or detrimental weed species may be listed as a 'declared pest' pursuant to Western Australia's *Biosecurity and Agriculture Management Act 2007 (BAM Act)* (referred to as 'declared weeds'), indicating that it warrants special management to limit its spread. At a national level, the Australian government has compiled a list of 32 Weeds of National Significance (WoNS) (DAWE 2021). Whilst the WoNS list is non-statutory, many WoNS are also listed under the BAM Act.

Two declared weed species (**Gomphocarpus fruticosus* (Cotton Bush) and **Solanaum linneanum* (Apple of Sodom)) were recorded throughout the survey area, including within the proposed expansion area (Ecoedge 2025).

4 MANAGEMENT OBJECTIVES

The proponent shall be responsible for weed management during site operations and rehabilitation activities. The following objectives have been identified to the overarching objective outlined in **Section 1.2.**

- Minimise the risk of introducing new declared weeds species into the site or surrounding environment as a result of site operations or rehabilitation activities.
- Prevent the spread of existing declared weeds within the site or into the surrounding environment.
- Establish monitoring and management actions to control existing declared weeds within the defined zones of the site.

5 WEED CONTROL PROGRAM

5.1 Import and export of weeds

To prevent the spread of declared weeds within the site or introduction of previously unrecorded declared weed species, the following management actions will be implemented at all times:

- Vehicles, tools, equipment and machinery shall be free of all mud, soil and plant material on arrival at the site.
- If vehicles, tools, equipment and machinery are temporarily removed from the site during works they must be free of all mud, soil and plant material on return.
- All vehicles entering the site will undergo inspection for soil and plant material at a dedicated entrance.
- Ensure any landscape materials (soil, mulch and plant stock) brought into the site is free from pathogens and heavy metals and produced in accordance with *Australian Standard AS 4454-2003 Composts, Soil Conditioners and Mulches*.
- Cleaning may include brushing and scraping of debris, and/or wash down of contaminated vehicles and machinery with approved product such as phytoclean (as required). Material should be collected and disposed offsite.

5.2 Weed management zones

For the purpose of this WMP, the site and surrounding land have been divided into the following zones as outlined in the *Guidelines for weed control procedures for extractive industries licence* (DAFWA 2014):

- Zone A: All land within the active extraction area, including the base of the excavation, access tracks, topsoil stockpiles, overburden and all product stockpiles.
- Zone B: All land at natural level extending 100 m beyond the perimeter of the active extraction area (Zone A), including any stockpiles of soil or overburden stored within this zone.

5.2.1 Weed monitoring

Monitoring of the emergence of weeds in Zones A and B will be undertaken by a suitably qualified and licensed weed management contractor on a six-monthly basis. Weed monitoring events will occur after the first seasonal rains and at the end of spring.


In addition, all site personnel and contractors will be required to report any visual observations of weed occurrences. Identification of declared weeds and reporting procedures will be communicated through site inductions, as outlined in the EMP (Emerge Associates 2026).

5.3 Weed control program

In the event of weed infestation, the suitably qualified and licensed weed management contractor will determine the type of weed control required. This may include both manual (hand weeding) and chemical (herbicide) based approaches including broad spectrum (such as Roundup®(glyphosate 360 g/L)) or selective formulations. The application of these methods will be dependent on-site conditions and are likely to change over the course of implementing this plan. As a guide, weed control is likely to be required twice a year.

Herbicides will only be applied by a Department of Health licensed pest management technician according to the manufacturer's instructions, as provided on product label and the Australian Pesticides and Veterinary Medicines Authority *Permit No. 13333- Permit to allow minor use of an agvet chemical product for control of environmental weeds in various situations.*

Yours sincerely
Emerge Associates

A handwritten signature in blue ink, appearing to read 'J. Hick', with a large loop on the left and a long horizontal stroke on the right.

Jason Hick
PRINCIPAL ENVIRONMENTAL CONSULTANT

Encl: **Figure 1:** Site Boundary

General references

Department of Agriculture and Food (DAFWA) 2014, *Guidelines for weed control procedures for extractive industries licence*, Perth.

Department of Agriculture, Water and the Environment (DAWE) 2021, *Weeds of National Significance (WoNS)*, Centre for Invasive Species Solutions (CISS), <<https://weeds.org.au/weeds-profiles/>>.

Ecoedge Environmental Services (Ecoedge) 2025, *Detailed and Targeted Flora and Vegetation Survey Lot 5 Ludlow Road, Myalup* Version D.

Emerge Associates 2026, *Environmental Management Plan - Part Lot 5, Ludlow Road, Myalup*, EP25-070(04)--006 LRF, Version 1.

Figures



Figure 1: Site Boundary



Figure 1: Site Location

Project: Weed Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F32
Drawn: WJC
Date: 23/04/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 50 100 150
Metres
Scale: 1:6,000@A4
GDA2020 MGA Zone 50



Appendix C

Noise Management Plan



Document Reference: EP25-070(04)—009 LRF

Emerge contact: Jason Hick 0488 223 306

8 May 2026

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Emerge Environmental Services Pty Ltd ABN
57144772510 trading as Emmerge Associates

Attention: Chief Executive Officer
Shire of Harvey
102 Uduc Road
HARVEY WA 6220

Delivered by email to: shire@harvey.wa.gov.au

Dear Sir/Madam,

NOISE MANAGEMENT PLAN: B&J CATALANO LIMESTONE EXTRACTION OPERATIONS – PART LOT 5, LUDLOW ROAD, MYALUP

1 INTRODUCTION

1.1 Background

B&J Catalano Pty Ltd (the proponent) is lodging a Development Application (DA) and an Extractive Industries Licence (EIL) application to facilitate expansion of existing limestone extractive operations within part Lot 4 and Lot 5 Ludlow Road, Myalup (herein referred to as ‘the proposed expansion’), approximately 50 km north of Bunbury within the Shire of Harvey, Western Australia (WA). The existing limestone extraction operates under the approved DA (P217/25) and EIL (EX/009) issued by the Shire of Harvey in 2025, as well as prescribed premises licence (L8831/2014/3) issued by the Department of Water and Environmental Regulation (DWER).

The proposed expansion will operate within a 7.98 ha parcel of land directly south of existing extractive operations within a portion of Lot 5 (herein referred to as ‘the site’), as shown in **Figure 1**. The site and surrounding land are zoned ‘Rural’ under the Greater Bunbury Region Scheme (GBRS) and ‘Priority Agriculture’ under the Shire of Harvey Local Planning Scheme No. 2 (LPS 2). The site is also located within Special Control Area No. 2 (SCA 2 – Basic Raw Materials) and Special Control Area No. 6A (SCA 6A – Landscape Protection Area).

1.2 Purpose

This Noise Management Plan (NMP) has been prepared to support the application of a DA and EIL by the proponent, and should be read in conjunction with the *Environmental Management Plan (EMP)* (Emerge Associates 2026).

The overall objective for this document is to support the expansion of operations within the site while mitigating the risk of noise and vibration impacts to sensitive receptors.

1.3 Legislative framework

1.3.1 Environmental Protection (Noise) Regulations 1997

Environmental noise is governed in Western Australia by the *Environmental Protection (Noise) Regulations 1997* (the Regulations). The Regulations set noise standards to ensure that noise from other premises is kept to assigned noise levels. The noise standards are set out within Section 7 of the Regulations as follows:

7) Prescribed standard for noise emissions

1. Noise emitted from any premises or public place when received at other premises –
 - a) must not cause, or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and
 - b) must be free of –
 - (i) tonality; and
 - (ii) impulsiveness; and
 - (iii) modulation

9) Intrusive or dominant noise characteristics

3. Noise is taken to be free of the characteristics of tonality, impulsiveness and modulation if –
 - a) the characteristics cannot be reasonably and practicably removed by techniques other than attenuating the overall level of the noise emission; and
 - b) the noise emission complies with the standard prescribed under regulation 7(1)(a) after the adjustments in the table (**Table 1**) to this sub regulation are made to the noise emission as measured at the point of reception.

Table 1: Adjustments for intrusive characteristics

Adjustment where noise emission is not music		
Where tonality is present	Where modulation is present	Where impulsiveness is present
+5 dB	+5 dB	+10 dB

1.3.1.1 Assigned noise levels

Section 8 of the Regulations describes assigned levels for sensitive areas at various times as shown in **Table 2** below:

Table 2: Assigned noise levels

Type of premises receiving noise	Time of day	Assigned level (dB)		
		L _{A10}	L _{A1}	L _{A max}
Noise sensitive premises: highly sensitive area	0700 to 1900 hours Monday to Sunday	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours on all days	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday to public holiday	35 + influencing factor	45 + influencing factor	55 + influencing factor

Table 2: Assigned noise levels (continued)

Type of premises receiving noise	Time of day	Assigned level (dB)		
		L _{A10}	L _{A1}	L _{A max}
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises	All hours	65	80	90

2 PROPOSED WORKS AND POTENTIAL IMPACTS

2.1 Proposed mining actions

The proponent intends to begin limestone extraction works within a proposed expansion area of 7.98 ha (referred to as ‘the site’) (Figure 1) using a D8 bulldozer and CAT 988 front-end loader. The bulldozer will rip and blade raw material to a stockpile where it will be loaded into a Finlay crusher and processed. This will result in the extraction of approximately 150,000 tonnes over the 5-year period, dependant on demand.

As extractive operations near the finished depth of 6 m AHD, impacted areas will be progressively rehabilitated. During extractive works, landforms will be recontoured and stabilised, with batter slopes of no more than 1:3 maintained throughout the site to ensure long term stability and compatibility with the surrounding landscape.

When the pit has been exhausted, topsoil stockpiles will be respread over the stabilised slopes and pit floors, following by surface ripping to alleviate compaction and promote seedling emergence. Revegetation works involve sowing the pit floor to pasture grasses and stabilised batters with native vegetation informed by historical species occurrences within the area. Weed monitoring and maintenance will be implemented as required to support vegetation establishment.

A description of all activities, their duration and an assessment of potential for noise impacts is detailed below in Table 3.

Table 3: Summary of noise generating activities

Activity	Duration	Equipment used	Comments
Screening and stockpiling of limestone	8 weeks from commencement	Final Screen 693 Striker 25 m Stacker	No impact anticipated as noise is expected to dissipate to below assigned noise levels before reaching closest noise sensitive premises.
Loading of trucks from stockpiles	4 years at an average of 14 trucks per day	Single Semi-loader (24 tonnes) CAT 988 FEL	No impact anticipated as noise is expected to dissipate to below assigned noise levels before reaching closest noise sensitive premises.
Rehabilitation of completed stages	2 weeks per year from commencement	D8 Bulldozer CAT 988 FEL	No impact anticipated as noise is expected to dissipate to below assigned noise levels before reaching closest noise sensitive premises.

2.2 Plant and equipment to be used

Equipment to be used during the operational lifetime and the estimated maximum sounds pressure of the equipment are summarised below in **Table 4**.

The use of bulldozers in extractive industry may incur tonality penalties as described in **Table 1**. In this case, the limestone is relatively soft, and tonality impacts are anticipated to be low. As such, no adjustments for intrusive characteristics have been applied.

Table 4: Equipment used on site and source sound power levels

Equipment	Data source	Sound power level dB(A)
D8 Bulldozer	Manufacturers noise data	116
Caterpillar 988	Manufacturers noise data	11
Mobile Finlay Crusher	Data estimated from previous experience	113
Mobile Stacker	Data estimated from previous experience	100
Truck	Manufacturers noise data	100

2.3 Sensitive receptors

There is one residence within 1000 m from the site, shown on **Plate 1**. This sensitive receptor is owned by Geoffrey Thomas Pearson who is the landowner of the property. A second sensitive receptor is located more than 1000 m to the west of the extraction area.

A Noise Management Plan for existing adjacent extractive operations under licence EX009 has been previously prepared by Lundstrom Environmental (2025). The assessment included noise contour mapping for EX009, which indicated that operational noise is unlikely to have a significant impact on the nearest sensitive receptors (as shown in **Table 5**).



Plate 1: Proximity of nearby residence to the site

Table 5: Noise impacts on nearby residences (Lundstrom Environmental 2025).

Residence No.	Lot no.	Occupants Name	Distance to extractive pit	L _{A max}
1	Lot 4	Holiday Cottage (owned by landowner)	~ 500 m	40-45
2	Lot 561	Unknown	> 1500 m	< 40

Given that the proposed expansion is adjacent to the existing extractive site, and will adopt the same extraction procedure and equipment and also moving further away from the sensitive receptors, noise impacts from the proposed expansion are likely to be similar to or less than historical operations.

3 MANAGEMENT OBJECTIVES

The proponent shall be responsible for noise and vibration levels during site operations, which includes clearing, limestone extraction, and rehabilitation works. The following objectives have been established to support the overarching objective outlined in **Section 1.2**.

- Ensure noise levels from site operations comply with noise standard set by the Regulations.
- Protect human health, neighbouring land uses, and the environment from effects caused by noise and vibration associated with site operations.

4 MANAGEMENT ACTIONS

4.1 Noise Management Actions

The aim of the noise management actions is to meet the objectives listed in **Section 3**. The proposed management actions that will be applied to control noise and vibration during clearing, operation and rehabilitation are detailed below in **Table 6**.

Table 6: Noise management actions

Management Action	Timing	Performance Indicator
Undertake workforce site inductions that include education in relation to noise, as well as individual responsibilities for implementing management actions.	At all times	Induction records demonstrated 100% of personnel and contractors have completed the site induction prior to commencing works.
All noise generating works are to be carried out between 0700 Monday to 1900 Saturday and not during Sunday or Public holidays in accordance with the <i>Environmental Protection (Noise) Regulations 1997</i> (unless permission is granted).	During works	No complaints or verified incidents of works occurring outside of approved operating hours.
Undertake crushing and stockpiling at topographic low points within the site to reduce noise output.	During works	Site inspections confirm crushing and stockpiling operations are undertaken within topographic low points.
Ensure all machinery and plant is serviced and operating correctly and if required, fitted with noise attenuation equipment and is serviced and operating as intended (no faulty or inefficient mufflers/noise dampeners) to avoid unnecessary disturbance.	Prior to and during works	Maintenance records are current and available for inspection. No use of non-compliant or defective equipment is observed.

4.2 Incidents and corrective actions

Potential noise and vibration incidents and appropriate responses have been detailed in **Table 7**.

Table 7: Potential noise and vibration incidents and appropriate responses

Situation	Response	Responsibility
Works occurring outside standard work hours without approval or appropriate notification to community	<ul style="list-style-type: none"> • Immediately cease work where safe to do so. • Investigation cause • Undertake training/re-training of site staff on their noise management responsibilities. • Apply for out of hours works approval to the Shire of Harvey is works are required to be undertaken outside of standard work hours • Complete incident report 	Proponent
Malfunction of equipment used for tasks causing excessive noise / vibration emissions	<ul style="list-style-type: none"> • Immediately cease works if safe to do so. • Investigate cause • Undertake maintenance or replace faulty equipment where required • Undertake investigation to determine corrective and preventative actions • Complete incident report 	Proponent
Noise or vibration causing community complaint and/or action level exceedance	<ul style="list-style-type: none"> • Immediately cease works if safe to do so. • Investigate cause • Respond to the complaint within 24 hours of receipt with advice on management and contingency measures being applied. • Modify the methodology, employ controls, or reschedule works to be completed at a less disruptive time. • Report all complaints to the Shire with an outline of the management and contingency measures being applied. • Undertake training/re-training of site staff on their noise management responsibilities if relevant. • Monitor effectiveness of any mitigation measures implemented. 	Proponent

5 CONCLUSION

Given the location of the proposed expansion in relation to sensitive receptors, the equipment to be used, and the anticipated noise generation, noise impacts associated with clearing, extraction and rehabilitation are not anticipated.

This plan will only undergo review and potential amendment if the approach to noise and vibration management changes, or a significant change in circumstances/unforeseen event occurs. In this instance changes to the noise and vibration management approaches would be first discussed with the Shire.

Yours sincerely
Emerge Associates

Jason Hick
PRINCIPAL ENVIRONMENTAL CONSULTANT

Encl: **Figure 1: Site Boundary**

General References

Emerge Associates 2026, *Environmental Management Plan - Part Lot 5, Ludlow Road, Myalup*, EP25-070(04)--006 LRF, Version 1.

Lundstrom Environmental 2025, *Noise Management Plan - Lots 4 and 5, Ludlow road, Myalup*, Version 1.

Figures



Figure 1: Site Boundary



Figure 1: Site Location

Project: Noise Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)--F27
Drawn: WJC
Date: 23/04/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 50 100 150
Metres
Scale: 1:6,000@A4
GDA2020 MGA Zone 50



Appendix D

Dust Management Plan



Document Reference: EP25-070(04)—009 LRF

Emerge contact: Jason Hick 0488 223 306

13 May 2026

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Emerge Environmental Services Pty Ltd ABN
57144772510 trading as Emmerge Associates

Attention: Chief Executive Officer
Shire of Harvey
102 Uduc Road
HARVEY WA 6220

Delivered by email to: shire@harvey.wa.gov.au

Dear Sir/Madam,

DUST MANAGEMENT PLAN: B&J CATALANO LIMESTONE EXTRACTION OPERATIONS – PART LOT 5, LUDLOW ROAD, MYALUP

1 INTRODUCTION

1.1 Background

B&J Catalano Pty Ltd (the proponent) is lodging a Development Application (DA) and an Extractive Industries Licence (EIL) application to facilitate expansion of existing limestone extractive operations within part Lot 4 and Lot 5 Ludlow Road, Myalup (herein referred to as ‘the proposed expansion’), approximately 50 km north of Bunbury within the Shire of Harvey, Western Australia (WA). The existing limestone extraction operates under the approved DA (P217/25) and EIL (EX/009) issued by the Shire of Harvey in 2025, as well as prescribed premises licence (L8831/2014/3) issued by the Department of Water and Environmental Regulation (DWER).

The proposed expansion will operate within a 7.98 ha parcel of land directly south of existing extractive operations within a portion of Lot 5 (herein referred to as ‘the site’), as shown in **Figure 1**. The site and surrounding land are zoned ‘Rural’ under the Greater Bunbury Region Scheme (GBRS) and ‘Priority Agriculture’ under the Shire of Harvey Local Planning Scheme No. 2 (LPS 2). The site is also located within Special Control Area No. 2 (SCA 2 – Basic Raw Materials) and Special Control Area No. 6A (SCA 6A – Landscape Protection Area).

1.2 Purpose

This Dust Management Plan (DMP) has been prepared to support the application of a DA and EIL by the proponent, and should be read in conjunction with the *Environmental Management Plan (EMP)* (Emerge Associates 2026).

The overall objective for this document is to support the expansion of operations within the site while mitigating the risk of dust generation and subsequent impacts to the surrounding environment and sensitive receptors.

The proposed management measures within this DMP have been written in accordance with the *Department of Environment and Conservation (now Department of Water and Environmental Regulation (DWER)) A guideline for managing the impacts of dust and associated contaminants from*

land development sites, contaminated sites remediation and other related activities (DEC 2011) ('the Guidelines').

1.3 Responsibilities

The implementation of the management actions within this plan is the responsibility of the proponent and their various contractors.

2 PROPOSED WORKS

The proponent is proposing a southern expansion to the existing extractive operations (herein referred to as 'the proposed expansion'), which will include:

- The clearing of 3.57 ha of native vegetation.
- The mining of approximately 150,000 tonnes per year of limestone to a depth of 6 m AHD.
- Crushing and screening onsite via mobile plant for approximately six weeks per annum.

As extractive operations near the finished depth of 6 m AHD, impacted areas will be progressively rehabilitated. During extractive works, landforms will be recontoured and stabilised, with batter slopes of no more than 1:3 maintained throughout the site to ensure long term stability and compatibility with the surrounding landscape.

When landforms have been depleted of resources, topsoil stockpiles will be respread over the stabilised slopes and pit floors, following by surface ripping to alleviate compaction and promote seedling emergence. Revegetation works involve sowing the pit floor to pasture grasses and stabilised batters with native vegetation informed by historical species occurrences within the area. Weed monitoring and maintenance will be implemented as required to support vegetation establishment.

The staged approach allows rehabilitation works to commence prior to exhaustion of the entire limestone resource within the site boundary, thereby reducing the duration for which land remains clear of vegetation and impacts on local amenity.

3 POTENTIAL IMPACTS

The proposed limestone extraction may generate dust as a result of the following activities:

- Clearing
- Topsoil stripping
- Excavation of limestone
- Stockpiling of material
- Crushing and screening
- Loading of haulage trucks
- Trafficking on unsealed surfaces and access road

3.1 Wind direction

The closest weather station to the site which records 9 am and 3 pm wind data is the Bunbury weather station (Bureau of Meteorology (BoM) station number 009965) which is situated approximately 43 km south of the site. Based on weather data collected from 1995 to 2026, annual morning (9 am) winds are predominantly from the east at an average speed of 15.5 kilometre per hour (km/h) and evening (3 pm) winds are predominantly from the west at an average speed of 20.2 km/h (BoM 2026).

Wind roses showing annual wind conditions at 9 am and 3 pm are attached as **Attachment A**.

3.2 Sensitive receptors

The Guidelines (DEC 2011) defines sensitive receptors as:

'Individuals/communities/components of the environment which could be adversely affected by dust emissions, such as people in dwellings, schools, hospitals, nursing homes, child care facilities, offices, public recreation areas that exist now and in the future and protected wetlands. Some individuals may be more susceptible to adverse air quality, such as, children, the elderly and people with pre-existing medical conditions such as asthma or heart disease.'

There is one residence, considered a sensitive receptor, approximately 500 m northwest of the site (owned by the landowner). *Environmental Protection Authority (EPA) Guidance Statement no. 3 Separation Distances Between Industrial and Sensitive Land Uses (EPA 2005)* specifically addresses generic separation distances between industrial and sensitive land uses to avoid conflicts between these land uses.

The generic buffer distance for extractive industries where 'no grinding and milling works' are proposed is 300 m to 500 m dependant on the size of the operation. Given the relatively small size of the operation, the generic buffer would likely apply.

4 MANAGEMENT OBJECTIVES

The proponent shall be responsible for dust management measures during site operations. The following objectives have been established to support the overarching objective outlined in **Section 1.2**:

- Minimise the generation of dust from all site activities, including extraction, crushing, screening, stockpiling and haulage.
- Minimise the off-site transport of dust to protect surrounding land uses, including nearby residences and environmental values.
- Protect human health and amenity of site personnel, contractors, and the surrounding community from dust impacts.
- Implement effective dust suppression and control measures that are appropriate to site conditions and operational activities.

5 DUST MANAGEMENT MEASURES

5.1 Dust management and monitoring

The dust management and monitoring actions have been developed to achieve the objectives listed in **Section 4**. The proposed management actions to control dust emissions during clearing, operation and rehabilitation are detailed below in **Table 1**.

Table 1: Dust management actions

Activity	Management or monitoring action	Responsibility	Timing	Performance indicator
Site induction	Undertake workforce site inductions that includes education in relation to dust suppression measures, as well as individual responsibilities for observing and reporting excessive dust emissions.	Proponent	Prior to commencement	100% of personnel inducted prior to commencing works.
Complaints management	Establish and maintain complaints register, including recording, investigation, corrective actions and follow up.	Proponent	Prior to commencement and ongoing	All complaints recorded, investigation, closed out and captured in the complaints register.
	Install signage at site entry with contact details for complaints.	Proponent	≥ 48 hours prior to commencement	Signage installed and maintained.
General site management	Monitor weather forecasts for strong wind events and implement controls during string winds (e.g. water spraying from water carts). Suspend works if required.	Proponent	At all times	No visible dust leaving the site boundary.
	Stage works to ensure landforms are stabilised quickly following completion to keep the extent of disturbance within the site to a practical minimum at any time.	Proponent	At all times	Disturbance footprint minimized at all times.
	Implement appropriate dust suppression and controls methods as required (e.g. fencing, water carts and hydro mulch)	Proponent	At all times	No excessive dust from operational areas.
	Crushing and stockpiling activities located in topographic low points to prevent dust movement.	Proponent	At all times	No excessive dust from operational areas.
Stockpiles and exposed surfaces	Limit height and slope of stockpiles to reduce wind entrainment near sensitive receptors and ensure stockpiles exist for the shortest possible time within the site.	Proponent	At all times	No visible dust leaving the site boundary.
	Stabilize any stockpiles or exposed surfaces that are not actively works on using water, compaction, hydro mulch or other binding agents as required.	Proponent	At all times	No visible dust leaving the site boundary.
Haulage and vehicle movements	Restrict vehicle movements into and out of the site to the main entrance off Ludlow Road. Maintain dedicated haul roads (e.g. watering).	Proponent	At all times	No excessive dust generated by haul roads.
	A 10km/hour speed limit will be established throughout the site, supported by signage and conveyed to drivers and contractors.	Proponent	At all times	Speeds limits implemented and complied with.
	All vehicles transporting dusty loads shall be covered using tarpaulins, when entering or exiting the site.	Proponent	At all times	All loads covered.
	If extreme wind conditions are apparent or anticipated, consideration will be given to temporarily suspend/delay dust prone activities (such as loading of haul trucks).	Proponent	At all times	High risk works are suspended during high wind events.

5.2 Incidents and corrective actions

Potential dust incidents and appropriate responses have been detailed in **Table 2**.

Table 2: Potential dust incidents and appropriate responses

Situation	Response	Responsibility
Complaint received from public or stakeholder	<ul style="list-style-type: none"> Record complaint in register Investigation source and cause of dust Implement appropriate dust control measures (e.g. water carts, stabilisation of exposed ground or stockpiles, wind barriers) Assess effectiveness of additional control measures implemented Follow up with complainant and close out 	Proponent
Dust observed leaving the site boundary	<ul style="list-style-type: none"> Temporarily cease works if required Investigation source and cause of dust Implement appropriate dust control measures (e.g. water carts, stabilisation of exposed ground or stockpiles, wind barriers) Review and adjust operations as required 	Proponent
High risk gust generating activities occurring during extreme wind conditions	<ul style="list-style-type: none"> Cease high risk works until conditions improve 	Proponent
Vehicles exceeding speed limits	<ul style="list-style-type: none"> Reinforce speed limits with all site personnel through additional training or toolbox talk. Undertake ongoing monitoring to confirm compliance. Install additional signage or maintain existing signage as required. 	Proponent
Uncovered loads observed exiting site	<ul style="list-style-type: none"> Reinforce requirements around covering loads and undertake additional training all toolbox talks. Undertake ongoing monitoring to confirm compliance. 	Proponent

6 SUMMARY

The proponent is committed to providing an environment that does not impact the health and amenity of nearby residents and the environment. Should any aspect of this plan be found to be insufficient or impractical once implemented, the proponent will work with the Shire to determine and implement the most appropriate management response to dust.

Yours sincerely
Emerge Associates



Jason Hick
PRINCIPAL ENVIRONMENTAL CONSULTANT

Encl: **Figure 1:** Site Location
Figure 2: Surrounding Land Use

Attachment A: Bunbury Weather Station Wind Roses (BoM 2026)

General References

Bureau of Meteorology (BoM) 2026, *Climate Data Online*,
<<https://www.bom.gov.au/climate/data/>>.

Department of Environment and Conservation (DEC) 2011, *A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities*, Perth.

Emerge Associates 2026, *Environmental Management Plan - Part Lot 5, Ludlow Road, Myalup*, EP25-070(04)--006 LRF, Version 1.

Environmental Protection Authority (EPA) 2005, *Guidance for the Assessment of Environmental Factors No. 3 Separation Distances between Industrial and Sensitive Land Uses*.

Figures



Figure 1: Site Boundary

Figure 2: Surrounding Land Use



Figure 1: Site Location

Project: Dust Management Plan
Part Lot 5, Ludlow Road, Myalup

Client: B & J Catalano

Plan Number: EP25-070(04)--F28
Drawn: WJC
Date: 23/04/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 50 100 150
 Metres
 Scale: 1:6,000@A4
 GDA2020 MGA Zone 50



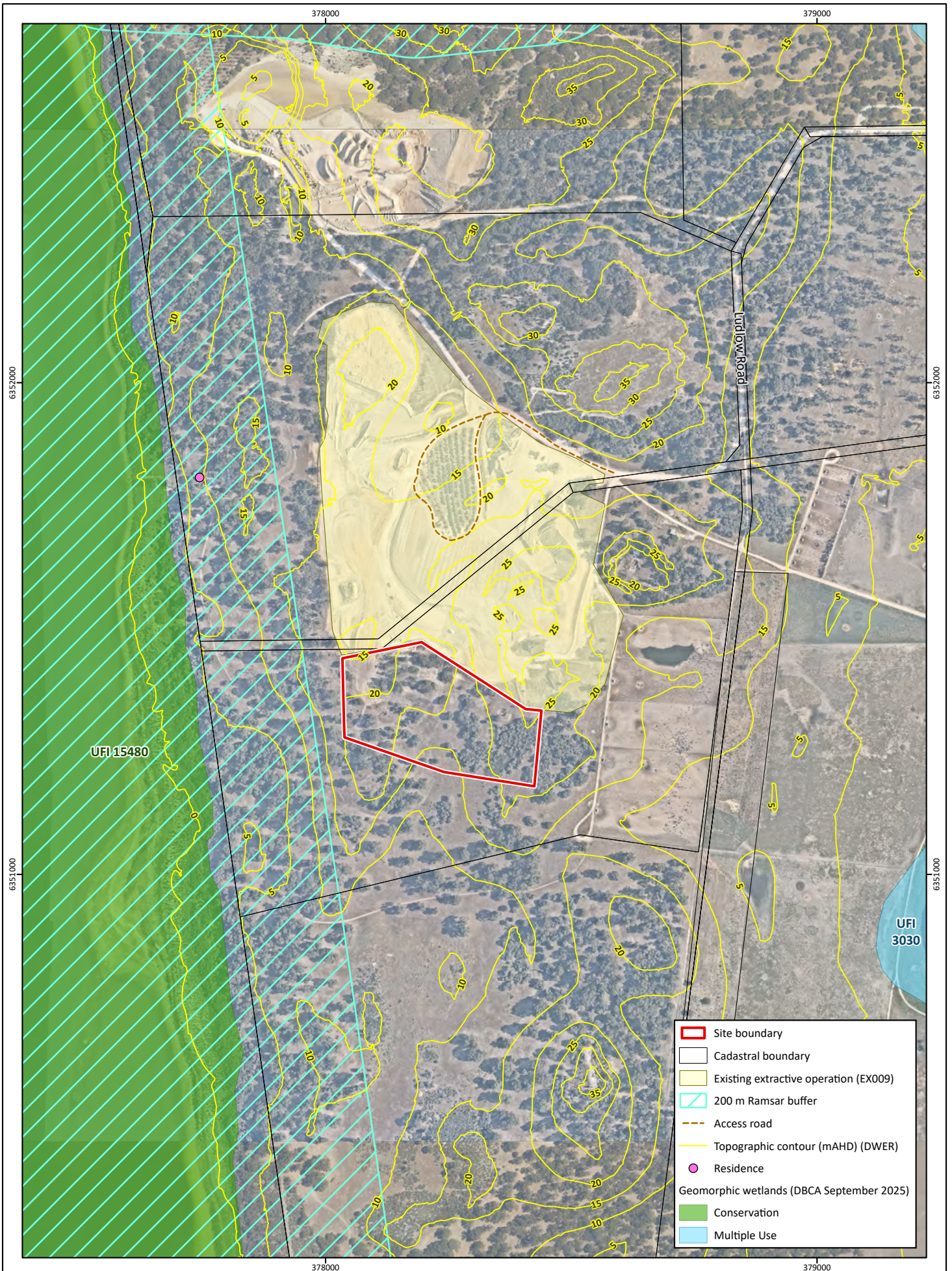


Figure 2: Surrounding Land Use

Project: Dust Management Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number: EP25-070(04)-F29
Drawn: WJC
Date: 23/04/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 100 200 300
Metres
Scale: 1:10,000@A4
GDA2020 MGA Zone 50



While Emerge Associates makes every attempt to ensure the accuracy and completeness of data, Emerge accepts no responsibility for externally sourced data used.
©Landgate (2026). Nearmap Imagery date: 09/11/2025

Attachment A

Bunbury Weather Station Wind Roses (BoM 2026)



Rose of Wind direction versus Wind speed in km/h (22 Nov 1995 to 09 Feb 2026)

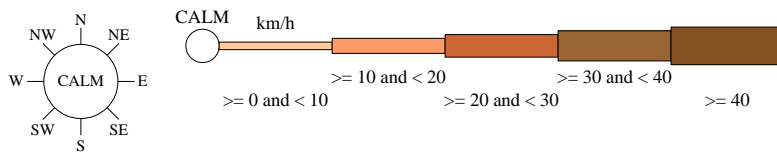
Custom times selected, refer to attached note for details

BUNBURY

Site No: 009965 • Opened Nov 1995 • Still Open • Latitude: -33.3567° • Longitude: 115.6447° • Elevation 5.m

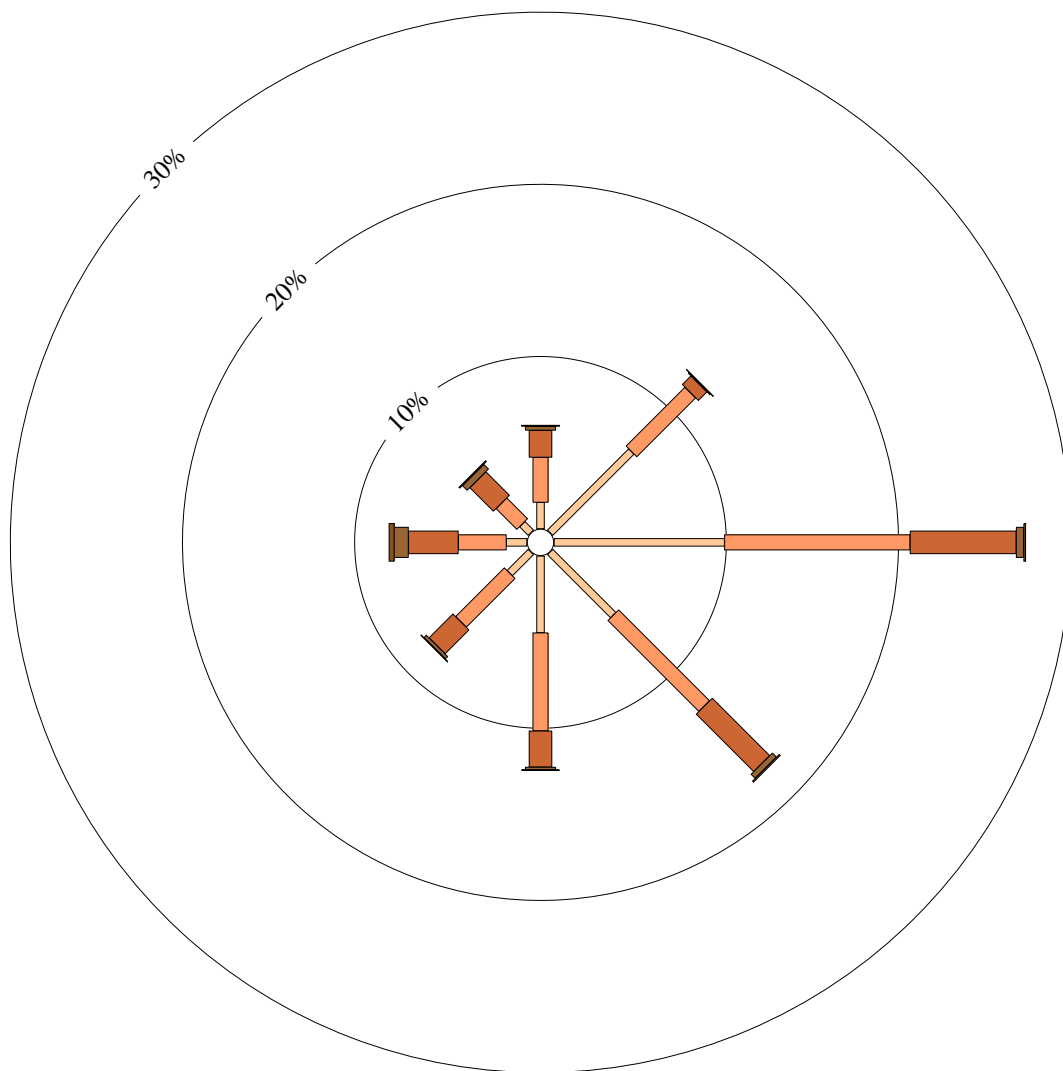
An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am
10926 Total Observations

Calm 4%



Rose of Wind direction versus Wind speed in km/h (22 Nov 1995 to 09 Feb 2026)

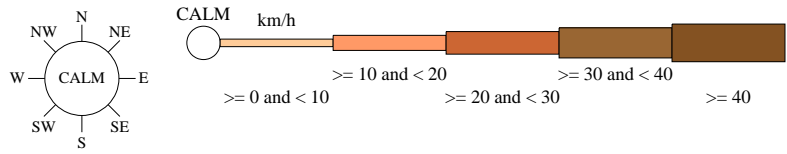
Custom times selected, refer to attached note for details

BUNBURY

Site No: 009965 • Opened Nov 1995 • Still Open • Latitude: -33.3567° • Longitude: 115.6447° • Elevation 5.m

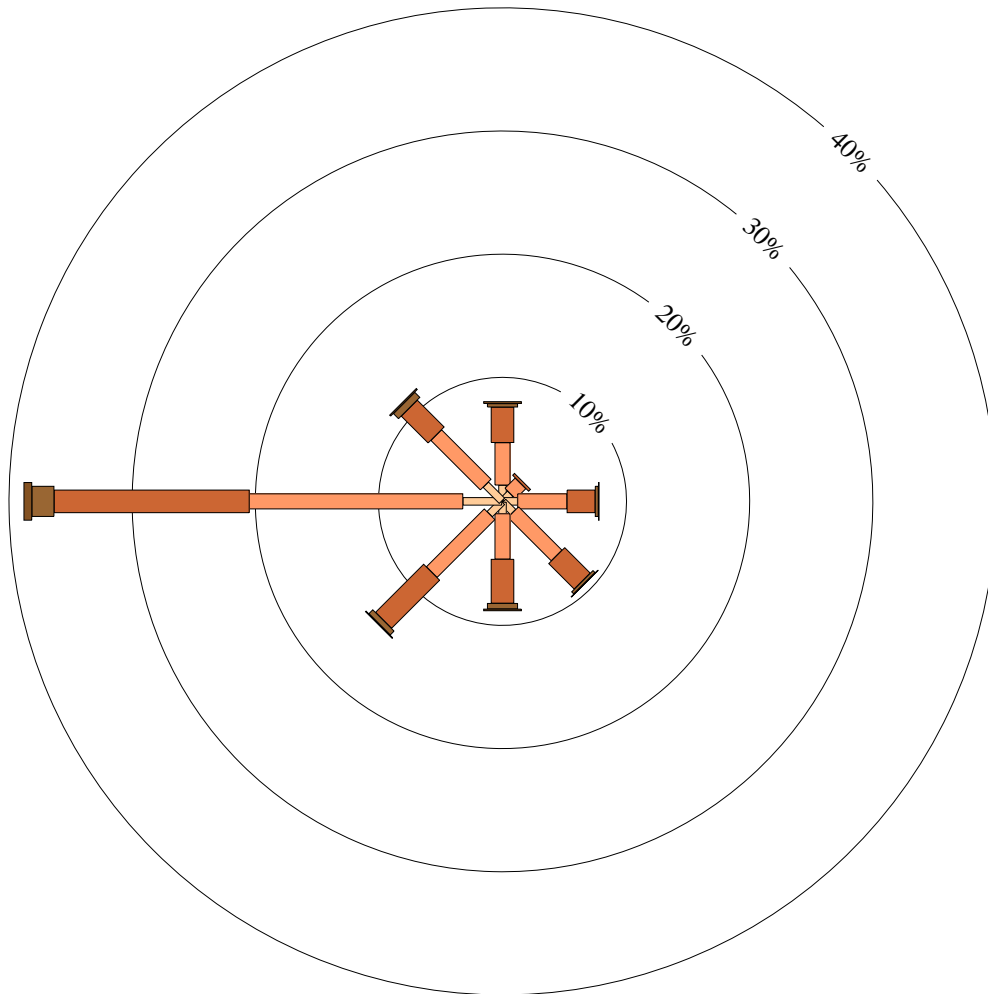
An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm
10902 Total Observations

Calm *



Appendix E

Rehabilitation Management Plan



Document Reference: EP25-070(04)—012 LRF

Emerge contact: Jason Hick 0488 223 306

13 May 2026

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Emerge Environmental Services Pty Ltd ABN
57144772510 trading as Emmerge Associates

Attention: Chief Executive Officer
Shire of Harvey
102 Uduc Road
HARVEY WA 6220

Delivered by email to: shire@harvey.wa.gov.au

Dear Sir/Madam,

REHABILITATION MANAGEMENT PLAN: B&J CATALANO LIMESTONE EXTRACTION OPERATIONS – PART LOT 5, LUDLOW ROAD, MYALUP

1 INTRODUCTION

1.1 Background

B&J Catalano Pty Ltd (the proponent) is lodging a Development Application (DA) and an Extractive Industries Licence (EIL) application to facilitate expansion of existing limestone extractive operations within part Lot 4 and Lot 5 Ludlow Road, Myalup (herein referred to as ‘the proposed expansion’), approximately 50 km north of Bunbury within the Shire of Harvey, Western Australia (WA). The existing limestone extraction operates under the approved DA (P217/25) and EIL (EX/009) issued by the Shire of Harvey in 2025, as well as prescribed premises licence (L8831/2014/3) issued by the Department of Water and Environmental Regulation (DWER).

The proposed expansion will operate within a 7.98 ha parcel of land directly south of existing extractive operations within a portion of Lot 5 (herein referred to as ‘the site’), as shown in **Figure 1**. The site and surrounding land are zoned ‘Rural’ under the Greater Bunbury Region Scheme (GBRS) and ‘Priority Agriculture’ under the Shire of Harvey Local Planning Scheme No. 2 (LPS 2). The site is also located within Special Control Area No. 2 (SCA 2 – Basic Raw Materials) and Special Control Area No. 6A (SCA 6A – Landscape Protection Area).

1.2 Purpose

This Rehabilitation Management Plan (RMP) has been prepared to support the application of a DA and EIL by the proponent, and should be read in conjunction with the *Environmental Management Plan* (EMP) (Emerge Associates 2026).

This RMP establishes the rehabilitation framework for the site, including implementation, monitoring and maintenance requirements to achieve the following objectives:

- Progressively rehabilitate impacted areas following extraction to re-establish native vegetation and pasture and restore amenity values and land use capability.
- Recontour and stabilise landforms within the site to support successful revegetation, minimise erosion and sedimentation, ensure ongoing safety, and mitigate long term visual impacts.

- Establish native vegetation that is sustainable and appropriate to the surrounding environment
- Prevent the introduction and spread of weeds and diseases through effective hygiene, monitoring and targeted control measures.
- Ensure rehabilitation outcomes are measurable and achieved, through monitoring, maintenance and adaptive management to meet defined completion criteria.

1.3 Relevant documents

The proposed management measures within this RMP have been written in accordance with the following relevant documents:

- *A Guide to Preparing Revegetation Plans for Clearing Permits* (DWER 2018)
- *Extractive Industry local law* (SoH 2017)
- *Guideline for preparing Mine Closure Plans* (DMPE 2025)

1.4 Responsibilities

The implementation of the management actions within this plan is the responsibility of the proponent and their various contractors.

2 PROPOSED WORKS

The proponent is proposing a southern expansion to the existing extractive operations (herein referred to as 'the proposed expansion'), which will include:

- The clearing of 3.57 ha of native vegetation.
- The mining of approximately 150,000 tonnes per year of limestone to a depth of 6 m AHD.
- Crushing and screening onsite via mobile plant for approximately six weeks per annum.

As extractive operations near the finished depth of 6 m AHD, impacted areas will be progressively rehabilitated. During extractive works, landforms will be recontoured and stabilised, with batter slopes of no more than 1:3 maintained throughout the site to ensure long term stability and compatibility with the surrounding landscape.

When landforms have been depleted of resources, topsoil stockpiles will be respread over the stabilised slopes and pit floors, following by surface ripping to alleviate compaction and promote seedling emergence. Revegetation works involve sowing the pit floor to pasture grasses and stabilised batters with native vegetation informed by historical species occurrences within the area. Weed monitoring and maintenance will be implemented as required to support vegetation establishment.

The staged approach allows rehabilitation works to commence prior to exhaustion of the entire limestone resource within the site boundary, thereby reducing the duration for which land remains clear of vegetation and reducing potential associated environmental impacts such as erosion and sedimentation, dust and edge effects.

3 IMPLEMENTATION

Rehabilitation and associated management activities will be implemented across the entire site, as the full area is proposed to be impacted by extractive operations. A range of activities will be conducted as required to achieve the RMP objectives including:

- rubbish removal and site clean up
- hygiene controls to prevent spread of weeds and diseases
- batter and landform stabilisation
- weed control

- revegetation with native and pasture species
- pest fauna control.

Rehabilitation works will be undertaken by an experienced revegetation contractor(s), who will be engaged contacted prior to cessation of extractive operations.

3.1 Rehabilitation areas

Two rehabilitation areas have been identified within the site as described in **Table 1** and illustrated in **Figure 2**. The rehabilitation areas are defined based on the species proposed for revegetation. The input categories are provided to indicate the varying level of effort that will be applied across the rehabilitation areas to achieve the RMP objectives.

Prior to commencement of the proposed expansion, an experienced revegetation contractor will be contracted for the works detailed in this plan.

Table 1: Rehabilitation areas, inputs categories, and inputs

Rehabilitation area	Input Category	Inputs ¹
Native vegetation	Revegetation	<ul style="list-style-type: none"> • Sourcing and propagation of local providence seed • Plant installation (tubestock or direct seeding) of appropriate native species
	Post planting maintenance	<ul style="list-style-type: none"> • Quadrat monitoring • Weed control • Infill revegetation of appropriate native species • Pest fauna control (if required).
	Landforms	<ul style="list-style-type: none"> • Grading all slopes to a maximum of 1:3. • Ensuring landforms are stabilised prior to revegetation. • Topsoil application no more than seven (7) days prior to revegetation works • Ripping to reduce compaction prior to revegetation • Installing temporary erosion and sediment controls as required such as sediment fencing or coir mesh matting.
Pasture	Revegetation	<ul style="list-style-type: none"> • Seeding using a pasture seed mix agreed with the landowner
	Post planting maintenance	<ul style="list-style-type: none"> • Weed control • Reseeding where required • Pest fauna control (if required).
	Landforms	<ul style="list-style-type: none"> • Ensuring final pit floor is level • Final landform no less than 6 mAHD • Topsoil application no more than seven (7) days prior to revegetation works • Ripping to reduce compaction prior to revegetation • Installing temporary erosion and sediment controls as required such as sediment fencing or coir mesh matting.

¹ All areas also subject to rubbish removal and hygiene controls

3.2 Hygiene controls

The risk that weeds and plant pathogens will be spread or be introduced to the site will be minimised during the implementation of this plan. Specific actions that will be undertaken include the following:

- Vehicles, tools, equipment, machinery, clothing and footwear will be inspected and cleaned such that that they are free of all mud and soil prior to entering the site.

- Any material introduced to the site will be sourced from a soil supplier with appropriate accreditation and, as far as is practicable, confirmed to have a low risk of containing weeds or pathogens.
- Mulch, if applied, will be sourced from within the site or nearby development area and will be well composted prior to application.
- Routine monitoring will be conducted to detect weeds and deaths from pathogens for susceptible plants (refer **Section 4.1**).

3.3 Site preparation

3.3.1 Landforms

During mining operations, batters behind the active working face will be contoured to achieve a slope of no more than 1:3. This complies with the clause 7.4.(b). (1) of the Shire of Harvey's *Extractive Industries Local Law 2017* (SoH 2017), which states:

'ensure that any face permitted to remain upon the excavation site is left safe with all loose materials removed and where the site is –

limestone or material other than sand, the sides are sloped to a batter which, in the opinion of the local government, would enable the site to be left in a stable condition.'

The pit floor will be graded to an even surface to a height of 6 m in relation to the Australian Height Datum (m AHD) to prepare for even spreading of the overburden and topsoil.

3.3.2 Soil profile reconstruction

Topsoil and overburden stockpiled on site will be respread over the revegetation areas to a minimum of 400 mm cover (with topsoil spread over the overburden). To alleviate soil compaction caused by extractive operations, revegetation areas will be ripped at six (6) metre centres to a depth of approximately one (1) m using a tine or similar machinery. If erosion protection measures are determined to be necessary for slopes at the time of revegetation, controls such as sediment fencing or coir mesh matting will be installed and maintained until they are no longer required.

3.4 Weed control

Weed control measures for rehabilitation will follow management actions outlined in the *Weed Management Plan* (Emerge Associates 2026).

Herbicides will only be applied by a Department of Health licensed pest management technician according to the manufacturer's instructions, as provided on product label and the Australian Pesticides and Veterinary Medicines Authority *Permit No. 13333- Permit to allow minor use of an agvet chemical product for control of environmental weeds in various situations*.

3.4.1 Pasture rehabilitation areas

Weed control for pasture rehabilitation areas will focus on control of declared pest weeds pursuant to Western Australia's *Biosecurity and Agriculture Management Act 2007* (BAM Act) as outlined in the *Weed Management Plan* (Emerge Associates 2026).

3.4.2 Native vegetation rehabilitation areas

Weed control will be undertaken to limit weed cover and competition with establishing native tubestock, as well as prevent new weeds invading the site. Weed management will involve multiple stages of control actions: active control prior to tubestock planting, hygiene measures during implementation (as outlined in **Section 3.2**) and active control following tubestock planting in revegetation areas. Prior to planting, the contractor will be engaged to complete a blanket and/or spot-spray to control weeds using a broad-spectrum herbicide formulation such as Roundup®(glyphosate 360 g/L).

The contractor will then be engaged to conduct weed control annually following tubestock planting to suppress weeds. The type of weed control required will be determined by the contractor during monitoring (refer to **Section 4.1**) but is likely to include both manual (hand weeding) and chemical (herbicide) based approaches including broad spectrum or selective formulations. The application of these methods will be dependent on-site conditions and are likely to change over the course of implementing this plan. As a guide, weed control is likely to be required twice a year for the first 5 years following planting and annually for the remainder of the rehabilitation. As tubestock grow they will occupy more space and reduce the available space for weeds and the need for weed control. Where possible, physical weed control methods should be used to reduce the overall load of chemicals applied to the environment.

3.5 Revegetation

Revegetation will occur in two restoration areas:

- Pasture areas – located on the pit floors following extractive works, which will be revegetated with pasture species as agreed with the landowner.
- Native vegetation areas – located on battered slopes, which will be revegetated with endemic native plant species consistent with the surrounding vegetation and revegetation within adjacent extractive operations.

A specialist revegetation contractor will be appointed to establish plants in revegetation areas to achieve the RMP objectives outlined in **Section 1.2**. The specialist revegetation contractor will provide further advice on tubestock planting density and revegetation approaches required to meet objectives in the context of the site.

3.5.1 Pasture rehabilitation areas

Pasture species will be selected and established in consultation with the landowner to ensure suitability for the intended post-extraction land use.

A pasture seed mix will be developed to promote rapid establishment, ground cover, and long-term stabilisation within pasture rehabilitation areas to ensure the RMP objectives are achieved.

3.5.2 Native vegetation rehabilitation areas

3.5.2.1 Species selection

Native revegetation species selection for the site will be consistent with the species list used in the adjacent EX009 rehabilitation works (Lundstrom Environmental 2025), provided in **Table 2**.

Table 2: Species list for native revegetation areas

Family	Species
Zamiaceae	<i>Macrozamia riedlei</i>
Cyperaceae	<i>Isolepis cernua var. setiformis</i>
Restionaceae	<i>Alexgeorgea nitens</i>
	<i>Loxocarya cinerea</i>
Dasyopogonaceae	<i>Lomandra hermaphrodita</i>
Dilleniaceae	<i>Hibbertia hypericoides</i>
Myrtaceae	<i>Agonis flexuosa</i>
	<i>Eucalyptus decipiens</i>

Table 2: Species list for native revegetation areas (continued)

Family	Species
Myrtaceae (continued)	<i>Eucalyptus foecunda</i>
	<i>Eucalyptus gomphocephala</i>
	<i>Eucalyptus marginata</i>
	<i>Melaleuca viminea</i>
Proteaceae	<i>Banksia attenuata</i>
	<i>Banksia grandis</i>
	<i>Banksia menziesii</i>
	<i>Dryandra lindleyana</i> var. <i>lindleyana</i>
	<i>Hakea incrassata</i>
	<i>Hakea ruscifolia</i>
Santalaceae	<i>Nuytsia floribunda</i>
Ranunculaceae	<i>Clematis pubescens</i>
Lauraceae	<i>Cassytha glabella</i>
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>
Papilionaceae	<i>Templetonia retusa</i>
Rutaceae	<i>Philotheca spicata</i>
Euphorbaceae	<i>Phyllanthus calycinus</i>

3.5.2.2 Seed sourcing and propagation

Local provenance seed or cuttings will be collected by, or sourced from, a licensed seed contractor and stored for later use in tubestock propagation or direct seeding. The specialist revegetation contractor will order tubestock to be grown from the local provenance seed or cuttings from a Nursery Industry Accreditation Scheme supplier.

Tubestock numbers and proportions will be determined by specialist revegetation contractor as part of a specification to achieve relevant objectives. The specialist revegetation contractor will ensure that the tubestock is visibly free of signs of disease or pests, hardened and in good condition before they are introduced to the site. Where practical, tubestock will be grown as tall as possible to facilitate deep planting.

3.5.2.3 Tubestock planting and direct seeding

In the southwest of Western Australia, the growing season for most native plant species begins once the winter rains have started and the ground is sufficiently moist. Tubestock will be installed as soon as possible once winter rains have begun, to allow plants time for establishment before the summer dry period.

It is recommended that tubestock are installed as deep as possible ensuring that root balls are secured and sealed into the ground¹. The revegetation contractor will keep a record of the total number of tubestock installed in relevant rehabilitation areas.

Tree guards are not recommended as these increase installation time, can become loose and become litter and require a return visit to remove bags once plants are established.

Infill planting may be required in the years following initial planting if monitoring findings indicate seedlings survival is not sufficient to achieve completion criteria. This will be determined by the revegetation contractor.

3.6 Pest fauna control

Advice will be sought from a specialist revegetation contractor as to specific requirements for pest fauna control. Measures such as temporary exclusion fencing may be employed if grazing of tubestock is observed.

Installation of tree bags or other applicable planting measures (e.g. where herbivory is expected) will be reviewed at the time of installation and as part of maintenance, with the requirement for protection from herbivory to be determined on an as required basis, as part of monitoring the revegetation/planting success.

3.7 Rubbish removal

Rubbish will be removed from rehabilitation areas and disposed of in an appropriate waste receptacle.

3.8 Controlled access

Signage that advises employees and contractors of the ongoing rehabilitation works within the area will be installed around rehabilitation areas.

Should fencing be installed around the rehabilitation area, a minimum of two (2) controlled access gates will be installed at suitable locations along the access tracks to allow access for maintenance contractors and emergency services.

4 MONITORING AND MAINTENANCE

4.1 Monitoring

Monitoring of rehabilitation is required to provide a measure of weed cover, seedling emergence, establishment of pasture and native plant survival, which will be used to evaluate success against the objectives.

Monitoring will be undertaken separately for pasture rehabilitation areas and native vegetation rehabilitation areas, with a higher level of monitoring intensity applied to native vegetation areas due to their greater complexity and stricter completion criteria.

A range of monitoring methods may be used to determine the progress towards the success of the objectives. This includes quadrat surveys, transect surveys and photo monitoring points. For the purposes of this plan, photo monitoring points and quadrat surveys will be the primary methods adopted as outlined in **Table 3**.

The proposed monitoring frequency and monitoring parameters have been outlined in **Table 3**. Increased monitoring at the start of rehabilitation allows for early implementation of contingency

¹ Deep planting decreases water loss during establishment and can also prevent or reduce the effects of herbivory as the top of the tubestock can easily resprout if removed (West Australian Planning Commission (WAPC) 2003, *Coastal Planning and Management Manual*, West Australian Planning Commission.)

measures (discussed in **Section 4.3**) and ensure that rehabilitation trajectory is on target to achieve completion criteria outlined in **Section 4.2**.

Monitoring data will be incorporated into a written report and assessed against the completion criteria. The need for contingency measures can also be determined and included in these reports.

Table 3: Monitoring methods applied for each rehabilitation area

Rehabilitation area	Monitoring method	Monitoring frequency	Monitoring Parameters
Native vegetation	Photo monitoring Quadrat surveys	Twice per year (spring and autumn) for first 3 years Annually (spring) thereafter	<ul style="list-style-type: none"> Plant density and species composition Seedling emergence Signs of erosion or other disturbances Impacts from pests and diseases (including rabbits, insects and dieback) Weed cover % and bare ground % Presence of WoNS or 'declared pests' weeds Photographic evidence of the above, ensuring consistent height and angle
Pasture	Photo monitoring	Annually (spring) Additional monitoring as required	<ul style="list-style-type: none"> Pasture establishment and ground cover Signs of erosion or other disturbances Presence of WoNS or 'declared pest' weeds Density of WoNS or 'declared pest' species Photographic evidence of the above, ensuring consistent height and angle

4.2 Completion Criteria

Completion criteria for each rehabilitation area are outlined in **Table 4** below to determine the trajectory of rehabilitation works. Monitoring data should be measured against the completion criteria annually.

Table 4: Completion Criteria for achieving revegetation goals and objectives

Rehabilitation aspect	Completion criterion	
	Native vegetation	Pasture
Revegetation survival and establishment	80% survival of planted tube stock / seedlings	Successful establishment of pasture species with consistent germination and growth
Species richness	At least 75% of the species included in the species list are represented	Pasture species consistent with agreed seed mix
Density	Plant density of 3 plants per m ²	>80% ground cover by pasture species
Weed species	No WoNS or 'declared pests' pursuant to the BAM act (2007)	No WoNS or 'declared pests' pursuant to the BAM act (2007)
Weed cover	Weed cover is 10% or less	N/A
Stability and erosion	No signs of erosion scars or water pooling	No signs of erosion scars or water pooling
Soil profile	Topsoil evenly distributed in all revegetation areas	Topsoil evenly distributed in all revegetation areas

Table 4: Completion Criteria for achieving revegetation goals and objectives (continued)

Rehabilitation aspect	Completion criterion	
	Native vegetation	Pasture
Herbivory	No signs of predation on tubestock or seedlings	N/A
Dieback	Site has no visible signs of dieback occurring	N/A
Fence	Fencing (if installed) is in good condition and adequately prevents unauthorised access or pest fauna	N/A

4.3 Contingency Measures

The implementation actions outlined in **Section 3** have been developed to achieve the RMP objectives. If monitoring data suggests that the trajectory of rehabilitation efforts are not on track to achieving the completion criteria, contingency actions should be implemented.

Final actions will be determined based onsite issues and with advice from subject matter experts as appropriate. Contingency actions may include:

- A review of planting methods with the aim of increasing survival rates.
- Pest fauna management measures such as installation of tree guards in areas where herbivory is an issue.
- Supplementary watering.
- Supplementary (infill) tubestock planting to meet planting density completion criteria should be undertaken when identified to be required through monitoring process.
- Reseeding of pasture species.
- Increasing weed control frequency or altering control method. A licensed pesticide technician experienced in natural area management should be consulted as to the most appropriate weed control options.

It is likely that infill planting will be highest in the year after initial planting, specifically for species that are difficult to propagate. If select species consistently have a low survival rate after planting, excluding the species from future infill planting will be discussed with the revegetation contractor.

5 SCHEDULE OF TASKS

A schedule of implementation, monitoring and maintenance activities for the RMP is provided in **Table 5**. The schedule outlines the timing and sequencing of rehabilitation works.

Rehabilitation will be undertaken progressively where practicable and in accordance with the staging of extractive operations. As such, the schedule of tasks will be aligned with the rehabilitation timeline for each area to ensure early identification of any issues and inform the implementation of contingency measures where required.

The schedule provided in **Table 5** is intended to provide a framework for the delivery of rehabilitation outcomes. However, timeframes may be adjusted as necessary in response to site conditions, seasonal constraints and monitoring results to ensure achievement of the RMP objectives and completion criteria.

Table 5: Indicative implementation schedule

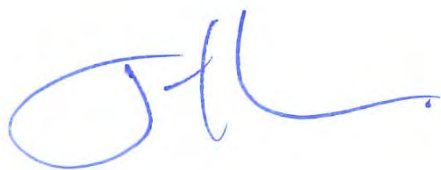
Year	1				2				3				4				5				6				7				8				9				10				11				12				13				14				15			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4												
Vegetation Clearing																																																												
Topsoil removal and stockpiling																																																												
Limestone extractive works																																																												
Pre planting weed control																																																												
Landform contouring and ripping																																																												
Topsoil spreading																																																												
Direct seeding and tubestock planting																																																												
Monitoring and reporting																																																												
Post-planting weed control																																																												
Infill planting (as required)																																																												

6 DOCUMENT REVIEW

While this RMP outlines current methodology for rehabilitation associated with the proposed expansion, it is recognised that this plan will be implemented over a period of approximately 10 years. During this time, changes to legislation, technological advancements, and cost considerations may influence the approach to rehabilitation.

To ensure the RMP remains current, practical and aligned with regulatory and industry standards, it will be reviewed and updated as required.

Yours sincerely
Emerge Associates



Jason Hick
PRINCIPAL ENVIRONMENTAL CONSULTANT

Encl: **Figure 1:** Site Location
Figure 2: Rehabilitation Management Areas

General references

- Department of Mines (DMPE) 2025, *Guideline for preparing Mine Closure Plans*, Perth.
- Department of Water and Environmental Regulation (DWER) 2018, *A Guide to Preparing Revegetation Plans for Clearing Permits*
- Emerge Associates 2026, *Weed Management Plan - B&J CATALANO LIMESTONE EXTRACTION OPERATIONS – PART LOT 5, LUDLOW ROAD, MYALUP*, EP25-070(04)–008 LRF, Version 1.
- Emerge Associates 2026, *Environmental Management Plan - Part Lot 5, Ludlow Road, Myalup*, EP25-070(04)–006 LRF, Version 1.
- Lundstrom Environmental 2025, *Extractive Industries Licence Application and Environmental Management Plan - Lot 4 Ludlow Road, Myalup*.
- Shire of Harvey (SoH) 2017, *Extractive Industries Local Law 2017*, Western Australian Government Gazette.
- West Australian Planning Commission (WAPC) 2003, *Coastal Planning and Management Manual*, West Australian Planning Commission.

Figures



Figure 1: Site Boundary

Figure 2: Rehabilitation Management Areas



Figure 1: Site Location

Project: Rehabilitation Management and Monitoring Plan
Part Lot 5, Ludlow Road, Myalup

Client: B & J Catalano

Plan Number: EP25-070(04)--F30
Drawn: WJC
Date: 23/04/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 50 100 150
 Metres
 Scale: 1:6,000@A4
 GDA2020 MGA Zone 50



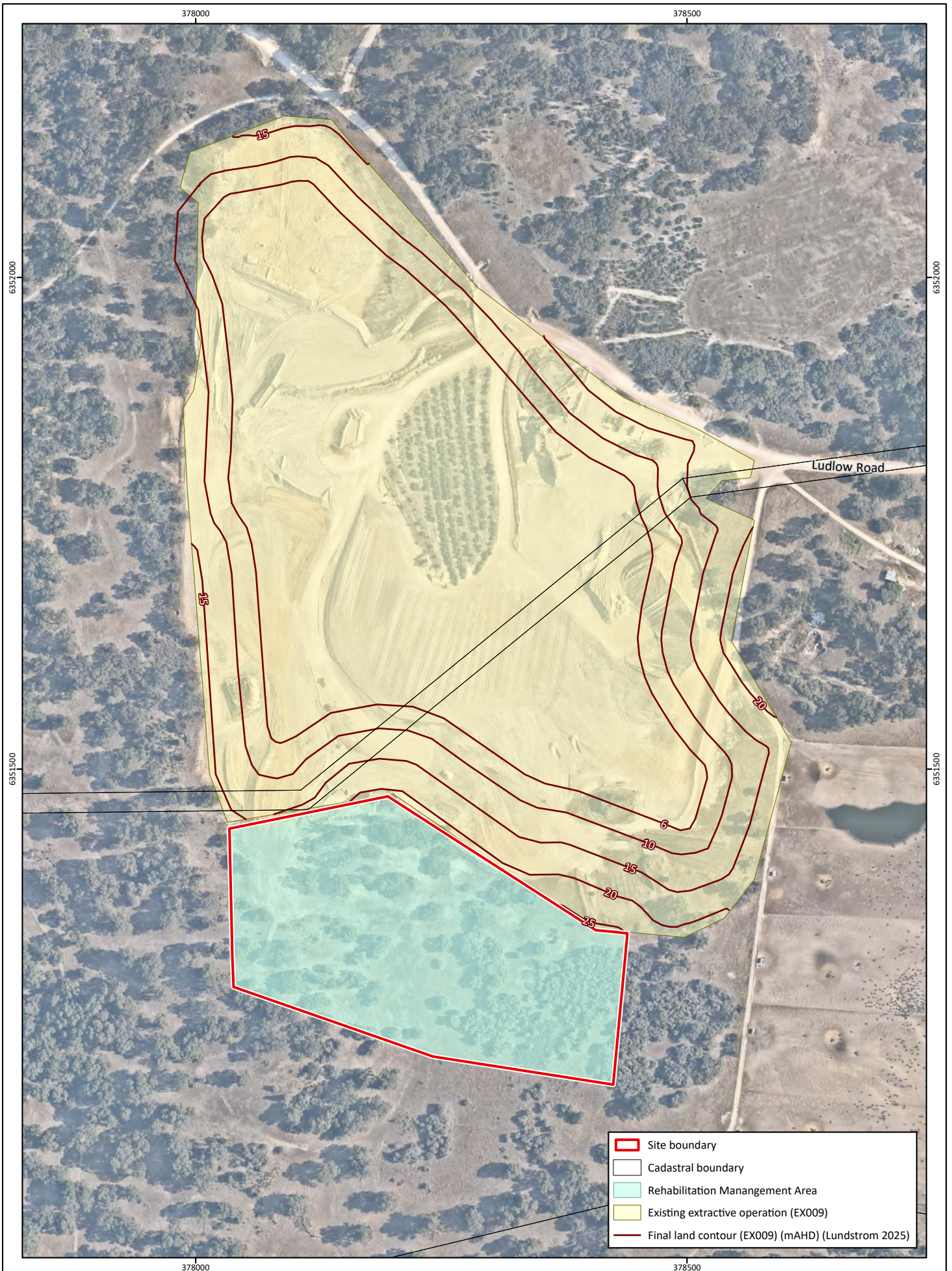


Figure 2: Rehabilitation Management Areas

Project: Rehabilitation Management and Monitoring Plan
Part Lot 5, Ludlow Road, Myalup
Client: B & J Catalano

Plan Number:
EP25-070(04)--F31
Drawn: WJC
Date: 09/03/2026
Checked: LRF
Approved: CIB
Date: 23/04/2026



0 40 80 120
Metres
Scale: 1:5,000@A4
GDA2020 MGA Zone 50



Appendix F

Detailed and Targeted Flora and Vegetation Survey



Detailed and Targeted Flora and Vegetation Survey

Lot 5 Ludlow Road, Myalup

Prepared for B&J Catalano
May 2024
Revised November 2025



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Version	Origin	Review	Review date	Release approval	Issue date
V1	D. Brace B. Eckermann E. Hutt	D. Brace B. Eckermann E. Hutt	18/02/2025		
Final Draft	23/4/2025	Ecoedge	7/5/2025	Ecoedge	21/5/2025
Final	25/5/2025	Lundstrom		Ecoedge	16/6/2025
Final Rev0	25/9/2025	Emerge	6/10/2025	Ecoedge	28/10/2025
Final Rev1	13/11/2025	Ecoedge	27/11/2025	Ecoedge	28/11/2025

Executive Summary

Ecoedge Environmental Services was engaged by Lundstrom Environmental on behalf of B&J Catalano in May 2024 to undertake a spring Detailed and Targeted flora and vegetation survey of a 19.33 hectare (ha) site Lot 5, Ludlow Road, Myalup, Western Australia (referred to hereafter as the survey area). The survey was required to support an extractive industry licence and clearing permit application.

The flora and vegetation survey was undertaken across a series of field visits between September 2024 and October 2025 by senior botanist Ben Eckermann and ecologist Debbie Brace.

A total of 63 taxa either listed as Threatened under the *EPBC Act 1999* (Federal), Threatened under the *BC Act 2016* (State) or as Priority flora listed by the DBCA were assessed for potential occurrence within the survey area. Following detailed field surveys conducted at the appropriate time of year, a post-survey residual likelihood of occurrence was applied to all flora on this list.

A total of 37 vascular flora taxa were identified during the survey, belonging to 15 families, of which 23 (62%) were introduced species. One Priority flora species (*Eucalyptus foecunda* subsp. *foecunda* (P4)) was recorded within a single population consisting of 41 individuals occurring on limestone outcropping in Lot 18. No other Threatened or Priority flora species were considered Likely to occur within the survey area.

Two Declared Pest plants were recorded, with 557 **Gomphocarpus fruticosus* (DP) (cotton bush) individuals and 67 **Solanum linnaeanum* (DP) (apple of Sodom) individuals being recorded throughout the survey area.

Vegetation condition ranged from Degraded to Completely Degraded, with the majority of the survey area being Degraded (36.3 %) or Completely Degraded (63.7 %).

A total of eight vegetation units were described, with one additional unit classified as cleared and typified either by an area of previous clearance in the northern section of the survey area, or by open areas dominated by pasture weeds throughout the survey area (10.6% of total survey area).

Vegetation within the survey area was assessed for potential presence of a number of Federal and State-listed threatened or priority ecological communities (TECs and PECs).

One patches of Tuart woodland was recorded in the survey area as occurrences of the critically endangered Federally listed Tuart Woodlands and Forests of the SCP TEC and State listed Priority three listed ecological community of the same name. This patch extended beyond the survey area and exceeded five hectares. The total area of the TEC PEC within the survey area is 7.57 ha., 4.15ha in Degraded condition and 3.43 ha in a Completely Degraded condition.

The floristic analysis of quadrat MQ02 showed vegetation units EgAffW and EgW to be possible occurrences of the State priority 3 listed FCT 25 Southern *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands; however, both these units were in a Completely Degraded condition, so they were not considered to be an occurrence of the State PEC.

There were no wetlands or watercourses within the survey area, nor was there any vegetation typical of a wetland or watercourse within the survey area.

The mapped vegetation units within the survey area are a reasonable match for the two vegetation complexes mapped across the survey area in terms of dominant species, in particular for the vegetation described for the Cottesloe – Central and South which includes Tuart woodlands and heath on limestone outcrops. Both complexes exceed the 30% pre-European extent retention target for the Swan Coastal Plain region.

The survey area is also a reasonable match for Beard’s broad description for Association 6. The latest extent (GoWA 2019) for this community is above the 30% threshold within the Shire of Havey (38.18%), but below 30% at 23.72% at a state level and for the SCP IBRA region

The survey area vegetation is directly linked to three mapped regional ecological linkages, with vegetation in the survey area being assigned 1b, 1c, 2b and 2c linkage proximity ratings (Molloy et al. 2009).

There are no mapped ESAs within the survey area. The closest ESA is approximately 83 m at its nearest point to the west of the survey area and is associated with the mapped Ramsar listed Peel-Yalgorup wetland system which includes Lake Preston.

Contents

Executive Summary.....	3
Statement of limitations	11
Reliance on data	11
Report for the benefit of the Client	11
1 Introduction.....	12
1.1 Scope and objectives	15
2 Methods.....	16
2.1 Desktop assessment	16
2.1.1 Significant flora likelihood of occurrence	16
2.2 Field survey	17
2.2.1 Survey effort	17
2.2.2 Targeted flora search	17
2.2.3 Quadrats and vegetation mapping	17
2.2.4 Vegetation unit mapping	18
2.2.5 Tuart and TEC mapping.....	18
2.3 Floristic Analysis.....	18
2.3.1 Quadrat data preparation.....	18
2.3.2 Multivariate analysis	19
2.3.3 Comparison of Typical and Other Common Species	19
3 Survey limitations	20
4 Results desktop assessment	22
4.1 Climate	22
4.2 Biogeographic region and location	22
4.3 Landform and soils.....	22
4.4 Vegetation description according to pre-European mapping datasets	25
4.4.1 Vegetation complexes	25
4.4.2 Vegetation associations	25
4.4.3 Assessment of remaining extent against pre-European extent	29
4.5 Threatened and Priority ecological communities.....	31

4.6	Threatened and Priority flora	36
4.7	Wetlands and water courses	40
4.7.1	Wetlands	40
4.7.2	Watercourses	40
4.8	Regional ecological linkages	43
4.9	Environmentally Sensitive Areas.....	45
4.10	Previous flora surveys in locality.....	47
5	Survey results	49
5.1	Flora	49
5.1.1	Threatened and Priority flora	49
5.1.2	Post Survey Likelihood of occurrence.....	52
5.2	Declared and Pest plants	52
5.3	Vegetation.....	54
5.3.1	Vegetation units.....	54
5.3.2	Vegetation condition	60
5.4	Floristic analysis	62
5.4.1	MQ02 analysis.....	62
5.5	Threatened and Priority Ecological Communities	64
5.5.1	State-listed PEC, FCT 25 (Southern <i>Eucalyptus gomphocephala</i> - <i>Agonis flexuosa</i> woodlands)	64
5.5.2	Federally-listed Tuart woodland TEC PEC.....	65
6	Conclusions.....	68
6.1	Significance of flora.....	68
6.1.1	Post survey likelihood of occurrence.....	68
6.1.2	Pest plants.....	68
6.2	Significance of vegetation	68
6.2.1	Tuart Woodland TEC PEC	68
6.2.2	FCT 25 Southern <i>Eucalyptus gomphocephala</i> – <i>Agonis flexuosa</i> woodlands	68
6.3	Wetland and watercourse vegetation	69
6.4	Vegetation associations and complexes	69
6.5	Linkages and connectivity	69
6.6	Environmentally sensitive areas	69

References	70
Appendix 1. Threatened and Priority flora likelihood of occurrence assessment rationale.....	75
Appendix 2. Quadrat MQ02 data and photographs.	
Appendix 2. Vegetation condition scale (EPA, 2016).	
Appendix 4. Location of mapping notes, quadrat and track logs within the survey area.	
Appendix 5. Part of the full dendrogram: single-site insertion for MQ02.....	
Appendix 6. Categories of Threatened and Priority Ecological Communities under the BC Act. .	
Appendix 7. Categories of Threatened ecological communities under the EPBC Act.	
Appendix 8. State Categories of Threatened and Priority list flora.	
Appendix 9. Categories of Threatened flora species under the EPBC Act.....	
Appendix 10. Data search results.	
Appendix 11. Threatened and Priority flora pre and post survey likelihood of occurrence table.	
Appendix 12. Taxa recorded during survey.	
Appendix 13. Location of the <i>Eucalyptus foecunda</i> recorded within the survey area.	
Appendix 14. Location of the Declared pest plants recorded within the survey area.	
Appendix 15 DBCA TEC PEC reporting form (Tuart TEC).	
Appendix 16. Tuart tree locations, tuart canopy, relevé and 60m canopy buffer	
Appendix 17. Tuart tree data collected on site.	
Appendix 18. Tuart TEC relevé data.	

Table of Tables

Table 1. Field survey effort.	17
Table 2. Limitations of the field survey with regard to assessment adequacy and accuracy. 20	
Table 3. Soil Mapping Units occurring within the survey area (van Gool & Kipling 1992).	23
Table 4. Vegetation complexes mapped for the survey area (Webb et al. 2016).	25
Table 5. The vegetation complexes mapped within the survey area with regards to the Commonwealth retention targets (GoWA 2019b).	30
Table 6. The vegetation association within the survey area with regards to the Commonwealth retention targets (GoWA 2019a).	30
Table 7. Threatened and Priority ecological communities occurring within the 10 km study area (DBCA 2024a, DCCEEW 2024).	32
Table 8. Summary of pre-survey likelihood of occurrence according to conservation ranking for conservation significant flora within 10 km of the survey area.	37
Table 9. Conservation significant flora assessed as Likely or Possibly occurring within the survey area prior to the field survey.	37
Table 10. Wetland types (adapted from Semeniuk & Semeniuk 1995).	40
Table 11. Definitions of and objectives for the different wetland management categories (EPA 2008).	40
Table 12. Linkage proximity values rating assigned to patches of remnant vegetation within a landscape from Molloy et al. (2009).	43
Table 13. Number of occurrences and total individuals recorded of Declared Pest and pest plants within the survey area.	52
Table 14. Vegetation units within the survey area.	55
Table 15. Summary of vegetation condition area recorded within the survey area.	60
Table 16. Vegetation condition area for vegetation units occurring within the survey area. 60	
Table 17. Summary of the single site insertion analyses and comparison of typical and other common species for survey area quadrats.	63
Table 18. Summary of the results of the Typical and Other Common species comparison for quadrat MQ02.	63
Table 19. Assessment of vegetation occurring in the survey area against key diagnostic characteristics for the Tuart woodland TEC (DotEE 2019).	65
Table 20. Tuart woodland TEC Patch 2 assessment site summary.	65
Table 21. Vegetation condition (Keighery scale) within the Tuart TEC patches.	66

Table of Figures

Figure 1. Aerial photograph showing the location of the survey area and surrounding area managed lands.....	13
Figure 2. Survey area location in relation to the existing extraction industry.	14
Figure 3. Climate statistics for BoM Bunbury weather station #009965 showing mean rainfall and temperatures from 1995 to 2024 and for 2024 (BoM 2025).	22
Figure 4. Soil units mapped in and nearby the survey area (van Gool & Kipling 1992).	24
Figure 5. Vegetation complexes mapped in and nearby the survey area (Webb et al. 2016).	27
Figure 6. Vegetation associations mapped in and nearby the survey area (Beard et al. 2013).	28
Figure 7. State and Federal Threatened and Priority ecological communities within the 10 km study area (DBCA 2024a, DCCEEW 2024b).	33
Figure 8. Threatened and Priority ecological communities potentially occurring within the survey area (DBCA 2024a, DCCEEW 2024b).	34
Figure 9. Tuart woodlands TEC mapped in proximity to the survey area DBCA-048 (DBCA 2018).	35
Figure 10. Threatened and Priority flora previously recorded within the 10 km study area (DBCA 2024c).	38
Figure 11. Threatened and Priority flora in proximity to the survey area (DBCA 2024c).	39
Figure 12. Geomorphic wetland type and watercourses in proximity to the survey area (DBCA 2017, 2022).	41
Figure 13. Status of geomorphic wetlands in proximity to the survey area (DBCA 2017, 2022).	42
Figure 14. The survey area in relation to regional ecological linkages (Molloy et al. 2009). ..	44
Figure 15. Environmentally sensitive areas mapped within proximity of the survey area (DWER 2021).	46
Figure 16. Location of previous flora and vegetation surveys in proximity to the survey area.	48
Figure 17. Locations of Priority 4 flora <i>Eucalyptus foecunda</i> subsp. <i>foecunda</i> recorded within the survey area.	51
Figure 18. Location and abundance of Declared Pest and pest plants occurrences within the southern section of the survey area.	53
Figure 19. Vegetation units within the southern section of the survey area.	59
Figure 20. Vegetation condition within the southern section of the survey area.	61
Figure 21. Location and condition of the Tuart woodland TEC patch within the survey area.	67

Table of Plates

Plate 1. *Eucalyptus foecunda* subsp. *foecunda* (P4) habit.50
Plate 2. Fruit and buds of *E. foecunda* found within the survey area.50

Statement of limitations

Reliance on data

In preparing this report, Ecoedge has relied on data, surveys, analyses, designs, plans, and other information provided by the Client and other individuals and organisations, most of which are referenced in the report. Unless stated otherwise in the report, Ecoedge has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Ecoedge will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, unavailable, misrepresented or otherwise not fully disclosed to Ecoedge.

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The report has been prepared for the benefit of the Client and no other party. Ecoedge assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including, without limitation, matters arising from any negligent act or omission of Ecoedge or for any loss or damage suffered by any other party relying on the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions. They should make their enquiries and obtain independent advice in relation to such matters.

1 Introduction

Ecoedge Environmental Services (Ecoedge) was engaged by Lundstrom Environmental in May 2024 to undertake a spring Detailed and Targeted flora and vegetation survey of a 19.33 hectare (ha) site (referred to hereafter as the survey area) at Lot 5, Ludlow Road, Myalup in the Shire of Harvey (**Figure 1** and **Figure 2**).

The survey was undertaken to inform the initial planning stages of potential future expansion of the area for lime sands operations on behalf of B & J Catalano.

This report compiles the findings of the survey.



Figure 1. Aerial photograph showing the location of the survey area and surrounding area managed lands.

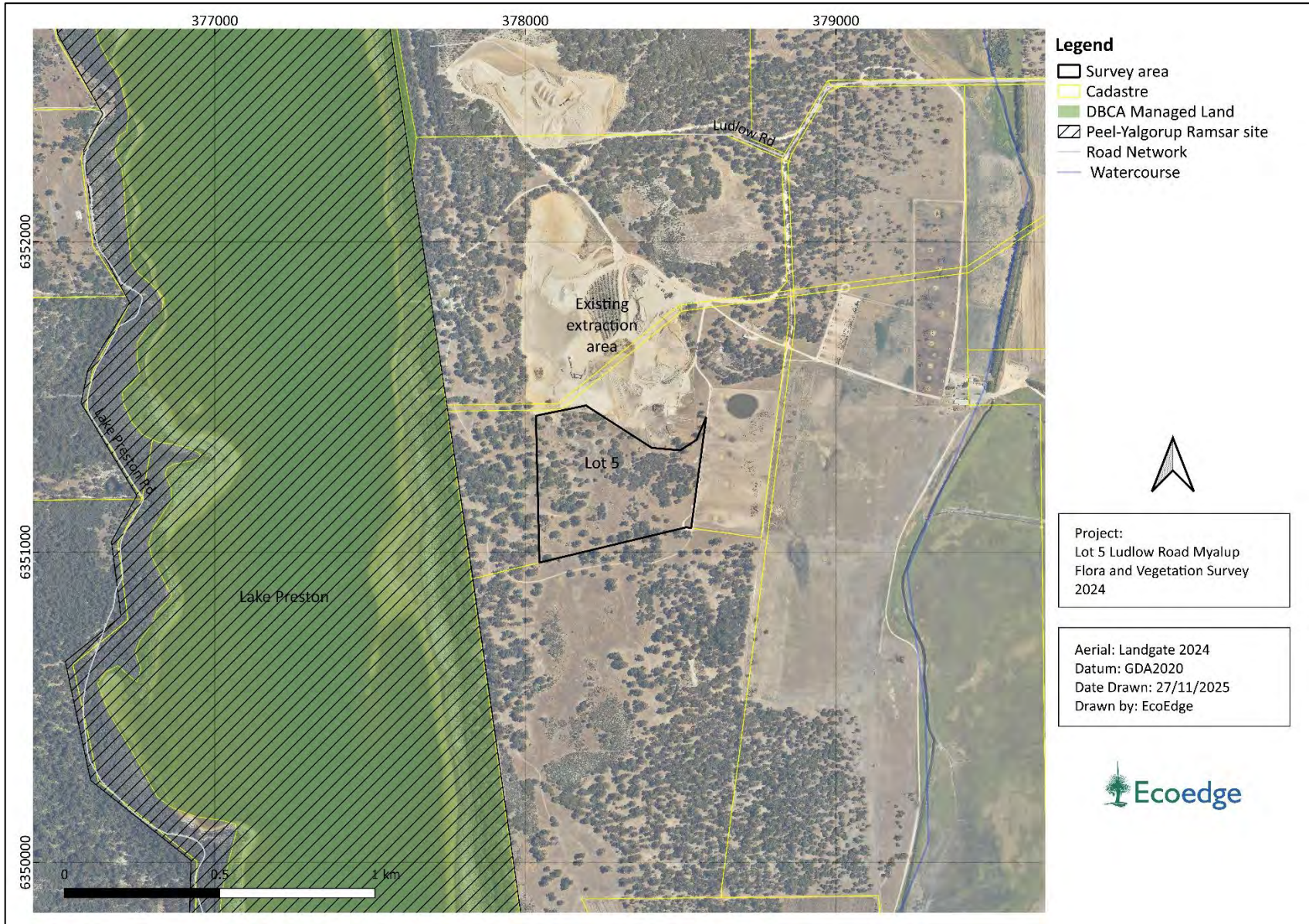


Figure 2. Survey area location in relation to the existing extraction industry.

1.1 Scope and objectives

The scope required a desktop assessment to be conducted prior to the field survey to identify relevant key features and constraints which were in or nearby the survey area, such as Threatened and Priority Flora, Threatened and Priority Ecological Communities (TEC and PECs), riparian vegetation, unusual soil/landscape systems, conservation estates, poorly represented vegetation associations and or vegetation complexes and environmentally sensitive areas (ESAs). The desktop assessment area (hereafter referred to as the study area) encompassed a 10 km buffer around the survey area.

The field survey required a Detailed and Targeted survey to ground truth the desktop assessment findings and delineate all significant flora and vegetation components within the survey area, including searches for TECs, PECs and Threatened and Priority flora.

The survey and report were required to be undertaken in accordance with the Environmental Protection Authority (EPA) Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016) and meet requirements of other relevant State, and Commonwealth guidelines for Threatened species and communities, such as approved conservation advice for relevant *Environmental Protection and Biodiversity Act 1999* (EPBC Act) Threatened species and communities.

2 Methods

2.1 Desktop assessment

Prior to the field survey, a desktop assessment was undertaken to provide contextual information on the flora and vegetation within the survey area. The desktop studies included a review of the following information ¹.

- Regional geology and soil mapping (van Gool & Kipling 1992).
- Vegetation complex mapping of the South West Forest Region of Western Australia (Mattiske and Havel 1998) and the System 6 area (Hedde et al. 1980) as updated by Webb et al. (2016).
- Beard's pre-European vegetation association mapping dataset (DPIRD-006) (Beard et al. 2013).
- WA Threatened and Priority Ecological Communities DBCA database extracts from the Department of Biodiversity, Conservation and Attractions (DBCA 2024a) and TEC and PEC listings (DBCA 2023b, DBCA 2023c).
- Federal Protected Matters Search Tool results (DCCEEW 2024).
- Threatened and Priority flora Naturemap search results (DBCA 2024b).
- Atlas of Living Australia 10 km area report (ALA 2024).
- Extract from the Department's Threatened Flora database and the Western Australian Herbarium database (DBCA 2024c).
- Tuart Woodlands dataset DBCA-048 (DBCA 2018).
- Geomorphic Wetlands, Swan Coastal Plain (SCP) dataset DBCA-019 (DBCA 2022).
- Surface Hydrology Lines (National) (Crossman & Li 2015).
- Ramsar Sites data set – DBCA-010 (DBCA 2017).
- Regional Ecological Linkages (Molloy et al. 2009).
- Environmentally sensitive areas distribution maps and dataset (DWER 2021).

The assessment also included a review of a previous survey, in proximity to the survey area:

- Flora and Vegetation Environmental Values Survey. Prepared for B & J Catalano Pty Ltd. Lundstrom Environmental Consultants Pty Ltd (2019).

2.1.1 Significant flora likelihood of occurrence

Prior to undertaking the survey, an assessment of the likelihood of Threatened and Priority flora occurring within the survey area was conducted. The rationale for determining this pre-survey (and post-survey) likelihood of occurrence is provided in **Appendix 1**.

¹ Some of the available datasets used in the desktop mapping portion of this report currently do not extend fully into the survey area due to the rapidly changing coastline in the area.

2.2 Field survey

2.2.1 Survey effort

The flora and vegetation survey was undertaken between a series of field visits across approximately five person days by senior botanist Ben Eckermann (BE) and ecologist Debbie Brace (DB) (**Table 1**). All work was conducted in accordance with the Environmental Protection Authority (EPA) Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016).

Table 1. Field survey effort.

Date	Personnel	Person Field days	Task
13 September 2024	BE, DB	1.5	Quadrats, DP and targeted searches, TEC assessments
1 November 2024	BE, DB	2	Quadrats, DP and targeted searches, TEC assessments
6 November 2024	BE, DB	0.5	DP and targeted searches, TEC assessments
1 May 2025	DB	0.25	TEC assessments
24 September 2025	BE, DB	0.5	Targeted searches, TEC assessments
2 October 2025	DB	0.25	Targeted searches

2.2.2 Targeted flora search

The targeted survey for Threatened and Priority flora consisted of traverses spaced approximately 30-50 m apart, with the whole survey area being surveyed twice in the spring of 2024, followed by a short visit in spring 2025. Areas with prospective habitat for conservation-significant flora, including limestone outcroppings and higher-moisture habitats, were searched more thoroughly in accordance with EPA (2016) and technical guidance, such as the Commonwealth of Australia (2013) *Survey Guidelines for Australia's Threatened Orchids*.

2.2.3 Quadrats and vegetation mapping

One 10 m x 10 m quadrat (MQ02) was installed within the best-condition vegetation to compare with reference datasets. All vascular flora was recorded and identified from within this quadrat. Ideally, floristic quadrats are installed in vegetation of at least good condition; however, there was no vegetation of Good condition within the survey area from which to choose, and therefore, it was placed in the best quality Degraded condition vegetation.

The following parameters were collected at each quadrat:

- Site number
- Date of record and observer
- Photograph taken from the north-west corner
- Location
- Soil type and position in the landscape
- Disturbances and time since last fire
- Vegetation condition (according to EPA (2016))
- Vegetation description (according to NVIS Level 5 (NVIS 2017))
- Projected foliage cover and height ranges for all vascular flora present

The quadrat data and photographs of MQ02, are provided in **Appendix 2**.

2.2.4 Vegetation unit mapping

The dominant vegetation unit, species, vegetation condition and soil data were noted using a series of mapping notes within the survey area. The mapping notes and quadrat information were used to identify and describe vegetation units using the NVIS system Level 5 (NVIS 2017).

Vegetation condition was assessed using the EPA (2016) method (**Appendix 3**).

The tracklog for all field surveys, mapping notes, and quadrat location is provided in **Appendix 4**.

2.2.5 Tuart TEC mapping

The identification and mapping of occurrences of Tuart TEC was carried out in accordance with sampling protocols and advice outlined in the EPBC Act Approved Conservation Advice for the Tuart Woodlands TEC (DotEE 2019).

2.3 Floristic Analysis

2.3.1 Quadrat data preparation

Floristic analyses were undertaken to determine relationships between the quadrat assessed within the survey area and FCTs defined by Gibson et al. (1994).² As per the methods presented by DBCA (2024d), several different analytical approaches were employed to build supporting evidence for aligning quadrats with SCP FCTs.

The survey quadrat data and the Gibson et al. (1994) data sets were reconciled with the current nomenclature of the WA Plant census using the latest data from the WA Herbarium. This step was necessary due to ongoing changes in nomenclature resulting from continued research into the taxonomy of Western Australian plants and plants in general.

All singletons were removed from the datasets prior to analysis, as per the methods outlined in Gibson et al. (1994). All unidentified taxa were removed from all data sets prior to analysis.

² An alternative dataset, 'Weed and native flora of the Swan Coastal Plain: 2005 Dataset' (Keighery BJ, Keighery GJ, Longman VM and Clarke KA, 2012) was not employed for the analysis because the authors of that data recommend against its use for floristic community type analysis.

The Gibson et al. (1994) has in total 1,072 taxa and 528 quadrats that were used in the MVA. To the extent that was possible taxa were updated to conform with current names. In some cases, where it was not possible to be certain which taxon was being referred to in the 1994 survey taxa were grouped.

2.3.2 Multivariate analysis

The floristic quadrat data (MQ02) from the survey area were subjected to a multivariate analysis (MVA) using the software PATN (Belbin 2003) to determine the relationship of this quadrat to the floristic community types derived for the Swan Coastal Plain (Gibson et al. 1994).

The MVA used two-way classification (Agglomerative Hierarchical Fusion) of the presence/absence data for each quadrat. The flexible UPGMA (unweighted pair group method with arithmetic mean) classification strategy was used ($\beta = -0.1$), together with the Bray-Curtis site similarity measure. The default settings for number of groups to be produced by the classification (i.e., the “cut-off level”) was accepted in each case. The primary output of the classification were dendrograms, a two-way table of taxa and quadrats and a table of quadrat association scores.

Data from all quadrats from the Southern SCP survey dataset (Gibson et al. 1994) were used in the MVA. For the quadrats from the Gibson et al. (1994) dataset, the assigned FCT³ code was affixed to the quadrat name to facilitate understanding the MVA outputs. The main outputs from the MVA used in assigning FCTs to the survey area quadrats were dendrograms and the Bray-Curtis index of similarity.

The single-site insertion dendrogram is provided in **Appendix 5**.

2.3.3 Comparison of Typical and Other Common Species

Consistent with DBCA (2024e), and in order to provide further information to assist with the assignment of FCTs, the statistical results were also critically reviewed against other parameters, including:

- The typical and common⁴ species lists for SCP FCTs, species richness, descriptions of FCTs and the species groupings tables presented in Gibson et al. (1994) and DBCA (2023e). The comparison FCTs included all Spearwood soil system FCTs (FCT 24, FCT 25, FCT 26a, FCT 26b, FCT 27 and FCT 28 plus FCT 29a (Coastal shrublands on shallow sands), which occurs on the adjacent Quindalup soil system.
- Other information such as vegetation structure, soils, topography and geographical distribution data as presented in Gibson et al. (1994).

³ Floristic Community Type

⁴ Typical taxa occur with a frequency of >75%, while taxa listed as Common occur with frequencies between 50 and 75%.

3 Survey limitations

Limitations with regard to the assessment are addressed in **Table 2**.

Table 2. Limitations of the field survey with regard to assessment adequacy and accuracy.

Aspect	Constraint	Comment
Proportion of flora identified	Minor constraint	The majority of the field survey effort was carried out in the springs of 2024 and 2025, which is within the primary survey time for the south-west bioregion. The majority of taxa were able to be identified and none of the remaining flora unable to be identified are expected to be of conservation significance. The history of grazing and disturbance within the survey area contributed to the high numbers of weed taxa present and few areas of intact understorey to assess.
Climatic and seasonal effects	Not a constraint	There were no climatic or seasonal effects affecting the survey. Rainfall till the end of October at the Bunbury weather station (SN 009965), was above average (932.2 mm) of the long-term average (725.5 mm).
Availability of contextual information	Not a constraint	Regional surveys of remnant vegetation e.g. Gibson et al. (1994) and several more localised surveys have been carried out in proximity to the survey area.
Completeness of the survey	Not a constraint	All of the survey area was easily accessible.
Skill and knowledge of the botanists	Not a constraint	The senior botanist has over 19 years of experience working as a botanist in WA, with over five years focused on the southwest of WA.
Disturbance (fire, grazing, clearing etc.)	Not a constraint	There were no recent disturbances at the site, such as fire, which affected the survey. The survey area has been largely cleared in the past and used for agricultural grazing, with the majority of remnant vegetation being parkland cleared mature trees over pasture.
Data collection for floristic analysis	Minor constraint	The quadrats was installed in early spring and rescored in late spring. Quadrats intended for floristic analysis would normally be located in Good or better condition vegetation; however, given the lack of suitable vegetation, the quadrat was installed in the better representative areas, and not all vegetation units were quadrated, due to the Degraded condition of vegetation.
Data preparation for floristic analysis	Not a constraint	Survey data nomenclature was matched with all reference data nomenclature.
Floristic statistical analysis:	Minor – Moderate	The analysis was undertaken with PATN using similar statistical analysis methods as prescribed in Gibson et al (1994) and recommended in DBCA (2024d). The Keighery (2012) data set was not used for the analysis due to its stated limitations, per the following proviso:

Aspect	Constraint	Comment
		'PROVISO: It is important to know that the data in this dataset are not suitable for floristic community type analysis due to inconsistencies in the grouping and splitting of some species compared to that used in the Gibson et al. (1994) analysis.'

4 Results desktop assessment

4.1 Climate

The survey area is located within the southwest of Australia, which has a predominantly Mediterranean climate characterised by cold, wet winters and hot, dry summers (Hope et al. 2015). Precipitation during the winter months is associated with troughs, frontal systems, and other low-pressure systems crossing the southwest coast. In summer, the subtropical ridge shifts south, keeping these systems generally below the southwest of Australia (Hope et al. 2015). The closest BoM weather station is located in Bunbury (Station number 009965). Climate statistics for 1995-2024 and for the year 2024 for this station are shown in **Figure 3**.

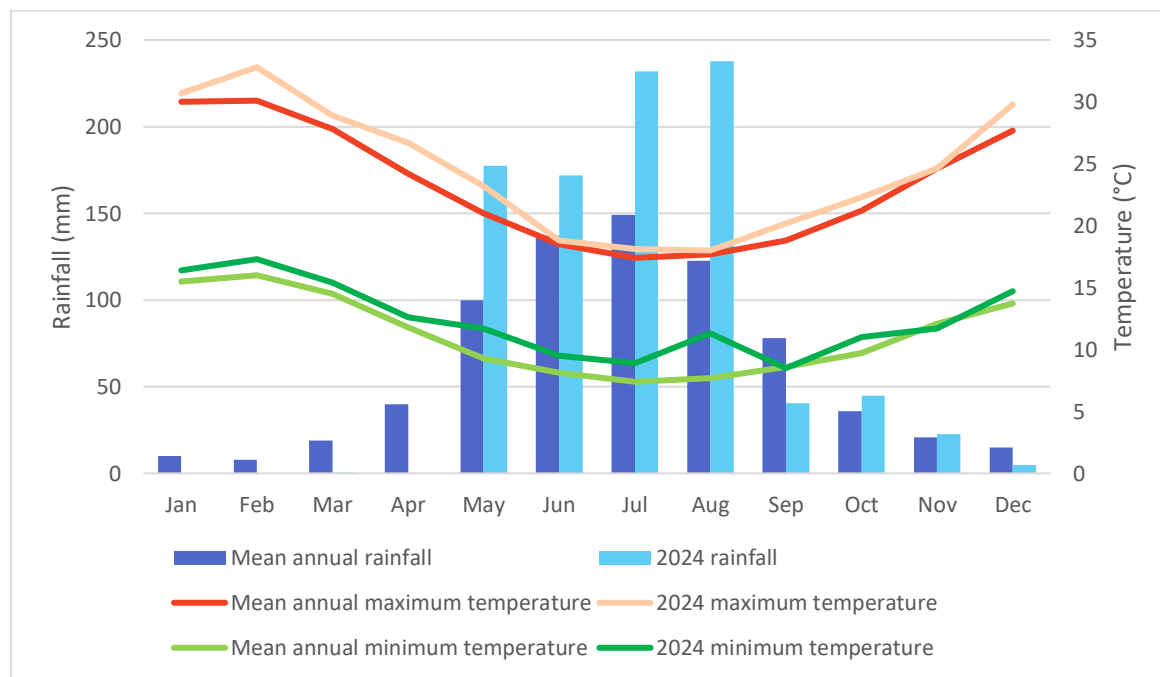


Figure 3. Climate statistics for BoM Bunbury weather station #009965 showing mean rainfall and temperatures from 1995 to 2024 and for 2024 (BoM 2025).

4.2 Biogeographic region and location

The survey area is situated within the Perth (SWA02) sub-region of the Swan Coastal Plain (SWA) biogeographic region as defined in the Interim Biogeographical Regionalisation for Australia (IBRA) (Commonwealth of Australia 2016).

4.3 Landform and soils

The survey area occurs within the Perth Coastal Zone on the western edge of the SCP, which is bounded by the Darling Scarp to the east, Indian Ocean to the west, Moore River to the north and Dunsborough to the south. The SCP is built up of two belts of sediments that differ in origin: aeolian sediments in the west and alluvial sediments in the east. The aeolian sediments comprise three major dune systems: The Bassendean Dune System is the most easterly and oldest system; the Quindalup System is the most westerly and youngest system, with the Spearwood system located in between. These wind deposited dunes press up against the Pinjarra plain, which is built up of alluvium deposited by streams from the Darling Plateau.

Its alluvial soils are predominantly clays and silts; in places, low dunes of aeolian sands from the west may overlay the alluvial soils (Seddon 1972).

The survey area occurs on the Spearwood dune and sandplain system (211Sp), a series of gently to moderately inclined low hills and undulating plains associated with Pleistocene Tamala Limestone that have formed in five phases. These phases have been classified according to relief and soil profiles, with S1, S2 and S3 composed of well drained dune swales and ridges of pale to deep yellow brown sands and S4 and S5 composed of sandplains with minor limestone outcrops to stony plains (relict beach ridges) of siliceous yellow brown sands (van Gool & Kipling 1992). The phases found to occur within the survey area are described in **Table 3** and shown in **Figure 4**.

Table 3. Soil Mapping Units occurring within the survey area (van Gool & Kipling 1992).

System	Subsystem	Description
Spearwood (211Sp)	211Sp_S1a	Spearwood S1a phase – dune ridges with shallow to moderately deep siliceous yellow-brown sands, very common limestone outcrop and slopes up to 15%.
	211Sp_S1b	Spearwood S1b phase – dune ridges with deep siliceous yellow brown sands or pale sands with yellow-brown subsoil and slopes up to 15%.
	211Sp_S2a	Spearwood S2a phase – lower slopes (1-5%) of dune ridge with moderately deep to deep siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrop.
	211Sp_S2b	Spearwood S2b phase – lower slopes (1-5%) of dune ridge with shallow to deep siliceous yellow-brown sands and common limestone outcrop.
	211Sp_S4a	Spearwood S4a phase – flat to gently undulating sandplain with deep, pale and sometimes bleached, sands with yellow-brown subsoils.

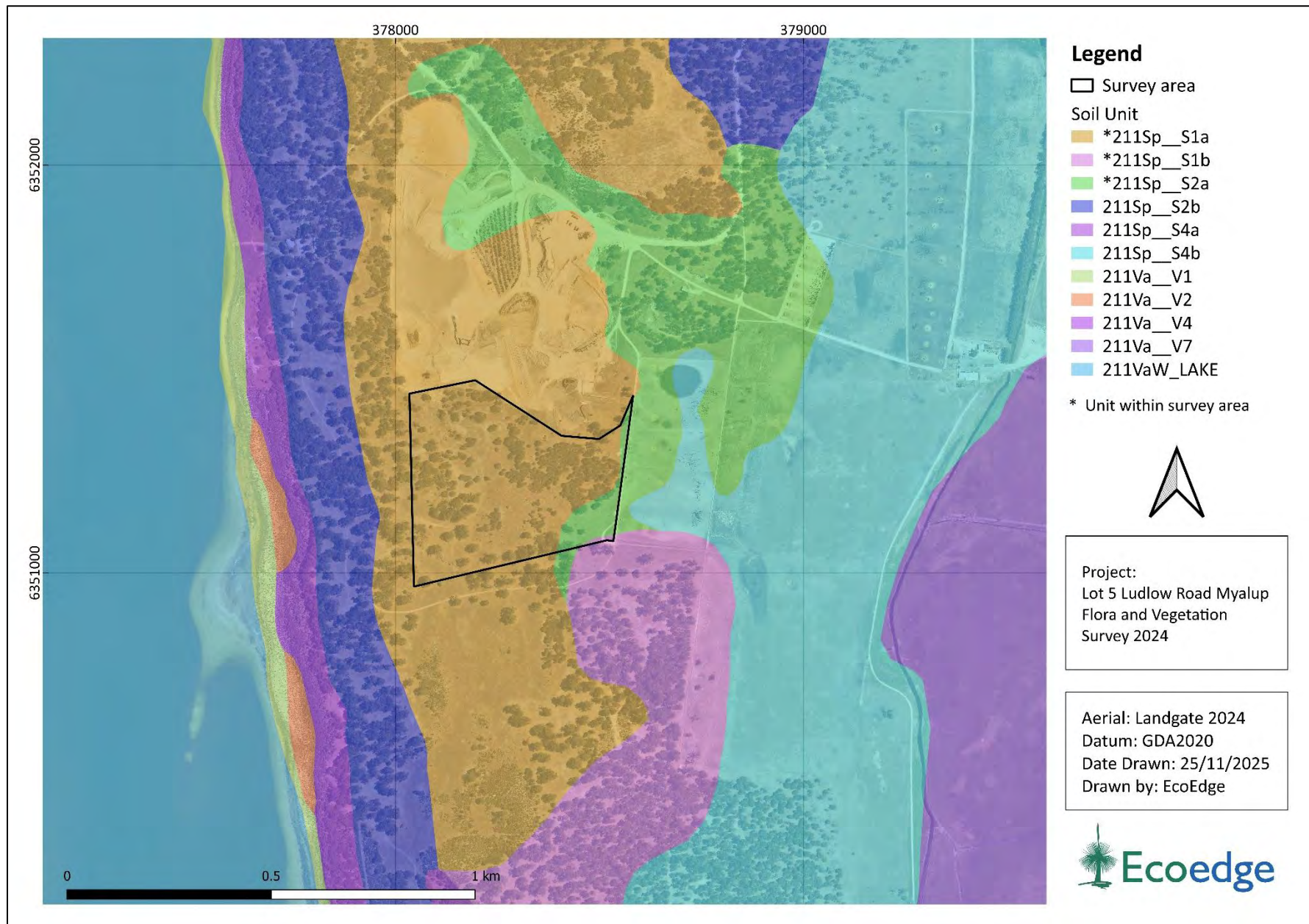


Figure 4. Soil units mapped in and nearby the survey area (van Gool & Kipling 1992).

4.4 Vegetation description according to pre-European mapping datasets

4.4.1 Vegetation complexes

The comprehensive pre-1750 distribution of vegetation complexes⁵ across the southwest of Western Australia is based on two main data sets. Heddle et al.'s 1980 1:250,000 scale vegetation complex mapping of the 'System 6' area comprising of the greater Perth and Darling Range Region and Mattiske and Havel's 1998 1:50,000 scale mapping of forest vegetation covered by the Regional Forest Agreement 1999⁶ (Webb et al. 2016). Both data sets were prepared in order to inform the adequacy of biodiversity conservation through state managed reserves (EPA 1993, South-West Regional Forest Agreement 1999). In 2016 these data sets were revised by the Department of Parks and Wildlife (DPaW) (Webb et al. 2016) in order to fill data gaps and improve alignment and correlation between the data sets.

According to the vegetation complex mapping as updated by Webb et al. (2016) two complexes, the Cottesloe Complex – Central and South Complex and the Yoongarillup Complex are mapped across the survey area. The two complexes are described in **Table 4** and shown in **Figure 5**.

Table 4. Vegetation complexes mapped for the survey area (Webb et al. 2016).

Vegetation Complex	Description
Cottesloe – Central and South (52)	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.
Yoongarillup Complex (56)	Woodland to tall woodland of <i>Eucalyptus gomphocephala</i> (Tuart) with <i>Agonis flexuosa</i> in the second storey. Less consistently an open forest of <i>Eucalyptus gomphocephala</i> (Tuart) – <i>Eucalyptus marginata</i> (Jarrah) – <i>Corymbia calophylla</i> (Marri). South of Bunbury is characterized by <i>Eucalyptus rudis</i> (Flooded Gum)- <i>Melaleuca</i> species open forests.

4.4.2 Vegetation associations

A systematic survey of native vegetation in Western Australia was undertaken by J. S. Beard (along with others) during the 1970s, which described vegetation systems in the southwest of Western Australia at a scale of 1:250,000. Beard's vegetation maps attempted to depict the vegetation as it might have been prior to European settlement in terms of type and extent

⁵ Vegetation complex mapping is based on broadscale assessment of regional patterns of vegetation in relation to underlying landforms, soils and climatic trends.

⁶ Mattiske and Havel's (1998) mapping also included an assessment of an area of the very southern portion of the Swan Coastal Plain landform (Webb et al. 2016).

(Beeston et al. 2001). The Beard Vegetation Association dataset, also referred to as the pre-European native vegetation extent dataset, was digitised by Shepherd et al. (2002).

Beard vegetation associations have been described to a minimum standard of Level 3 'Broad Floristic Formation' for the National Vegetation Inventory System (NVIS) (state-wide to regional scale)⁷ (NVIS 2017)

The survey area is comprised of one Beard vegetation association: association 6 'Medium woodland; Tuart & Jarrah' (

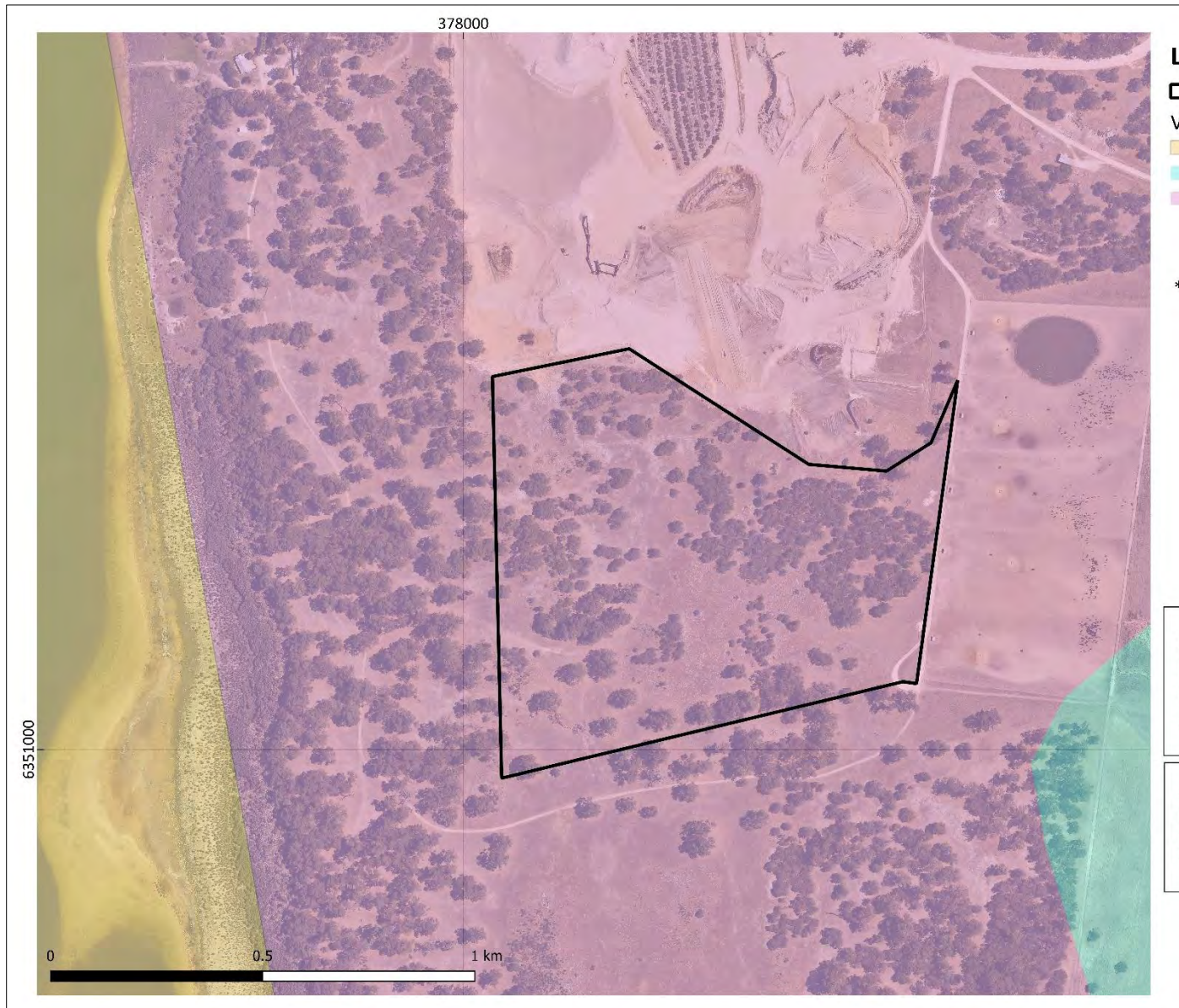


Figure 6).

⁷ Beard's vegetation mapping units are referred to as 'associations' however these do not correspond to the NVIS Level 5 'Associations'. The NVIS system was developed long after Beard's work was completed, and while both classification systems use the same term, NVIS 'Associations' describe vegetation in more detail than Beard's.



Figure 5. Vegetation complexes mapped in and nearby the survey area (Webb et al. 2016).

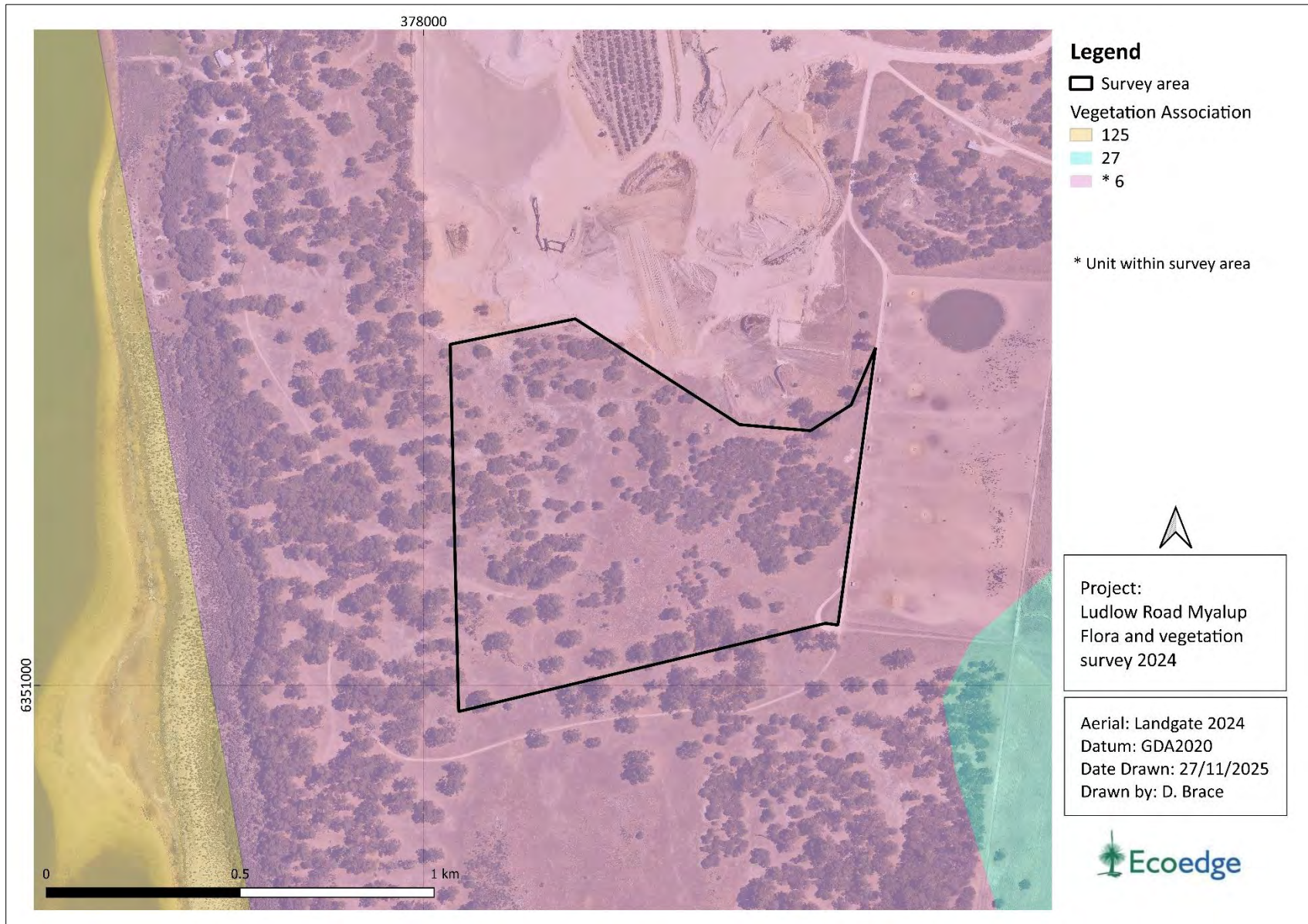


Figure 6. Vegetation associations mapped in and nearby the survey area (Beard et al. 2013).

4.4.3 Assessment of remaining extent against pre-European extent

In 2001, the Commonwealth of Australia stated National Targets and Objectives for Biodiversity Conservation, which recognised that the retention of 30%, or more, of the pre-clearing extent of each ecological community was necessary if Australia’s biological diversity was to be protected (Environment Australia 2001).

In its report on the Statewide Vegetation Statistics incorporating the Comprehensive, Adequate and Representative (CAR) Reserve Analysis, the Government of Western Australia (GoWA) provides information on the pre-European and current extent of the ecological communities of Western Australia and reports on the status of the CAR reserve system for WA (GoWA 2019a). This system is also based on the National retention targets of 30% overall. Only reserves managed by DBCA under the *Conservation and Land Management Act 1984* are considered for inclusion in the “CAR Reserve Analysis”. In Western Australia these statistics have been based on Beard’s vegetation associations and Webb et al.’s (2016) updated vegetation complexes.

The percentage remaining of the pre-European extent vegetation and the percentage of current extent in DBCA managed land for the two complexes and one association described for the survey area are presented in **Table 5** and **Table 6** respectively.

The Cottesloe – Central and South Complex is well represented at both the SCP and Shire of Harvey level, with 32.16% of pre-European extent vegetation remaining in the SCP and 41.84% remaining within the Shire of Harvey, exceeding the 30% Commonwealth retention target. The Yoongarillup Complex exceeded the Commonwealth retention target at the SCP level with 35.81% pre-European extent vegetation remaining but falls just below the target at the Shire level, with 29.80% remaining.

Association 6 falls below the 30% Commonwealth retention target at all levels apart from within the Shire of Harvey, which retains 38.18% of the complex’s pre-European extent vegetation.

The red, orange and yellow shading in the tables indicates the status of the Commonwealth 30% retention target.

Status of the Commonwealth retention target	>30%	<30%	<10%
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Table 5. The vegetation complexes mapped within the survey area with regards to the Commonwealth retention targets (GoWA 2019b).

Region	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves ⁸
Cottesloe – Central and South Complex (52)				
Swan Coastal Plain	45,299.61	14,567.87	32.16	14.58
Shire of Harvey	1,332.69	557.55	41.84	n/a
Yoongarillup Complex (56)				
Swan Coastal Plain	27,977.93	10,018.14	35.81	18.41
Shire of Harvey	10,952.59	3,264.29	29.80	n/a

* Excludes Crown Freehold Department Interest Lands that are managed under Section 8(a) of the CALM Act.

Table 6. The vegetation association within the survey area with regards to the Commonwealth retention targets (GoWA 2019a).

Region	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA Managed Land*
Association 6				
State-wide	56,343.01	13,362.25	23.72	9.45
IBRA region: Swan Coastal Plain (SWA)	56,343.01	13,362.25	23.72	9.45
IBRA sub-region Perth (SWA02)	56,343.01	13,362.25	23.72	9.45
Shire of Harvey	6,232.23	2,379.30	38.18	23.59

* Excludes Crown Freehold Department Interest Lands that are managed under Section 8(a) of the CALM Act.

⁸ The % remaining in DBCA land is not calculated for the vegetation complex mapping data set.

4.5 Threatened and Priority ecological communities.

Ecological communities are defined by Western Australia's DBCA as "...naturally occurring biological assemblages that occur in a particular type of habitat. They are the sum of species within an ecosystem and, as a whole, they provide many of the processes which support specific ecosystems and provide ecological services" (DEC 2013).

Under Section 27 of the *Biodiversity Conservation Act 2016* (BC Act), the Western Australian Minister for Environment may list communities considered under significant threat as a threatened ecological community (TEC). These State TECs can be listed under one of three conservation categories: Critically Endangered (CR); Endangered (EN); and Vulnerable (VU). The BC Act also provides for listing communities as collapsed ecological communities.

Possible State TECs that do not meet survey criteria for listing or are not adequately defined can be added to the DBCA priority ecological community (PEC) list and ranked in order of priority (Priority 1-5) (DEC 2013).

The current listing of State TECs and PECs is presented in DBCA 2023b and DBCA 2023c. The conservation categories for these State TECs and PECs are defined in **Appendix 6**.

Ecological communities may also be listed as TECs under the Federal EPBC Act. There are three categories of Federal TECs: Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) (DCCEEW 2022) (defined in **Appendix 7**).

The desktop assessment included a Protected Matters Search (DCCEEW 2024a) and review of DBCA TEC and PEC database extracts (DBCA 2024a), finding a total of six Federal TECs, four State TECs and six State PECs occurring within the 10 km study area (**Table 7** and **Figure 7**). The survey area intersects with the buffer of the following two Federally listed TECs:

- The critically endangered 'Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain' TEC was returned in the Protected Matters Search (DCCEEW 2024a). The Priority 3 listed State *Tuart Woodlands of the Swan Coastal Plain* PEC was also returned in the DBCA TEC and PEC data searches (DBCA 2024a) (collectively these two are referred to hereafter as Tuart woodlands TEC). The Tuart Woodlands dataset (DBCA 2018) was also reviewed to identify potential occurrences of Tuart woodlands TEC that may not be recorded in other DBCA datasets, showing mapped occurrences of Tuart Woodland/Forest over a portion of the survey area (**Figure 8** and **Figure 9**).
- The 'Honey myrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion' TEC (referred to hereafter as Honey myrtle TEC) was returned in the Protected Matters Search (DCCEEW 2024a). The Honey myrtle TEC was listed as critically endangered under the EPBC Act on 15 November 2023 (DCCEEW 2023). The DCCEEW distribution dataset is indicative only and requires ground truthing to verify the presence or absence of the Honey myrtle TEC (**Figure 8**).

Table 7. Threatened and Priority ecological communities occurring within the 10 km study area (DBCA 2024a, DCCEEW 2024).

Community name and description	Status (WA)	Status (EPBC Act)
*Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion – a federally listed TEC	n/a	T (CR)
Thrombolite (microbialite) community of a coastal brackish lake (Lake Clifton)	T (CR)	T (CR)
Sedgeland in Holocene dune swales of the southern Swan Coastal Plain	T (CR)	T (EN)
<i>Banksia</i> Woodlands of the Swan Coastal Plain – a federally listed TEC consisting of numerous State-listed communities	P3	T (EN)
*Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain – a federally listed TEC consisting of numerous State listed communities, one of which occurs within the survey area:	P3	T (CR)
SCP25 Southern <i>Eucalyptus gomphocephala</i> - <i>Agonis flexuosa</i> woodlands	P3	n/a
<i>Melaleuca huegelii</i> – <i>Melaleuca systema</i> shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994)): FCT 26a	T (CR)	n/a
Shrublands on calcareous silts of the Swan Coastal Plain (floristic community type 18 as originally described in Gibson et al. (1994)): SCP18	T (CR)	n/a
<i>Empodisma</i> peatlands of southwestern Australia	n/a	T (EN)
Living microbial mats in hypersaline ponds	P2	n/a
Pamelup Pond – Living microbial mats in hypersaline ponds	P2	n/a
Coastal shrublands on shallow sands: SCP29a	P3	n/a

*TEC PEC buffers that intersect the survey area DBCA (2024a).

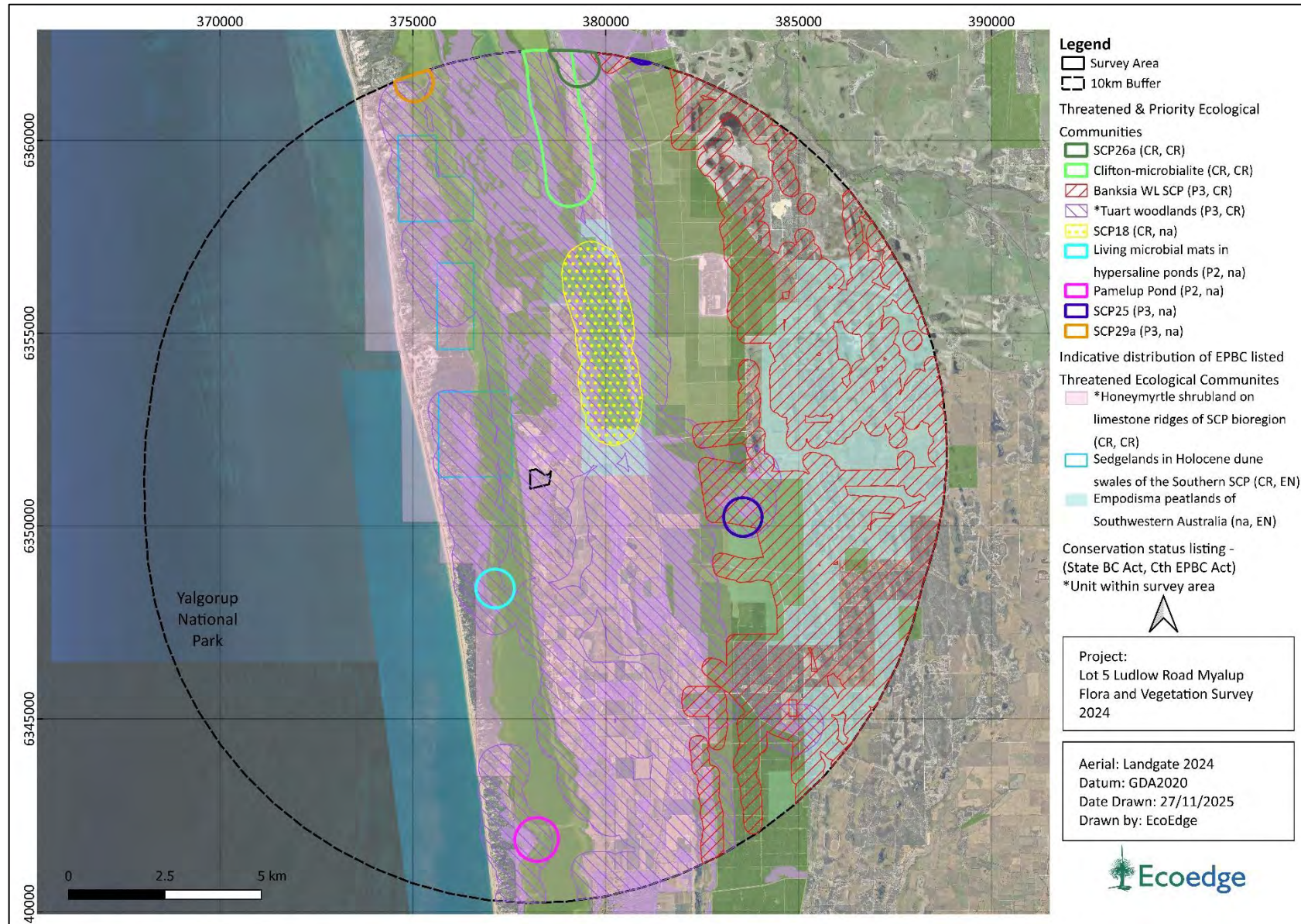


Figure 7. State and Federal Threatened and Priority ecological communities within the 10 km study area (DBCAs 2024a, DCCEEW 2024b).

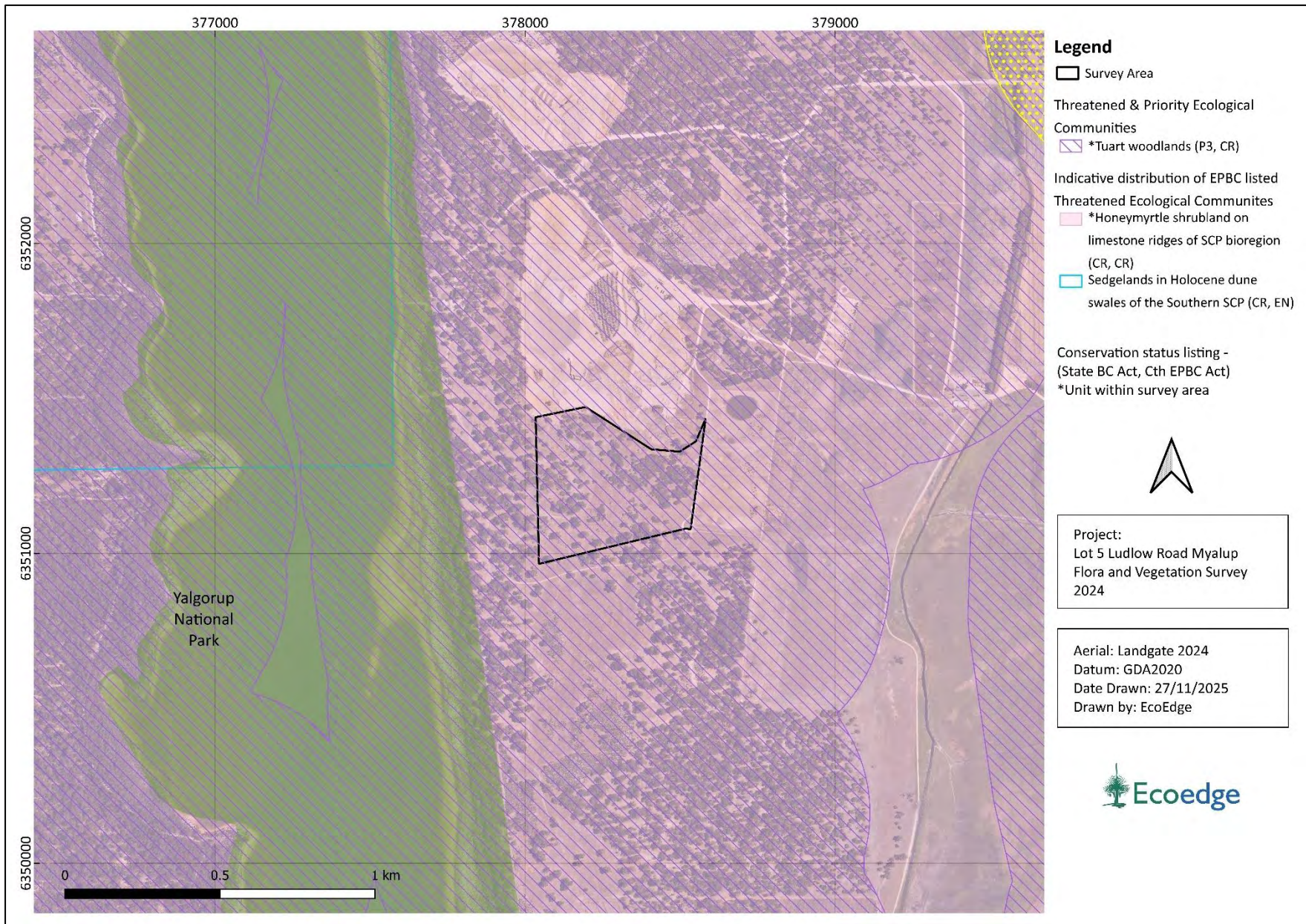


Figure 8. Threatened and Priority ecological communities potentially occurring within the survey area (DBCA 2024a, DCCEEW 2024b).

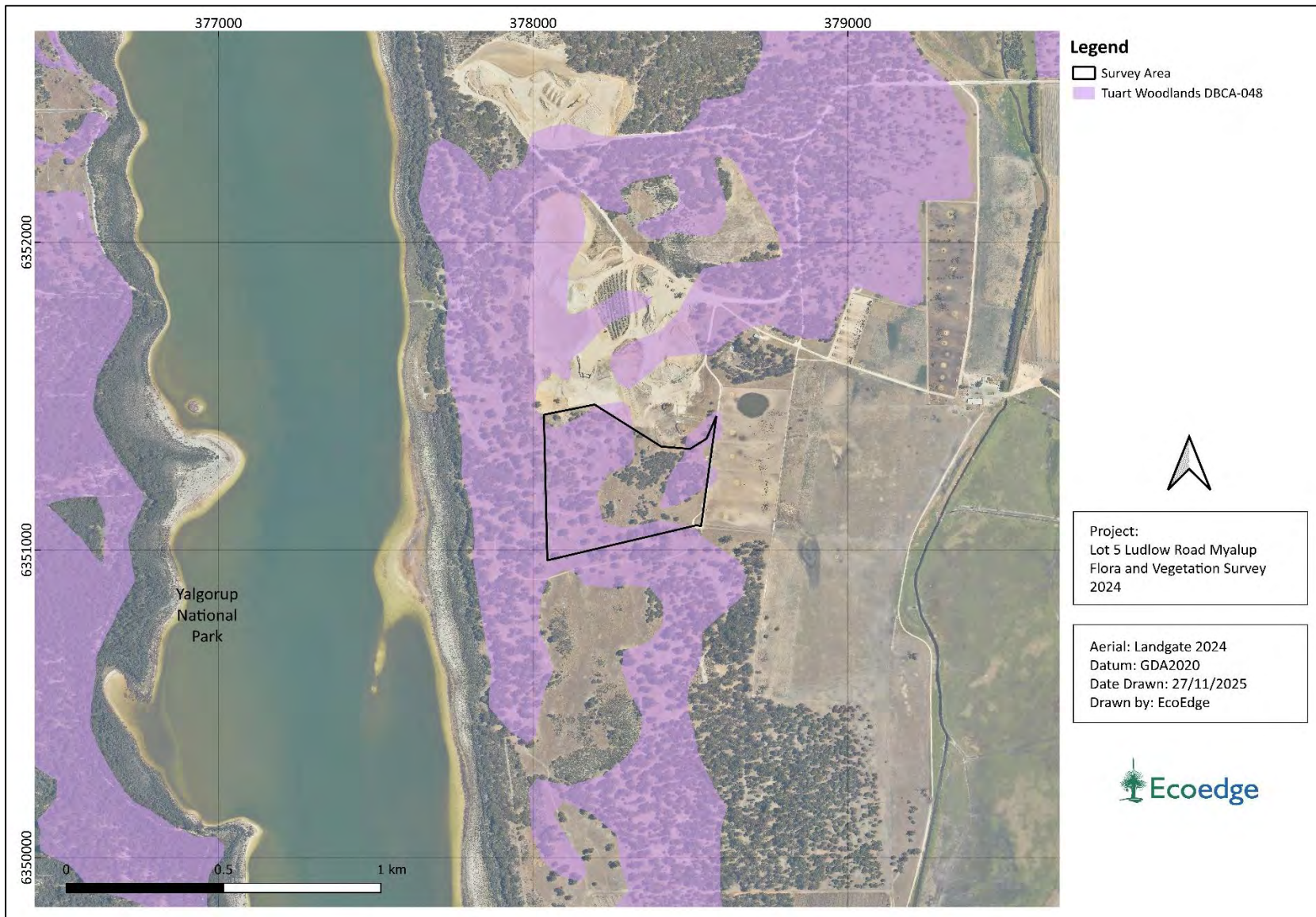


Figure 9. Tuart woodlands TEC mapped in proximity to the survey area DBCA-048 (DBCA 2018).

4.6 Threatened and Priority flora

Species of flora are defined as having a Threatened or Priority conservation status where their extant populations are restricted geographically and/or under threat of possible extinction. The DBCA recognises these threats and consequently applies regulations to protect populations and species (DBCA 2025).

Threatened extant flora species are listed under Section 19 of the BC Act. They are ranked according to their threat level using the International Union for Conservation of Nature (IUCN) Red List categories and criteria. The categories are Critically Endangered (CR), Endangered (EN), and Vulnerable (VU). It is an offence to “take” or damage Threatened flora without Ministerial approval. Section 5 of the Act defines “to take” as “... to gather, pluck, cut, pull up, destroy, dig up, remove, harvest or damage flora by any means”.

Priority flora is under consideration for future declaration as “Threatened flora”, dependent on more information. Species classified as Priority One to Three (referred to as P1, P2 and P3) are in need of further survey to determine their status, while Priority Four (P4) species are adequately known, rare or Threatened species that require regular monitoring (DBCA 2019).

Threatened flora lists are formally reviewed annually with the current listing updated most recently in April 2025 (DBCA 2025). The Priority flora list is subject to ongoing review with updates regularly published on the Western Australian Herbarium Florabase website.

Categories of Threatened and Priority flora as defined by the BC Act are presented in **Appendix 8** (DBCA 2019).

Threatened flora may also be protected under the Federal EPBC Act and be listed in one of six categories. Definitions of these categories are summarised in **Appendix 9** (DCCEEW 2020).

A list of Threatened or Priority flora occurring or potentially occurring within 10 km of the survey area, generated from an Atlas of Living Australia search (Atlas of Living Australia 2024) a Protected Matters Search Tool query (DCCEEW 2024) and DBCA WA Herbarium and NatureMap Threatened and Priority flora data downloads (DBCA 2024b, 2024c) is provided in **Appendix 10**.

The data searches resulted in 63 significant flora taxa being identified as occurring or potentially occurring within this search area. Five flora taxa were identified as ‘likely to occur’ with nine taxa regarded as possibly occurring in the survey area, based on the likelihood of occurrence assessment methodology outlined in **Appendix 1**. *Eucalyptus argutifolia* was the only Threatened Flora that was assessed pre-survey as possibly occurring in the survey area.

There are no records showing any previously recorded Threatened or Priority flora locations occurring within the survey area. A summary of the likelihood of occurrence according to conservation status is provided in **Table 8**, with the complete assessment provided in **Appendix 11**.

The conservation-significant flora assessed as Likely or Possibly occurring within the survey area prior to the field survey are listed in **Table 9** and shown in **Figure 10** and **Figure 11**.

Table 8. Summary of pre-survey likelihood of occurrence according to conservation ranking for conservation significant flora within 10 km of the survey area.

Likelihood of occurrence	Number of taxa	Priority 1	Priority 2	Priority 3	Priority 4	Threatened
Likely	5	0	2	1	2	0
Possible	9	1	1	4	2	1
Unlikely	49	4	5	18	6	16
Total	63	5	8	23	10	17

Table 9. Conservation significant flora assessed as Likely or Possibly occurring within the survey area prior to the field survey.

Species	DBCA	EPBC	Pre survey
<i>Eucalyptus argutifolia</i>	T	VU	Possible
<i>Acacia</i> sp. Binningup (G. Cockerton <i>et al.</i> WB 37784)	P1		Possible
<i>Alyogyne</i> sp. Rockingham (G.J. Keighery 14463)	P2		Likely
<i>Hakea oligoneura</i>	P2		Possible
<i>Pterostylis frenchii</i>	P2		Likely
<i>Hibbertia leptotheca</i>	P3		Likely
<i>Lasiopetalum membranaceum</i>	P3		Possible
<i>Pimelea calcicola</i>	P3		Possible
<i>Platysace ramosissima</i>	P3		Possible
<i>Stylidium maritimum</i>	P3		Possible
<i>Acacia semitrullata</i>	P4		Possible
<i>Caladenia speciosa</i>	P4		Possible
<i>Conostylis pauciflora</i> subsp. <i>pauciflora</i>	P4		Likely
<i>Eucalyptus foecunda</i> subsp. <i>foecunda</i>	P4		Likely

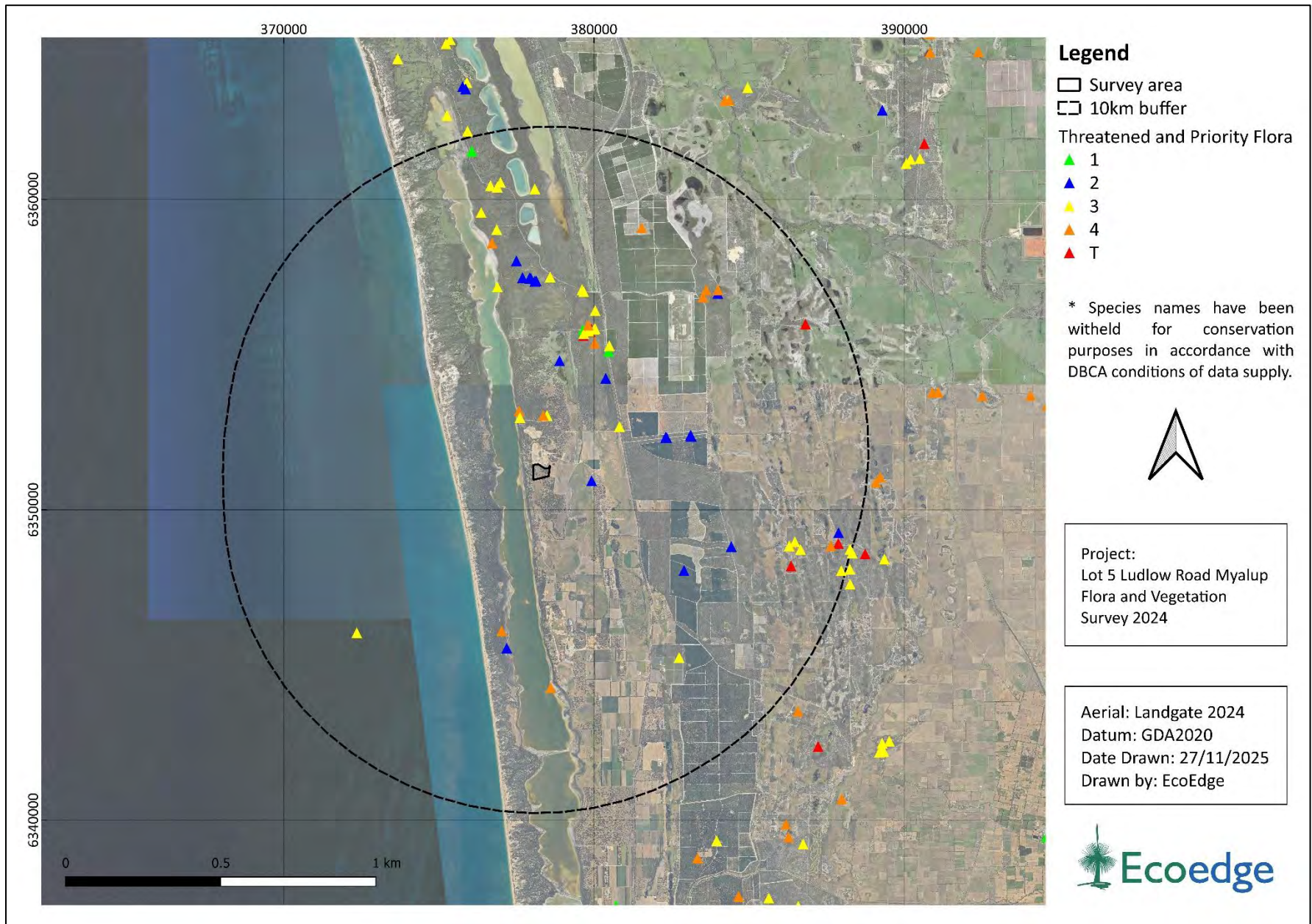


Figure 10. Threatened and Priority flora previously recorded within the 10 km study area (DBCA 2024c).

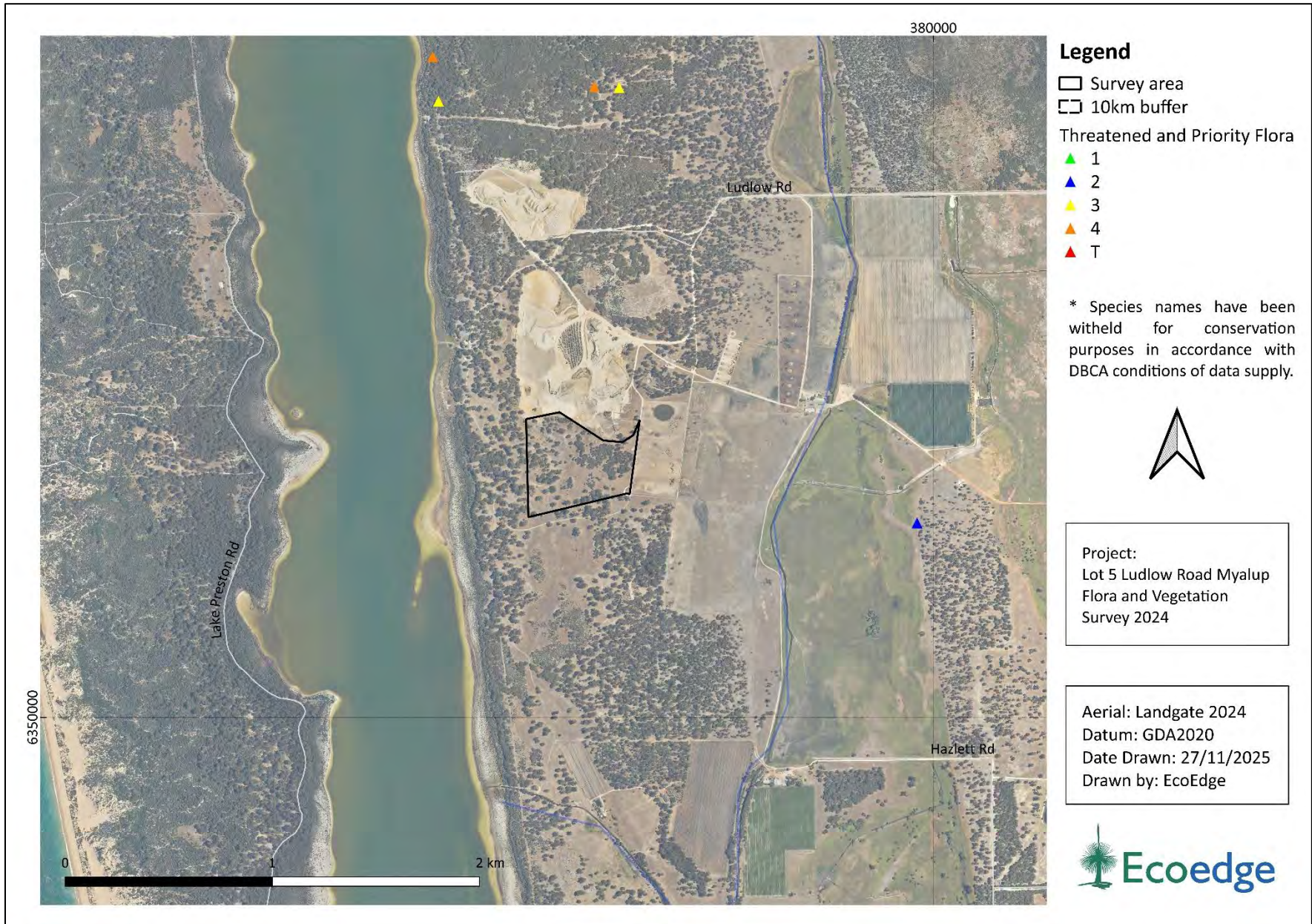


Figure 11. Threatened and Priority flora in proximity to the survey area (DBCA 2024c).

4.7 Wetlands and water courses

4.7.1 Wetlands

Wetlands on the SCP have been classified into types using the geomorphic wetland classification system of Semeniuk & Semeniuk (1995), which is based on the characteristics of landform and water permanence, for example, lakes, palusplains and damplands. These are described in **Table 10**. The SCP wetlands have also been evaluated and assigned an appropriate management category and corresponding category objective, providing guidance on the nature of the management and protection the wetland should be afforded. These categories are described in **Table 11**.

Table 10. Wetland types (adapted from Semeniuk & Semeniuk 1995).

Management Category	Basin	Flat	Channel	Slope	Highland
Permanently inundated	Lake	-	River	-	-
Seasonally inundated	Sumpland	Floodplain	Creek	-	-
Intermittent inundation	Playa	Barlkarra	Wadi	-	-
Seasonally waterlogged	Dampland	Palusplain	Trough	Paluslope	Palusmont

Table 11. Definitions of and objectives for the different wetland management categories (EPA 2008).

Management Category	Definition	Category Objective
Conservation	Wetlands with high conservation value for both natural or human use	To preserve wetland (natural) attributes and functions
Resource Enhancement (RE)	Wetlands with moderate natural and human use attributes that can be restored or enhanced	To restore wetlands through maintenance and enhancement of wetland functions and attributes
Multiple Use (MU)	Wetlands that score poorly on both natural and human use attributes	To use, develop and manage wetlands in the context of water, town and environmental planning

There are no wetlands mapped within the survey area. The survey area is however located to the east of Lake Preston which is part of the Ramsar listed Peel-Yalgorup wetland system (UFI 15480). This Conservation category listed lake is situated approximately 235 m from the southern survey area's closest point and approximately 547 m from the northern survey area's closest point. To the east of the survey area are several Multiple Use damplands (**Figure 12** and **Figure 13**).

4.7.2 Watercourses

There are no mapped watercourses occurring within the survey area. There is an unnamed canal line running north to south approximately 750 m to the east of the survey area. (Crossman & Li 2015). This canal line flows into Lake Preston (**Figure 12**).

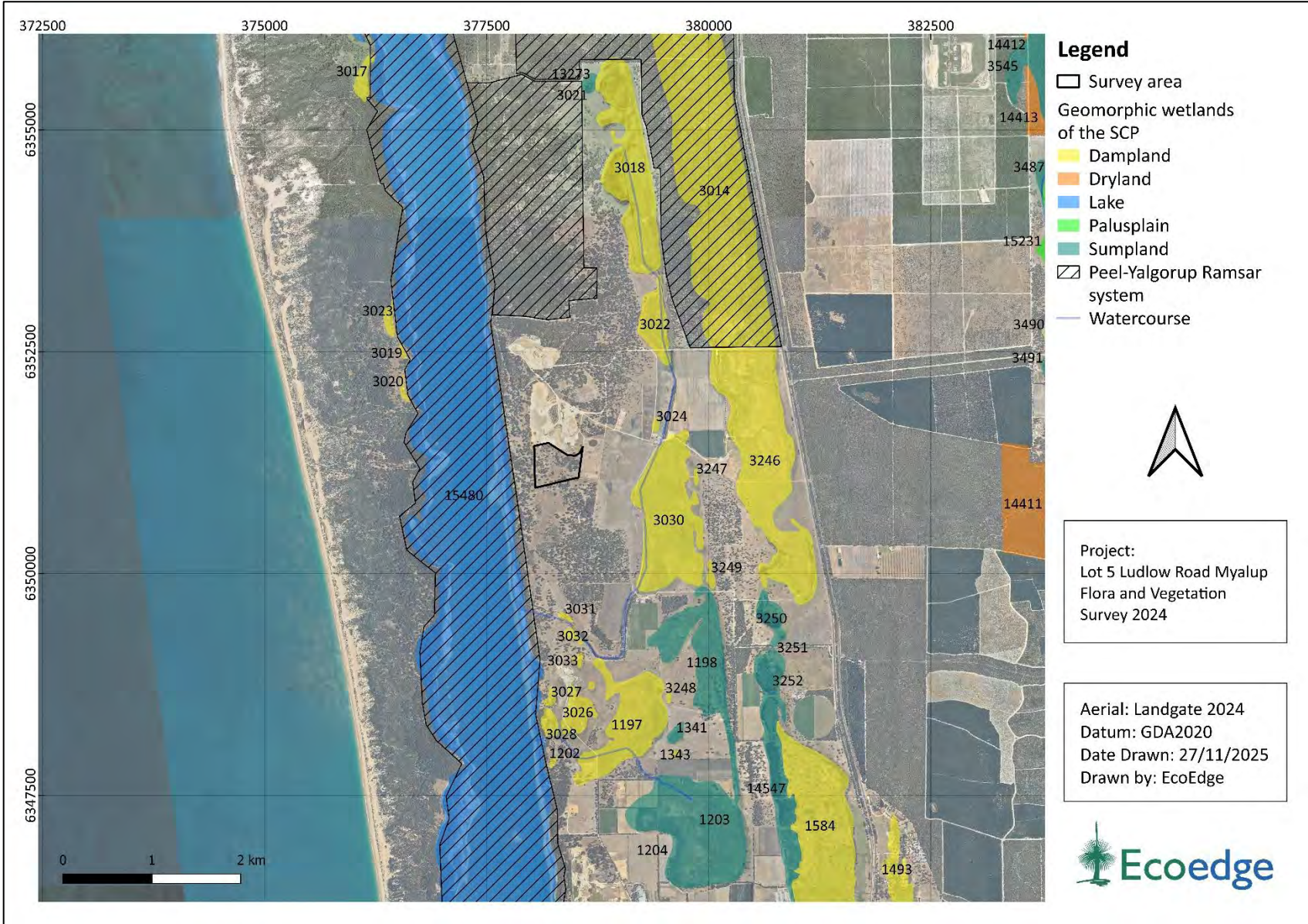


Figure 12. Geomorphic wetland type and watercourses in proximity to the survey area (DBCAs 2017, 2022).

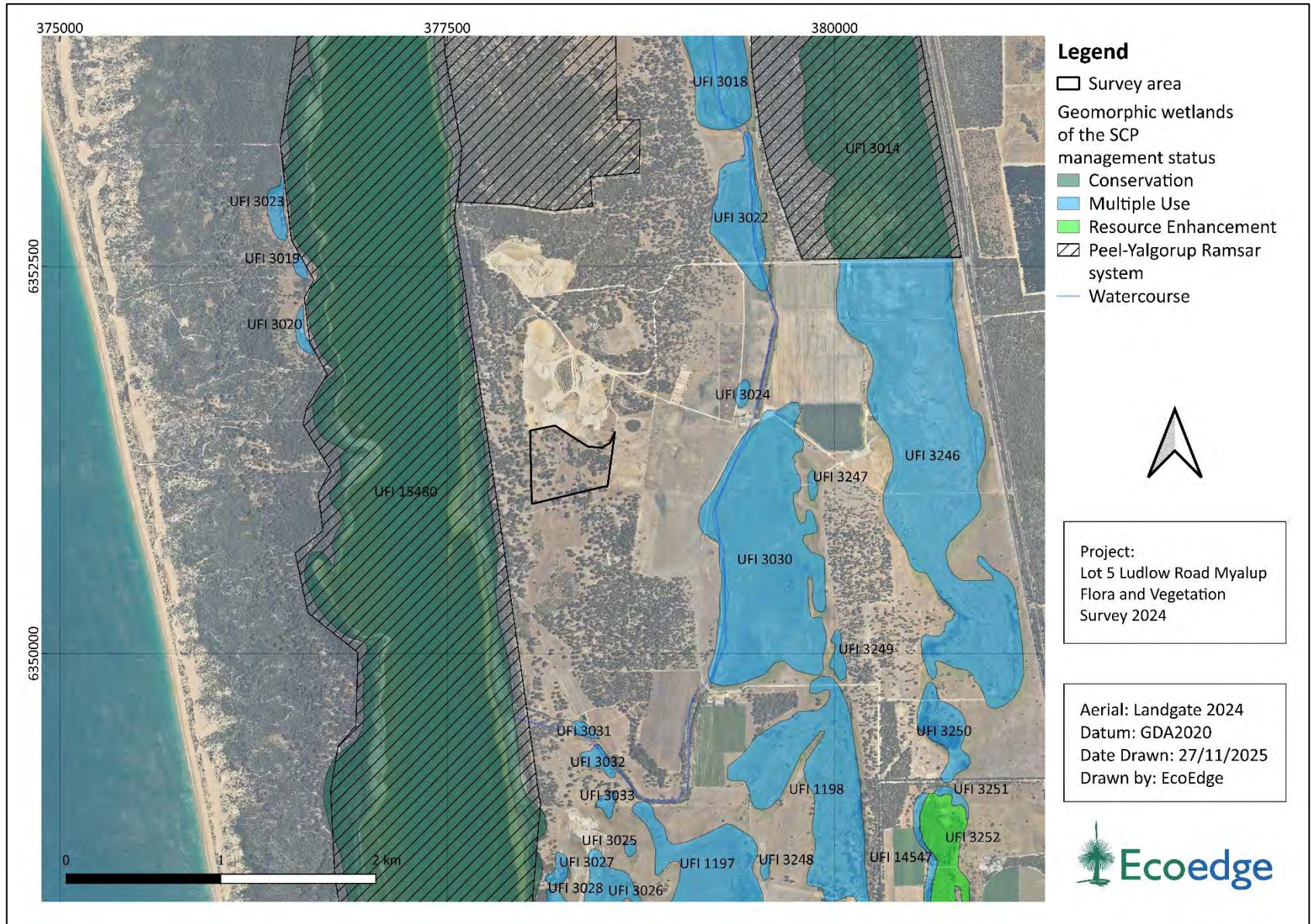


Figure 13. Status of geomorphic wetlands in proximity to the survey area (DBCA 2017, 2022).

4.8 Regional ecological linkages

Regional ecological linkages “link protected patches of regional significance by retaining the best (condition) patches available as stepping stones for flora and fauna between regionally significant areas” (Molloy et al. 2009).

Regional ecological linkages have been mapped by Molloy et al. (2009) across the south-west of Western Australia in an area spanning between just north of Mandurah to Walpole in the south-east.

Molloy et al. (2009) assessed and assigned “proximity value” (PV) ratings to all patches of remnant native vegetation as a way of indicating the value of their connectivity with regional ecological linkages. This was based on their distance from the nearest mapped regional ecological linkage axis line and connected parcels of remnant vegetation (**Table 12**).

Table 12. Linkage proximity values rating assigned to patches of remnant vegetation within a landscape from Molloy et al. (2009).

Proximity value	Description
1a	with an edge touching or < 100 m from a linkage
1b	with an edge touching or < 100 m from a natural area selected in 1a
1c	with an edge touching or < 100 m from a natural area selected in 1b
2a	with an edge touching or < 500 m from a linkage
2b	with an edge touching or < 500 m from a natural area selected in 2a
2c	with an edge touching or < 500 m from a natural area selected in 2b
3a	with an edge touching or < 1000 m from a linkage
3b	with an edge touching or < 1000 m from a natural area selected in 3a
3c	with an edge touching or < 1000 m from a natural area selected in 3b

Vegetation within the survey area has been assigned PV values because of its connectivity with three mapped regional ecological linkage axis lines. The western axis line runs between the coast and the western edge of Lake Preston and is associated with a coastal vegetation corridor. This axis line connects with another that runs west to southeast following the Yalgorup National Park and Myalup State Forest parcels of vegetation. This axis line is closest to the survey area, occurring approximately 1 km to the north. The third axis line continues parallel to the survey area to the east and is linked to Myalup State Forest parcels as well (**Figure 14**).

Vegetation in the northern part of the survey area has been assigned 1b, the highest PV tier assigned in the survey area, due to its proximity to the northern axis line. The southern survey area has three vegetation parcels with PV assigned to 1c, 2b and 2c. To the west, a small (0.36 ha) parcel is assigned 1c and is connected to vegetation in Yalgorup National Park. The other two parcels have been assigned middle 2b and 2c tier ratings because of the greater degree of separation from the axis lines, Yalgorup National Park and Myalup State Forest (**Figure 14**).

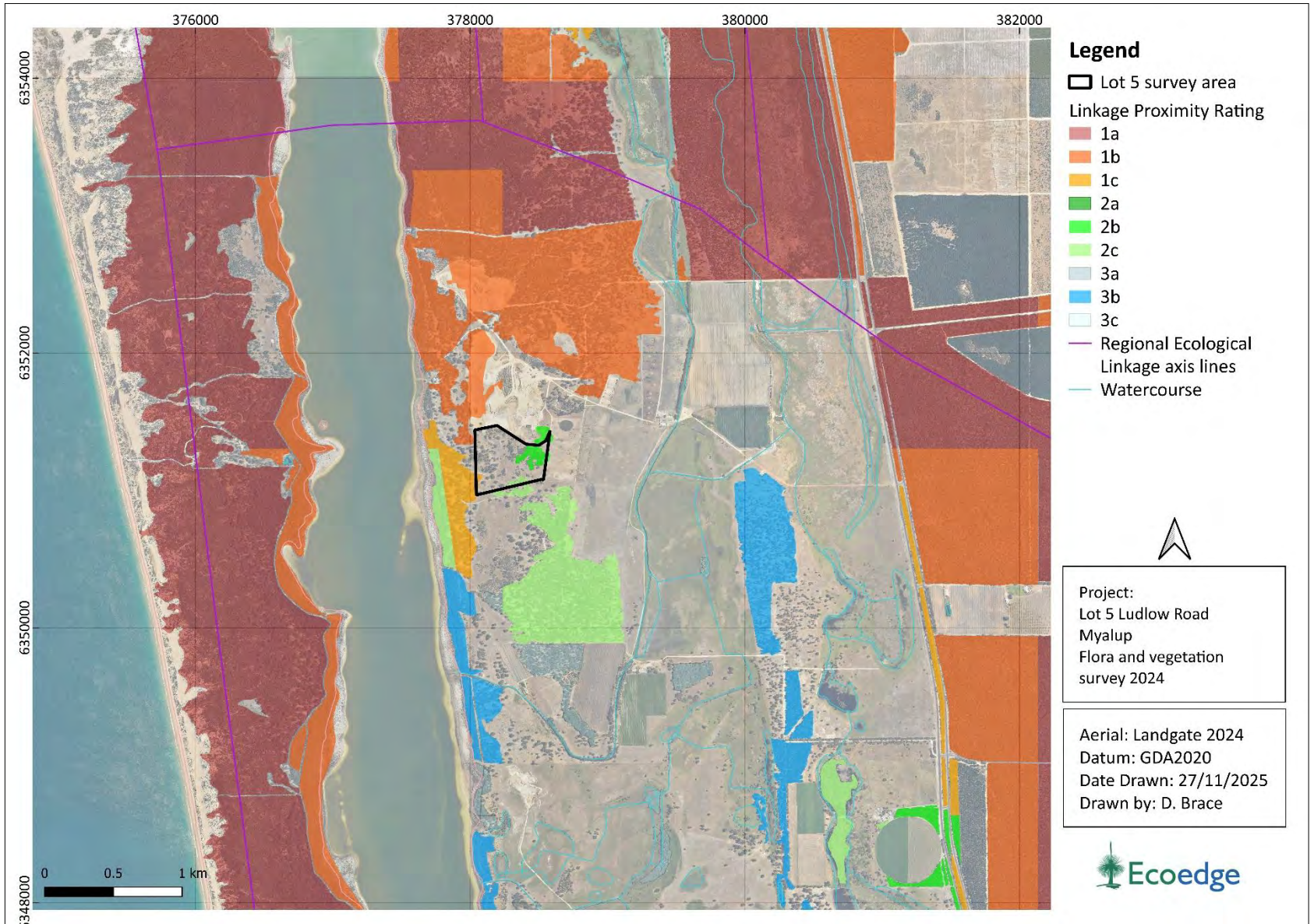


Figure 14. The survey area in relation to regional ecological linkages (Molloy et al. 2009).

4.9 Environmentally Sensitive Areas

Environmentally sensitive areas are protected under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004. They are selected for their environmental values at State or National levels (Government of Western Australia 2005). They include:

- Defined wetlands and riparian vegetation within 50 m
- Areas covered by Threatened ecological communities
- Area of vegetation within 50 m of Threatened flora
- Bush Forever sites
- Declared World Heritage property sites.

The survey area does not occur within a mapped ESA (DWER 2021). The closest ESA is approximately 83 m at its nearest point to the west of the survey area and is associated with the mapped Ramsar listed Peel-Yalgorup wetland system which includes Lake Preston (**Figure 15**).

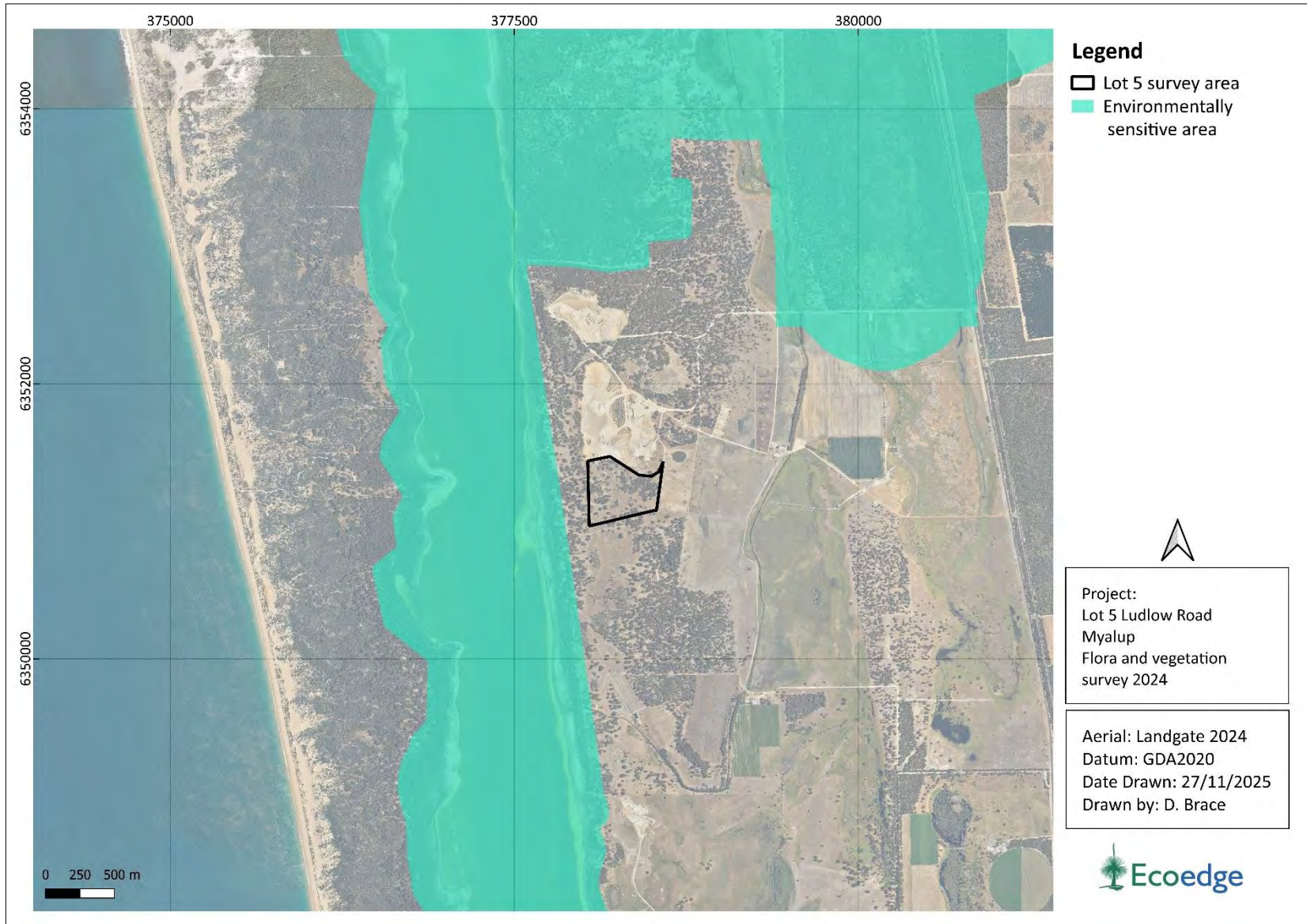


Figure 15. Environmentally sensitive areas mapped within proximity of the survey area (DWER 2021).

4.10 Previous flora surveys in locality

One previously conducted flora and vegetation survey occurred adjacent to or overlapping part of the survey area. A summary of the key outcomes of these reports is presented below and the locations of these survey areas are presented in **Figure 16**.

Lundstrom Environmental Consultants Pty Ltd (2019). Flora and Vegetation Environmental Values Survey. Prepared for B & J Catalano Pty Ltd.

A desktop review and reconnaissance survey of Lots 4 and 5 Ludlow Road Myalup was conducted on 19 April 2018 for the purposes of informing an extractive industry license for the client. The total area of the survey covered approximately 25 ha.

A total of 16 vascular flora species were recorded within the survey area.

No Threatened or Priority flora were recorded within the survey area.

Two vegetation types were recorded within the survey area:

- Open woodlands of *Eucalyptus gomphocephala*, *E. decipiens* and *Agonis flexuosa* over very occasional *Kunzea ericifolia*, pasture grasses and various weeds, predominately **Gomphocarpus fruticosus* and **Solanum linnaeanum* in grey sands with occasional limestone outcrops. This vegetation type was present in the southern section of the study area, mostly Lot 5. Vegetation condition of this vegetation type was reported as Degraded to Completely Degraded.
- Closed low woodland of *Eucalyptus decipiens*, *E. petrensis*, *Agonis flexuosa*, and isolated *Banksia attenuata* and *Nuytsia floribunda* over *Melaleuca viminea* and *Templetonia retusa* and occasional *Rhagodia baccata* and *Hardenbergia comptoniana* on grey sands with numerous limestone outcrops. This vegetation type was predominately found on both sides of a ridge which ran in a north-south direction through Lot 4. Vegetation condition of this vegetation type was reported as Good to Degraded.

Vegetation condition within the entire survey area ranged between Completely Degraded and Good.

No Threatened or Priority ecological communities were identified within the survey area.

Four weed species were recorded within the survey area with two (**Gomphocarpus fruticosus* and **Solanum linnaeanum*) being listed as Declared Pest plants.

No evidence of *Phytophthora cinnamomi* dieback infestation was apparent at time of survey.



Figure 16. Location of previous flora and vegetation surveys in proximity to the survey area.

5 Survey results

5.1 Flora

A total of 37 vascular flora taxa were identified during the survey, belonging to 15 families, of which 23 (62%) were introduced species. The most common families were Fabaceae (seven taxa, five introduced), Myrtaceae (six native taxa, none introduced), and Poaceae (six taxa, all introduced).

A list of recorded flora found within the survey area is provided in **Appendix 12**.

5.1.1 Threatened and Priority flora

No flora listed as Threatened under the Federal EPBC Act or under the State BC Act were found in the survey area.

One Priority listed conservation significant flora taxon (*Eucalyptus foecunda* subsp. *foecunda* (P4) was recorded in the survey area. **Plate 1** shows habit and **Plate 2** shows the identifying fruit and buds. A total of 41 individuals occurred as a single population of low mallee woodland on limestone outcrop within the vegetation unit EffAffW, in Degraded condition, in the north east of Lot 5 of the survey area (**Figure 17** and **Appendix 13**).

These occurrences are consistent with its preferred habitat of coastal sands overlying limestone, often on limestony hills and dunes in shrubland (French and Nicolle 2019).

The WA herbarium data DBCA (2024a) has records of seven populations within the 10 km desktop study area between 1918 and 1960. There are no abundance estimates for these occurrences.

The DBCA TPF database has no records for *E. foecunda* within the 10 km desktop study area. Florabase (Western Australian Herbarium (WAH) (1998-2025) shows records for *E. foecunda* occurring close to the coast between Jurien Bay to south of Preston Beach, within an isolated record occurring east of Manjimup.



Plate 1. *Eucalyptus foecunda* subsp. *foecunda* (P4) habit.



Plate 2. Fruit and buds of *E. foecunda* found within the survey area.

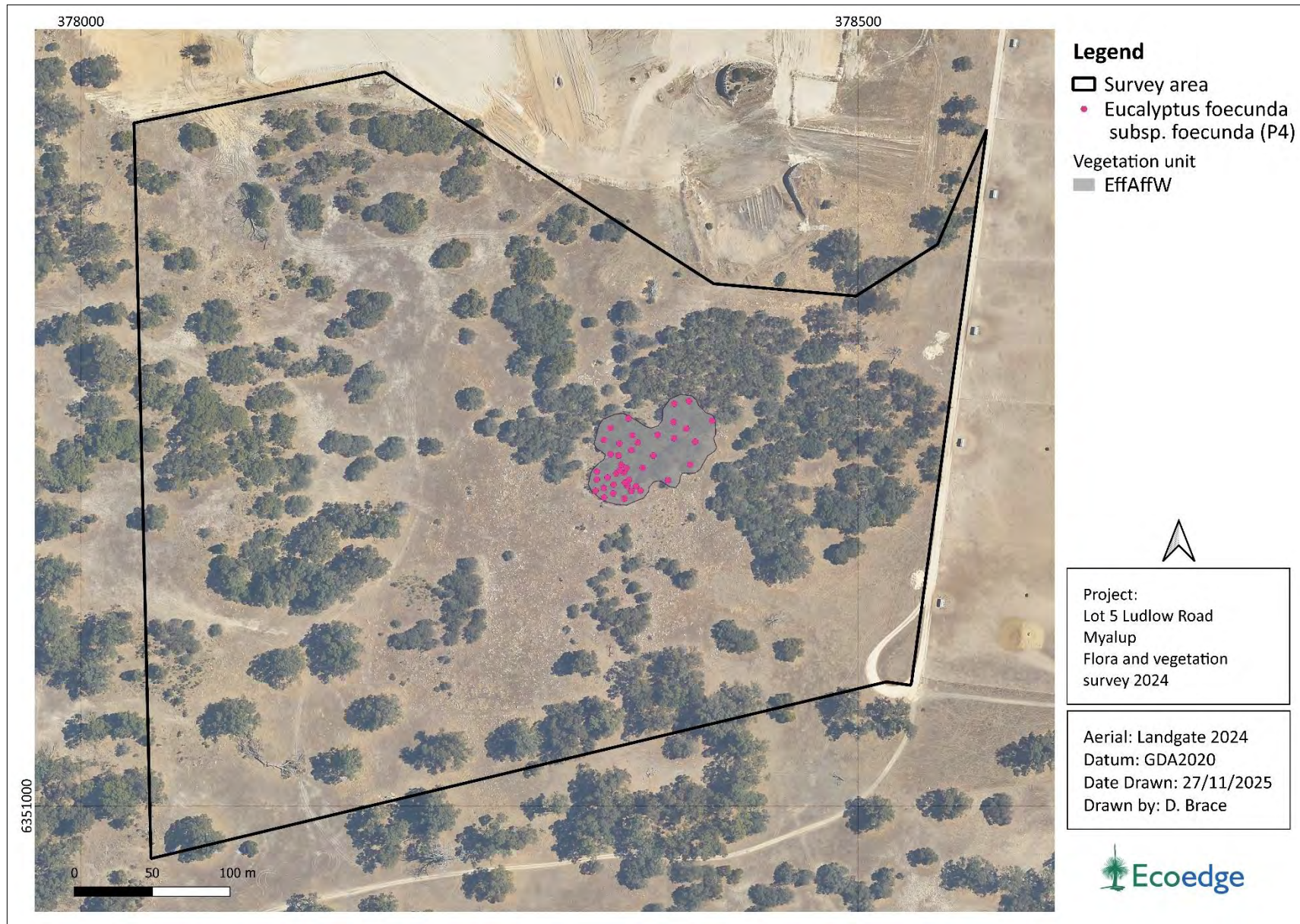


Figure 17. Locations of Priority 4 flora *Eucalyptus foecunda* subsp. *foecunda* recorded within the survey area.

5.1.2 Post Survey Likelihood of occurrence

Of the remaining 62 (other than the recorded *E. foecunda*) Threatened and Priority taxa identified as Likely or Possible in the likelihood of occurrence table (**Table 9**), all were assigned a post-survey residual likelihood of 'Unlikely' with a rationale of U2 or U3 (**Appendix 1**).

The pre- and post-survey likelihood of occurrences for all Threatened and Priority flora occurring within the survey area are provided in **Appendix 11**.

5.2 Declared and Pest plants

There were two Declared Pest plants (DP) and one Pest Plant (PP) recorded within the survey area (**Table 13**). **Gomphocarpus fruticosus* DP (cotton bush) was prolific, particularly on the limestone outcropping and associated slopes, and **Solanum linnaeanum* (DP) (apple of Sodom) was common on the open plains. The total number of points recorded⁹ and the number of plants are provided in Table 13 **Figure 18** and location data provided in **Appendix 14**.

Table 13. Number of occurrences and total individuals recorded of Declared Pest and pest plants within the survey area.

Taxon Name	Total number of occurrences	Total individuals
<i>*Gomphocarpus fruticosus</i> (DP)	73	557
<i>*Solanum linnaeanum</i> (DP)	26	67

⁹ This represents what as recorded during the survey transverse lines, not total number on site.

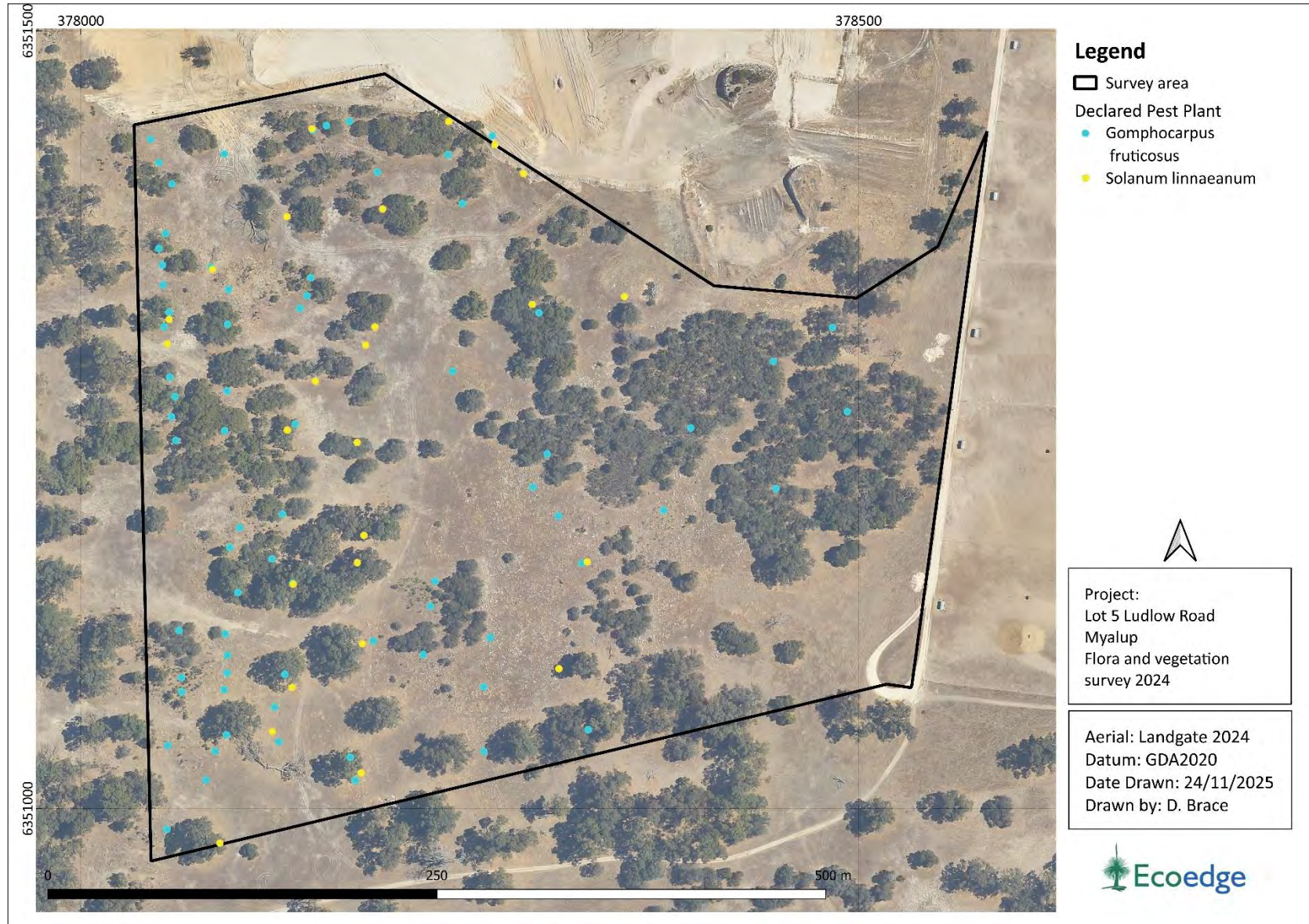


Figure 18. Location and abundance of Declared Pest and pest plants occurrences within the survey area.

5.3 Vegetation

5.3.1 Vegetation units

A total of eight vegetation units were described within the survey area, with the majority being defined using mapping notes taken during foot traverses (**Table 14**). The Degraded vegetation condition in the majority of the survey area meant there were few occurrences with an intact understorey layer of native vegetation to assess in detail. As such, the vegetation unit separations are largely derived from the dominant overstorey structure typified by either *Eucalyptus* species or *Agonis flexuosa* var. *flexuosa* and generally lack a mid or understorey layer of native vegetation.

AffW

One vegetation unit (AffW) was dominated by *Agonis flexuosa* var. *flexuosa* and generally occurred on the stony uplands and slopes within the survey area. *A. flexuosa* co-dominated in a number of the other *Eucalyptus* dominated units, with these two units being defined partly for the lack of dominant *Eucalyptus* in the overstorey. The *A. flexuosa* dominated vegetation units covered 9.5 % (1.84 ha) of the survey area.

EdAffW and EdAffWMsTrs

Eucalyptus decipiens dominated two vegetation units (EdAffW and EdAffWMsTrs) and generally occurred on the stony uplands and slopes within the survey area. Collectively, the *E. decipiens*-dominated vegetation units covered 5.8 % (3 ha) of the survey area.

EffAffW

One vegetation unit (EffAffW) was dominated by *E. foecunda* subsp. *foecunda* (P4) mallees with emergent *Agonis flexuosa* var. *flexuosa* and occurred on outcropping limestone uplands in one small patch in Lot 5. This unit covered 1.9% (0.4 ha) of the survey area.

EgAffW and EgWMhMsS

Two vegetation units (EgAffW; EgWMhMsS) were dominated by *E. gomphocephala* (Tuart) and generally occurred on the valley slopes and open plains within the survey area, with the exception of EgWMhMsS which occurred on the deeper pockets of soil within the limestone uplands. Collectively these Tuart dominated vegetation units covered 14.4 % (2.8 ha) of the survey area.



TrMsHps




One vegetation unit (TrMsHpS) was described as *Melaleuca* shrub dominated units occurring on the outcropping limestone uplands and stony slopes. This *Melaleuca* dominated vegetation units covered 3.6 % (0.7 ha) of the survey area.



One additional unit was classified as cleared and occurred in areas completely devoid of native shrub and tree canopy. These areas were either the previously cleared portion of the northern section of the survey area or across the open plains and valleys dominated by pasture weeds (54.8 % (10.6 ha) of the survey area).



A description of all vegetation units is provided in **Table 14** and the distribution within the survey area is shown in **Figure 19**.

Table 14. Vegetation units within the survey area.

#	Vegetation Code	Vegetation Description	TEC/PEC	Comments	Area (ha)	Representative Habitat Image
1	AffW	<i>Agonis flexuosa</i> var. <i>flexuosa</i> low open woodland to woodland over <i>Hibbertia cuneiformis</i> isolated to sparse mid to tall shrubs * <i>Bromus diandrus</i> , * <i>Ehrharta longiflora</i> , * <i>Lolium perenne</i> tussock grassland to closed tussock grassland with * <i>Geranium molle</i> , * <i>Euphorbia peplus</i> , * <i>Arctotheca calendula</i> sparse to open herbland on stony and sandy rises and slopes	No	Vegetation Condition: Degraded	1.84	
2	EdAffW	<i>Eucalyptus decipiens</i> , +/- <i>Agonis flexuosa</i> var. <i>flexuosa</i> , +/- <i>E. marginata</i> subsp. <i>marginata</i> low open woodland to woodland over * <i>Bromus diandrus</i> , * <i>Ehrharta longiflora</i> , * <i>Lagurus ovatus</i> tussock grassland to closed tussock grassland with * <i>Geranium molle</i> , * <i>Euphorbia peplus</i> , * <i>Trachyandra divaricata</i> sparse to open herbland on stony and sandy rises and slopes	No	Vegetation Condition: Degraded	1.61	

#	Vegetation Code	Vegetation Description	TEC/PEC	Comments	Area (ha)	Representative Habitat Image
3	EdAffWMsTrs	<i>Eucalyptus decipiens</i> , <i>Agonis flexuosa</i> var. <i>flexuosa</i> mid open woodland to woodland over <i>Melaleuca systema</i> , <i>Templetonia retusa</i> mid sparse to open shrubland over * <i>Bromus diandrus</i> , * <i>Ehrharta longiflora</i> , * <i>Lagurus ovatus</i> open tussock grassland to tussock grassland over * <i>Trachyandra divaricata</i> , * <i>Geranium molle</i> , * <i>Euphorbia peplus</i> open herbland to herbland on outcropping limestone uplands and slopes	No	Vegetation Condition: Degraded	1.44	
4	EffAffW	<i>Eucalyptus foecunda</i> subsp. <i>foecunda</i> low mallee woodland with <i>Agonis flexuosa</i> var. <i>flexuosa</i> low open woodland to woodland over <i>Hibbertia cuneiformis</i> isolated to sparse mid to tall shrubs over * <i>Ehrharta longiflora</i> , * <i>Bromus diandrus</i> , * <i>Lolium perenne</i> tussock grassland to closed tussock grassland with * <i>Geranium molle</i> , * <i>Arctotheca calendula</i> , * <i>Euphorbia peplus</i> sparse to open herbland on outcropping limestone uplands and slopes	No	Vegetation Condition: Degraded	0.37	
	EgAffW	<i>Eucalyptus gomphocephala</i> mid woodland to open forest over <i>Agonis flexuosa</i> var. <i>flexuosa</i> low open woodland to woodland over * <i>Bromus diandrus</i> , * <i>Ehrharta longiflora</i> , * <i>Hordeum leporinum</i> tussock grassland to closed tussock grassland with * <i>Geranium molle</i> , * <i>Euphorbia peplus</i> sparse to open herbland on sandy rises and slopes	Yes Federal Tuart Woodlands of Swan Coastal Plain TEC	Quadrat MQ02 Vegetation Condition: Degraded Patch >5 ha or forms part of a	2.17	

#	Vegetation Code	Vegetation Description	TEC/PEC	Comments	Area (ha)	Representative Habitat Image
				larger >5 ha patch		
5	EgW	<i>Eucalyptus gomphocephala</i> mid sparse to open woodland over <i>Hibbertia cuneiformis</i> , * <i>Solanum linnaeanum</i> isolated mid to tall shrubs over * <i>Bromus diandrus</i> , * <i>Ehrharta longiflora</i> , * <i>Lolium perenne</i> tussock grassland to closed tussock grassland over * <i>Trachyandra divaricata</i> , * <i>Geranium molle</i> , * <i>Trifolium campestre</i> var. <i>campestre</i> open herbland to herbland on low sandy slopes and valleys	Yes Federal Tuart Woodlands of Swan Coastal Plain TEC	Vegetation Condition: Degraded Forms part of a larger >5 ha patch	0.61	
7	EgWHmMsS	<i>Eucalyptus gomphocephala</i> low to mid woodland over <i>Melaleuca huegelii</i> subsp. <i>huegelii</i> , <i>Hibbertia cuneiformis</i> tall open shrubland to shrubland over <i>M. systema</i> , <i>Templetonia retusa</i> mid sparse shrubland to open shrubland over * <i>Bromus diandrus</i> , * <i>Ehrharta longiflora</i> , * <i>Lolium perenne</i> tussock grassland with * <i>Trifolium campestre</i> var. <i>campestre</i> , * <i>Erodium botrys</i> , * <i>Gomphocarpus fruticosus</i> herbland on outcropping limestone uplands and slopes	Yes Federal Tuart Woodlands of Swan Coastal Plain TEC	Vegetation Condition: Good to Degraded Forms part of a larger >5 ha patch	0.03	

#	Vegetation Code	Vegetation Description	TEC/PEC	Comments	Area (ha)	Representative Habitat Image
8	TrMsHpS	<i>Templetonia retusa</i> , +/- <i>Melaleuca systema</i> , +/- <i>Hakea prostrata</i> mid isolated shrubs to sparse shrubland over <i>*Bromus diandrus</i> , <i>*Ehrharta longiflora</i> , <i>*Lolium perenne</i> tussock grassland to closed tussock grassland with <i>*Gomphocarpus fruticosus</i> tall isolated to sparse herbland and <i>*Geranium molle</i> , <i>*Arctotheca calendula</i> , <i>*Erodium botrys</i> low sparse to open herbland on low stony uplands and slopes	No	Vegetation Condition: Degraded to Completely Degraded	0.69	
9	Cleared	<i>*Bromus diandrus</i> , <i>*Vulpia bromoides</i> , <i>*Lolium perenne</i> tussock grassland to closed tussock grassland over <i>*Arctotheca calendula</i> , <i>*Geranium molle</i> , <i>*Trifolium campestre</i> var. <i>campestre</i> open herbland to herbland on low stony and sandy slopes and valleys	No	Open pasture, particularly in southern area; in northern area some formerly cleared and possibly failed revegetation Vegetation Condition: Completely Degraded	10.59	
	Total				19.33 ha	

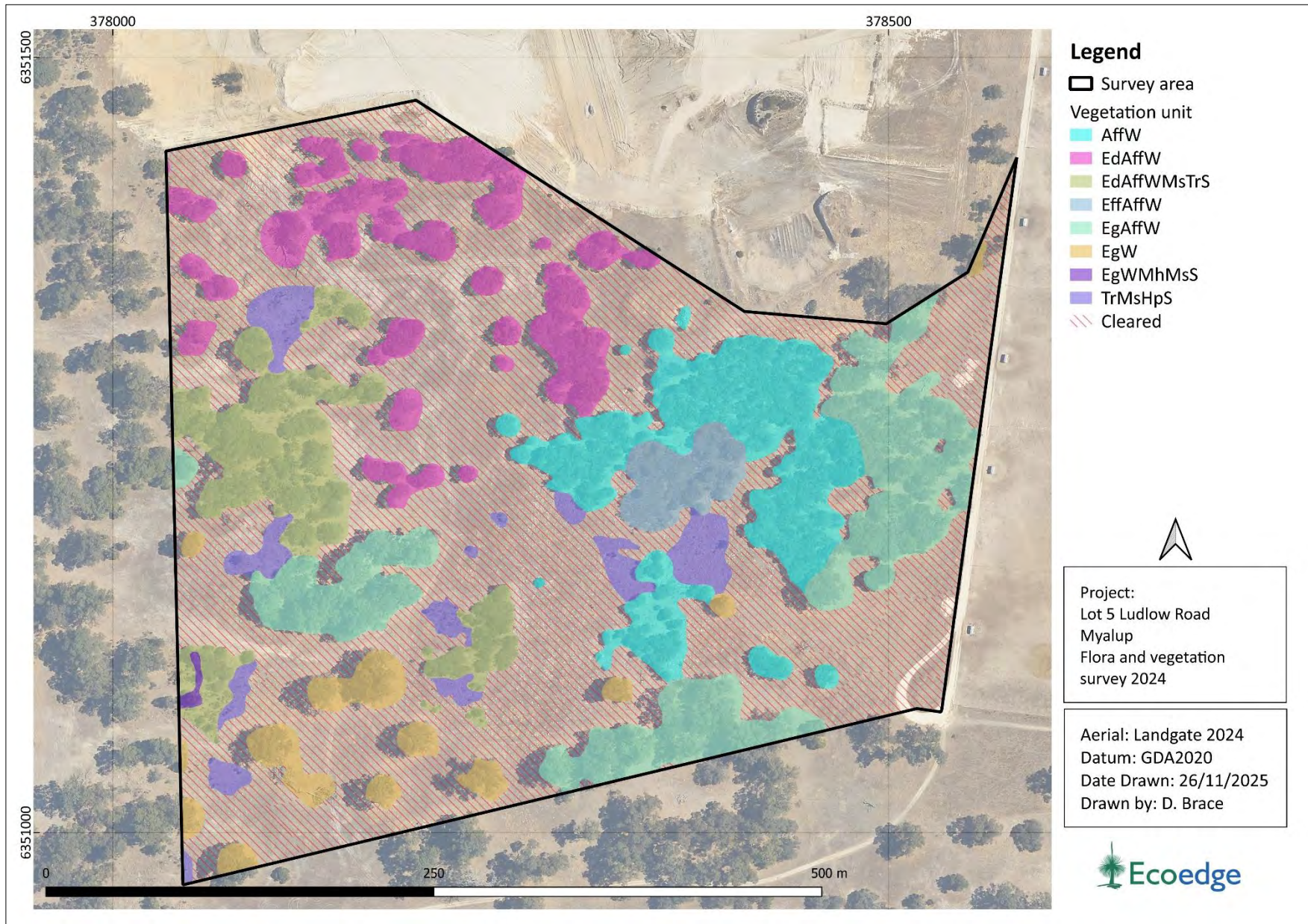


Figure 19. Vegetation units within the southern section of the survey area.

5.3.2 Vegetation condition

All of the vegetation within the survey area was in a Completely Degraded to Degraded condition. A summary of the vegetation condition recorded within the survey area is provided in **Table 15** and shown in **Figure 20**. Vegetation condition area (ha) for each of the vegetation units is also provided in **Table 16**.

Table 15. Summary of vegetation condition area recorded within the survey area.

Vegetation Condition	Area (ha)	Area (%)
Degraded	7.01	36.3
Completely Degraded	12.32	63.7
Total	19.33	100

Table 16. Vegetation condition area for vegetation units occurring within the survey area.

Vegetation unit	Completely Degraded	Degraded	Grand Total
AffW	0.1	1.8	1.8
EdAffW	0.6	1.0	1.6
EdAffWMsTrS	0.0	1.4	1.4
EffAffW	-	0.4	0.4
EgAffW	-	2.2	2.2
EgW	0.4	0.2	0.6
EgWWhMsS	-	0.03	0.03
TrMsHpS	0.7	-	0.7
Cleared	10.6	-	10.6
Grand Total	12.3	7.0	19.33

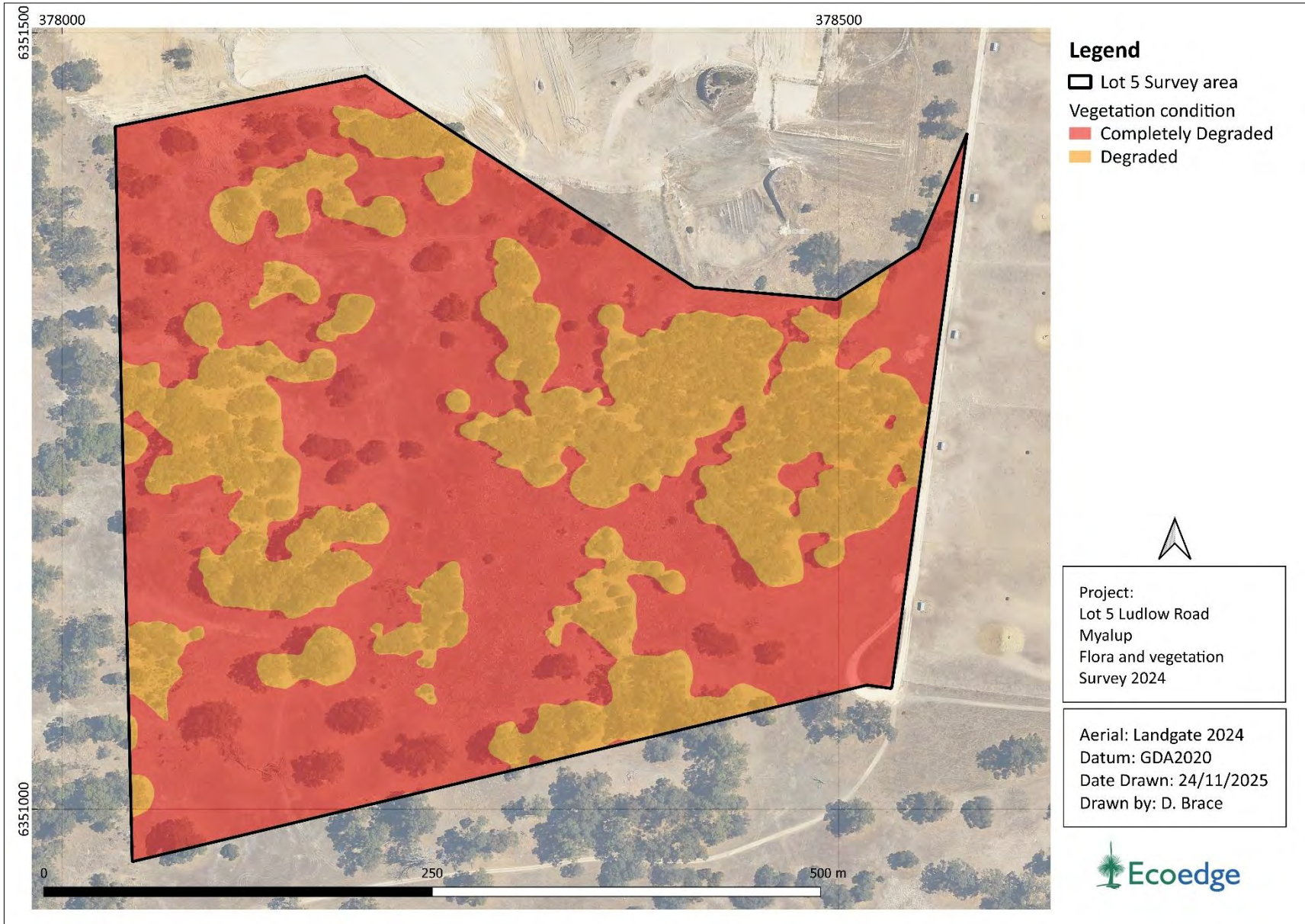


Figure 20. Vegetation condition within the southern section of the survey area.

5.4 Floristic analysis

Data from the quadrat was analysed in accordance with the method outlined in DBCA (2024e) to assign, as best as practically possible, an appropriate FCT to the survey area vegetation units. The quadrat was installed in EgAffW (MQ02).

The MVA was affected by the high proportion of introduced weeds in the quadrat, which was about 77% (only two natives recorded in quadrat). Total species richness was also low, which affects the comparison when comparing species-rich quadrats from the Gibson et al. (1994) dataset, which are often 50 or 60 taxa per quadrat. This meant that the results of the MVA were inconclusive.

In accordance with DBCA (2024e) further analysis was undertaken to better elucidate an appropriate FCT this included a comparison of typical and other species with all Spearwood soil system FCTs (FCT 24, FCT 25, FCT 26a, FCT 26b, FCT 27 and FCT 28 plus FCT 29a (Coastal shrublands on shallow sands) which occurs on the adjacent Quindalup soil system. Consideration of landscape position and geology was used as further information in deciding the appropriate FCT. This resulted in the likely assignment of FCT 25 to MQ02.

The results of the comparison of the quadrat with the Gibson et al. (1994) dataset and the potential floristic community types, and the comparison of typical and other species are discussed below. The data collected within MQ02 is provided in **Appendix 2**.

5.4.1 MQ02 analysis

The MVA indicated that this quadrat should most likely be assigned to FCT24 based on the Bray Curtis similarity values, however this is a very species poor quadrat, with only two of the nine taxa being native. The results of this analysis were not logical at a practical level as the nearest recognised occurrence of this FCT is about 100 km north of the survey area making it highly unlikely that it is representative of this FCT (**Table 17**).

The comparison of typical and other common species only showed a low level of similarity with FCT 25, (**Table 18**) with the presence of two typically occurring species Tuart (*Eucalyptus gomphocephala*) and *Agonis flexuosa* which indicated that the quadrat and the vegetation associated with it, unit EgAffW, may be a degraded occurrence of FCT25, which is known to occur nearby.

This quadrat was placed in Tuart patch 2, which is mapped as part of the Federal Tuart woodland TEC.

Table 17. Summary of the single site insertion analyses and comparison of typical and other common species for survey area quadrats.

Quadrat Number	Single site insertion – Gibson et al. (1994)				Likely FCTs	Landform and vegetation complex	Comparison of typical and other common species.	FCT comments
	Quadrat	FCT	Similarity	Dendrogram				
MQ02 9 species	MTB-1_24	24	0.343	An outlier to a group comprised of four FCT 15 and four FCT 16 quadrats	FCT 24 (FCT 30a2)	Spearwood, Yoongarillup Complex	Shares three Typical and Other Common taxa with FCT 25, and one each with FCT 24 and FCT 29	<p>This is a very species-poor quadrat with only nine taxa, two of which are native. FCT15 Forests and woodlands of deep seasonal wetlands and 16 Highly saline seasonal wetlands are discounted because their vegetation does not match that in the survey area. FCT 24 is discounted because the nearest known FCT 24 site occurs about 100 km to the north of the survey area.</p> <p>However, the presence of Tuart (<i>E. gomphocephala</i>) and <i>Agonis flexuosa</i> var. <i>flexuosa</i> indicates that it may be a degraded occurrence of FCT25, which is known to occur nearby.</p> <p>This quadrat was placed in Tuart patch 2, which is >5ha and in a degraded condition.</p>
	WOODP-2_30a2	30a2	0.191					
	PTWALT-1_24	24	0.188					
	MINN-2_25	25	0.175					
	WOODV-1_28	28	0.167					

Table 18. Summary of the results of the Typical and Other Common species comparison for quadrat MQ02.

Name	FCT 24	FCT 25	FCT 26a	FCT 26b	FCT 27	FCT 28	FCT 29a
Typical species	0	1	0	0	0	0	0
Other common species	1	2	0	0	0	0	1
Total	1	3	0	0	0	0	1

5.5 Threatened and Priority Ecological Communities

Vegetation within the survey area was considered for similarity with the TECs and PECs identified during the desktop assessment in **Section 4.5**. From this list, the Federal Tuart woodland TEC (which at a State level is also recognised as a Priority 3 PEC) and the state FCT 25 were assessed for presence within the survey area, and are described in detail below.

The DBCA report form for this TEC PEC occurrence is provided in **Appendix 15**.

5.5.1 State-listed PEC, FCT 25 (Southern *Eucalyptus gomphocephala*-*Agonis flexuosa* woodlands)

The quadrat determined to represent a possible or likely occurrence of degraded patches of FCT 25 (MQ02) was placed within the EgAffW vegetation unit. It was considered that this vegetation unit may represent a possible occurrence of FCT 25. However, all occurrences of this unit are in a Degraded condition, and while MQ02 may indicate the presence of FCT 25, it is not regarded as an occurrence of the PEC, as DBCA (2024e) requires the vegetation to be in Good or better condition, which it was not.

Vegetation unit EgW dominated by Tuart, within the survey area, may also be representative of FCT 25, however, no part of this unit is in Good or better condition, so it too cannot be representative of the PEC either.

5.5.2 Federally-listed Tuart woodland TEC PEC

One patch of Tuart woodland TEC was recorded in the survey area, meeting the key diagnostics (**Table 19**) and area and condition thresholds (**Table 20**). of the ‘Tuart Woodlands and Forests of the SCP’ TEC PEC (DotEE 2019)¹⁰. The total area of this Tuart TEC PEC patch within the survey area is 7.57 ha; however, the distribution of Tuart trees extended well beyond the survey area, indicating that the area of the patch size is understated. The location of the two Tuart TEC patch occurrences is provided in **Figure 21** and a breakdown of the patches according to condition is provided in **Table 21** .

The Tuart tree location is shown in **Appendix 16** and the data collected at each tree (100trees) is provided in **Appendix 17**. The tuart relevé data(TR5) is provided in **Appendix 18**.

Table 19. Assessment of vegetation occurring in the survey area against key diagnostic characteristics for the Tuart woodland TEC (DotEE 2019).

Key Diagnostic Characteristics	Assessment outcome
Patch occurs in the Swan Coastal Plain bioregion.	Yes
Primarily occurs on the Spearwood and Quindalup dune systems but can also occur on the Bassendean dunes and Pinjarra Plain. It can also occur on the banks of rivers and wetlands.	Yes, occurs in the edge of Spearwood dune system
The presence of at least two living established <i>Eucalyptus gomphocephala</i> (Tuart) trees in the uppermost canopy layer, although they may co-occur with trees of other species.	Yes, had at least two living established Tuart trees with a diameter at breast height greater than 50 cm
There is a gap of no more than 60 m between the outer edges of the canopies of adjacent Tuart trees.	Yes, there was a gap of no more than 60 m

Table 20. Tuart woodland TEC Patch 2 assessment site summary

Patch No.	Patch 2
Vegetation condition (Keighery scale)	Degraded to Completely Degraded
Conservation advice condition category	Poor
Area within the survey area	7.57 ha
Total estimated patch size	20 + ha
Understory natives	1-2 native species and < 50% native species
Weed cover	>70%
Does the patch meet the condition and area thresholds	Yes

¹⁰ The description, area and condition thresholds that apply to the EPBC-listed TEC, also apply to the State listed PEC of the same name (DBCA 2023c).

Table 21. Vegetation condition (Keighery scale) within the Tuart TEC patches.

Vegetation condition	Patch 2
Completely Degraded	3.43
Degraded	4.15
Total	7.57

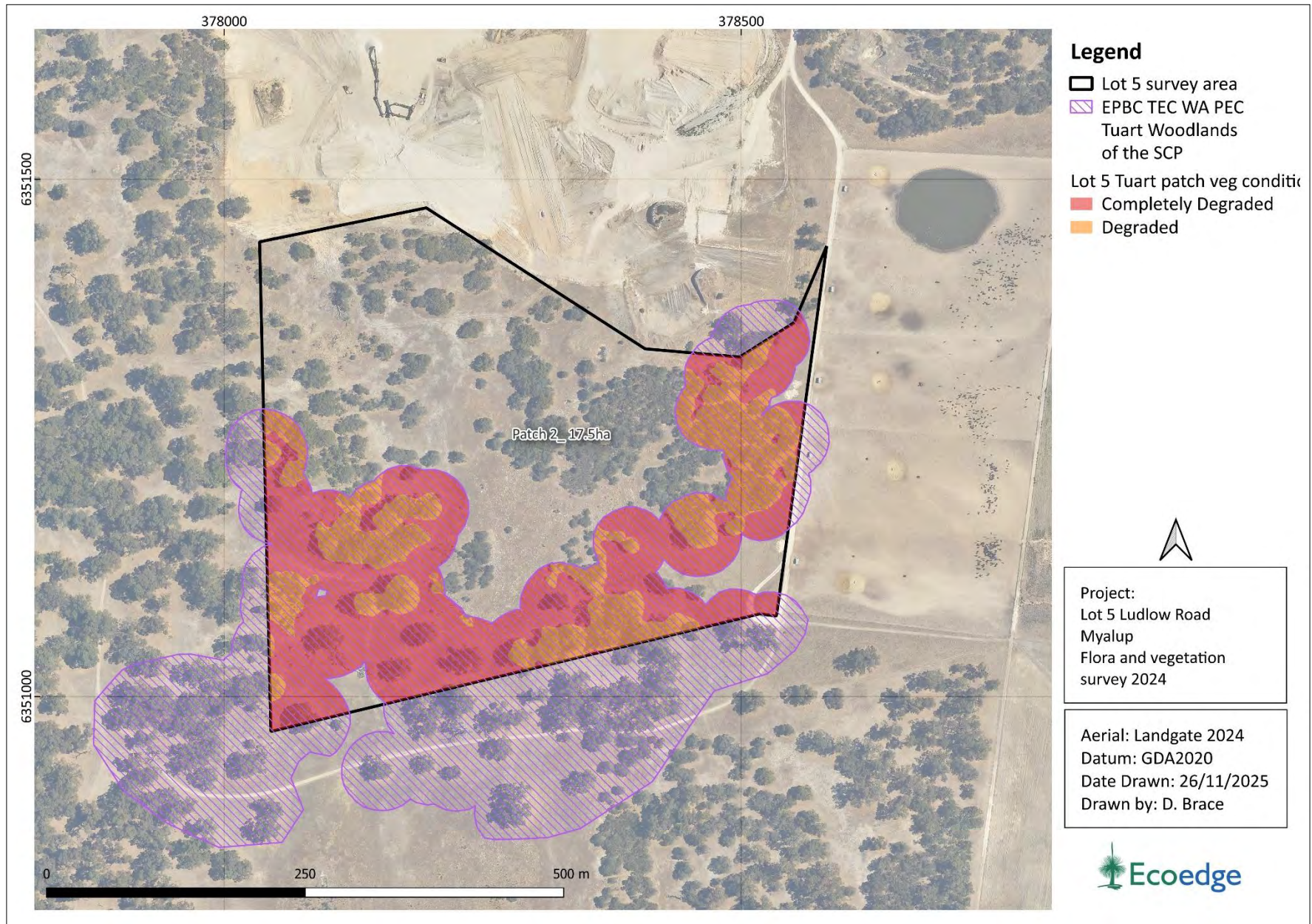


Figure 21. Location and condition of the Tuart woodland TEC patch within the survey area.

6 Conclusions

6.1 Significance of flora

Thirty-seven taxa were identified in the survey area. None of these were listed as Threatened under the Federal EPBC Act 1999 or under the State BC Act 2016.

One Priority listed conservation significant flora taxon (*Eucalyptus foecunda* subsp. *foecunda* (P4). A total of 41 individuals occurred as a single population of low mallee woodland on limestone outcrop within the vegetation unit EffAffW in the survey area.

6.1.1 Post survey likelihood of occurrence

Eucalyptus argutifolia was the only Threatened taxa that may have possibly been found; however, this was targeted and not found within the survey area. The closest recorded known location of this taxon is over 20 km away.

All other Priority taxa (P2-P4) that had a pre-survey likelihood of occurrence of Likely or Possible were Unlikely to be found because any potential habitat was appropriately searched at the correct time of year and wasn't found, or the vegetation within the survey area was too Degraded due to weed invasion and historical grazing.

6.1.2 Pest plants

There were two Declared Pest plants recorded on site: **Gomphocarpus fruticosus* DP (cotton bush) and **Solanum linnaeanum* (DP) (apple of Sodom). Within the Shire of Harvey, cotton bush and apple of Sodom are classified as C3 management under the *Biosecurity and Agriculture Management Act 2007* 'Organisms that should have some form of management applied that will alleviate the harmful impacts of the organism, reduce the numbers or distribution of the organism or prevent or contain the spread of the organism' (DPIRD 2023).

6.2 Significance of vegetation

6.2.1 Tuart Woodland TEC PEC

One patch of Tuart woodland was recorded in the survey area, that meet the key diagnostics of the Tuart Woodlands and Forests of the SCP TEC PEC. This patch is consistent and expected as per the DBCA's Tuart woodland distribution mapping (DBCA 2018).

This patch was regarded as occurrences of the Federally listed critically endangered Tuart Woodland TEC and State P3 listed ecological community of the same name, as they met the DCCEEW (2019) TEC area and condition thresholds. This patch extended beyond the survey area and exceeded five hectares. The total area of the TEC PEC within the survey area is 7.57ha 4.15 ha in Degraded condition and 3.43 ha in a Completely Degraded condition.

6.2.2 FCT 25 Southern *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands

The floristic analysis of quadrat MQ02 showed vegetation units EgAffW and EgW to be possible occurrences of the State priority 3 listed FCT 25 Southern *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands, however both these units were in a Completely Degraded condition, so they were therefore not considered to be an occurrence of the PEC.

6.3 Wetland and watercourse vegetation

There were no wetlands or watercourses within the survey area, nor was there any vegetation typical of a wetland or watercourse within the survey area.

6.4 Vegetation associations and complexes

The mapped vegetation units within the survey area are a reasonable match for the two vegetation complexes mapped across the survey area in terms of dominant species, in particular for the vegetation described for the Cottesloe – Central and South (52), which includes Tuart woodlands and heath on limestone outcrops.

The extent of Cottesloe – Central and South Complex (52) exceeds the 30% pre-European extent retention target (32.16%) both on the Swan Coastal Plain and within the Shire of Harvey, 41.84%. Whereas Yoongarillup complex (56) exceeds the 30% retention target (35.81%) on the Swan Coastal Plain but not within the of Harvey, 29.80% (GoWA 2019).

The survey area is also a reasonable match for Beard's broad description for Association 6. The latest extent (GoWA 2019) for this community is above the 30% threshold within the Shire of Harvey (38.18%), but below 30% at 23.72% at a state level and for the SCP IBRA region

6.5 Linkages and connectivity

The survey area vegetation is linked to three Molloy et al. (2009) mapped regional ecological linkages which are associated with vegetation in the Yalgorup Regional Park and the nearby Myalup State Forest. Vegetation in the northern part of the survey area has been assigned the highest 1b rating and the southern survey area has three vegetation parcels with lower PV ratings 1c, 2b and 2c.

There is no statutory basis for the protection of these ecological linkages. However, the importance of ecological linkages, in general, has been recognised as an environmental policy consideration in EPA and Planning policy over the last decade (EPA 2008 and references therein).

6.6 Environmentally sensitive areas

There are no mapped ESAs within the survey area. The closest ESA is approximately 83 m at its nearest point to the west of the survey area and is associated with the mapped Ramsar listed Peel-Yalgorup wetland system which includes Lake Preston.

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Appendix 1. Threatened and Priority flora likelihood of occurrence assessment rationale.

Rating	Presurvey rationale	Post survey rationale
Recorded		Taxon was or has been recorded in the survey area.
Likely	Known to occur within two kilometres (km) of the survey area with suitable habitat known or predicted to occur within the survey area.	<p>The taxon is known to occur within one km of the survey area and very suitable habitat was present, but the taxon was not observed for one of the following reasons.</p> <ul style="list-style-type: none"> L1. The taxon was dormant at the time of survey and could therefore not be located. L2. The habitat was compromised, for example due to a recent fire. L3. The taxon is non- descript and or very small and difficult to find because, for example, it occurs in large areas of rocky granite outcrops, or within an expanse of open water. L4. The taxon is non-descript and or very small and may be overlooked.
Possible	Known to occur within a two-ten km of the survey area with suitable habitat known or predicted to occur within the survey area.	<p>The taxon is known from within a two to 10 km radius of the survey area, and suitable habitat for the species was present, but despite a thorough search being carried out, the species was not observed. The taxon may however be present for any of the following reasons.</p> <ul style="list-style-type: none"> P1. The taxon was dormant at the time of survey and could therefore not be located. P2. The taxon was not flowering at time of survey and could have been overlooked P3. The habitat was compromised, for example, due to a recent fire. P4. The taxon is non- descript and or very small and difficult to find because, for example, it occurs in large areas of rocky granite outcrops, or within an expanse of open water. P5. The taxon is non-descript and or very small and may have been overlooked. P6. Portions of the survey area with potential habitat could not be accessed, for example due to access restrictions.

Appendix 1. Threatened and Priority flora likelihood of occurrence assessment rationale.

Unlikely	Known or predicted to occur within ten km, but no suitable habitat is known or predicted to occur within the survey area.	<p>The taxon was not found and is unlikely to be present for one or more of the following reasons:</p> <p>U1. A thorough search for the taxon was conducted and no suitable habitat was present given that the taxon is known to be generally restricted to a clearly defined habitat type.</p> <p>U2. Suitable or potential habitat was present and appropriately searched, but the taxon was not observed.</p> <p>U3. Suitable or potential habitat was present, but these areas were too degraded for the taxon to occur, for example, due to weed invasion and/or clearing.</p>
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Example of application of pre and post-survey likelihood of occurrence

Taxon	Cons Status	Flowering	Description	Pre survey likelihood	Post Survey Likelihood
<i>Drakaea elastica</i>	T (EN)	Sep -Oct	Tuberous, perennial, herb, 0.12-0.3 m high. Fl. red, green, yellow. White or grey sand. Low-lying situations adjoining winter-wet swamps.	Likely	Unlikely (U3)

Appendix 2. Quadrat data and photographs (MQ02).



Phase 1

Phase 2

Site Number

MQ02

Date

Phase 1: 13/09/2024

Phase 2: 01/11/2024

Recorder

Ben Eckermann

Easting/Northing

POINT (115.70004502871085 -32.97054725917522)

Soil Type

Grey-brown sandy loam

Landscape Position

Upper slope

Disturbance Type

Heavy grazing; signs of kangaroo and rabbit

Time since last fire

>10 years

Vegetation Condition

Degraded

Vegetation Description

Eucalyptus gomphocephala mid woodland to open forest over *Agonis flexuosa* var. *flexuosa* low open woodland to woodland over **Bromus diandrus*, **Ehrharta longiflora*, **Hordeum leporinum* tussock grassland to closed tussock grassland with **Geranium molle*, **Euphorbia peplus* sparse to open herbland on sandy rises and slopes

Comments

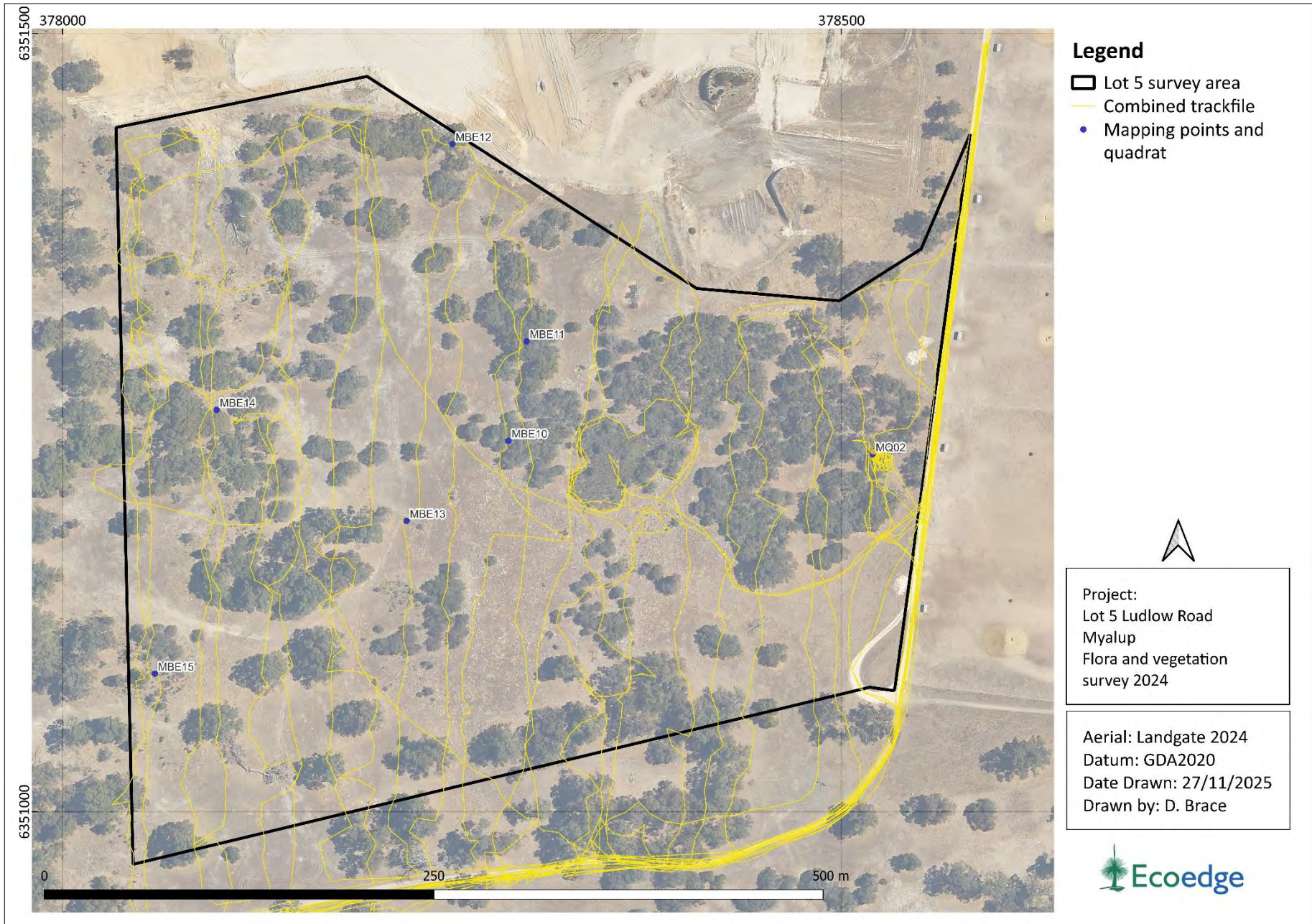
Veg on dunes in better areas is more *Agonis flex* dom, with emergent *Euc gomph*, in the open paddocks it is more *Euc gomph* dom

Taxon Name	PHASE 1		PHASE 2	
	Cover (%)	Height (m)	Cover (%)	Height (m)
<i>Agonis flexuosa</i> var. <i>flexuosa</i>	10 to 30	<10 m	10 to 30	<10 m
<i>*Avena</i> sp.	70 to 100	<0.5 m		
<i>*Bromus diandrus</i>			70 to 100	<0.5 m
<i>*Ehrharta longiflora</i>	70 to 100	<0.1 m	30 to 70	<0.5 m
<i>Eucalyptus gomphocephala</i>	30 to 70	10 to 30 m	30 to 70	10 to 30 m
<i>*Euphorbia peplus</i>	0 to 5	<0.5 m	0 to 5	<0.5 m
<i>*Geranium molle</i>	0 to 5	<0.5 m		
<i>*Hordeum leporinum</i>			10 to 30	<0.5 m
<i>*Lolium perenne</i>			0 to 5	<0.5 m

Appendix 3. Vegetation condition scale (EPA 2016).

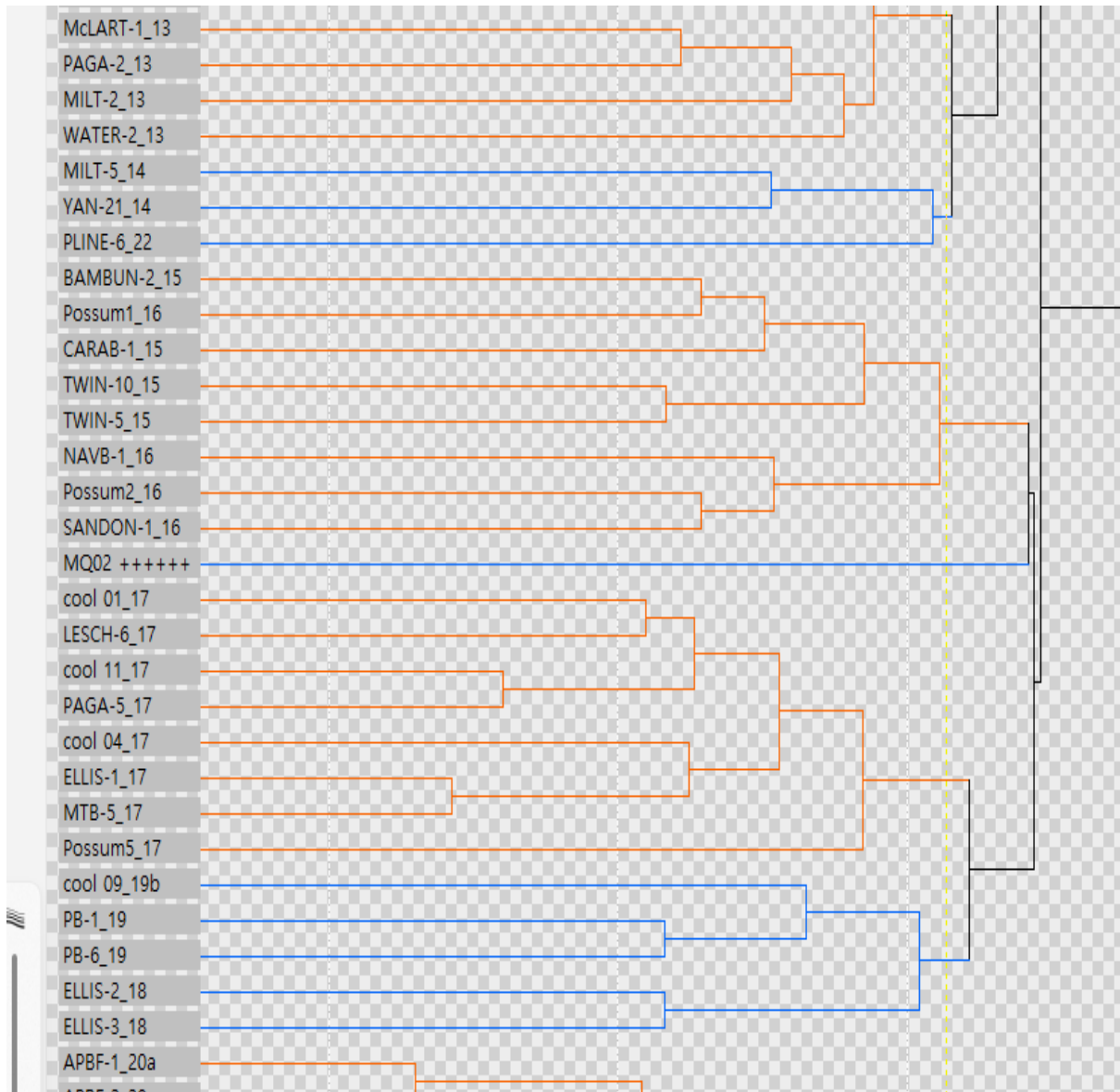
Vegetation Condition	South West and Interzone Botanical Provinces
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
Very Good	Vegetation structure altered, obvious signs of disturbance. 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 disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, 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. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, 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 areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

Appendix 4. Location of mapping notes, quadrat and trackfile within the survey area.



Appendix 5. Part of the full dendrogram: single-site insertion (MQ02).

MQ02 single site insertion.



Appendix 6. Categories of threatened and priority ecological communities under the BC Act.

Conservation code	Category
(T) Threatened ecological community pursuant to Sect 27 of the <i>Biodiversity Conservation Act 2016</i> .	
T	<p>(T) CR – Critically endangered</p> <p>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.</p>
	<p>(T) EN - Endangered</p> <p>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.</p>
	<p>(T) VU - Vulnerable</p> <p>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.</p>
(P) Priority species – possible threatened communities.	
p1	<p>Poorly known communities</p> <p>Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤ 5 occurrences or a total area of ≤ 100ha). 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.</p>

Conservation code	Category
P2	<p>Poorly known communities</p> <p>Communities that are known from few occurrences with a restricted distribution (generally ≤ 10 occurrences or a total area of ≤ 200ha). 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.</p>
P3	<p>Poorly known communities</p> <ul style="list-style-type: none"> a) 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: b) 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; c) communities 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. <p>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.</p>
P4	<p>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.</p> <ul style="list-style-type: none"> 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.
P5	<p>Conservation dependent ecological communities</p> <p>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.</p>

Appendix 7. Categories of Threatened ecological communities under the EPBC Act.

Category	Definition
Critically endangered (CR)	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 (EN)	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 (VU)	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 8. Definitions of conservation codes for Threatened and Priority flora.

Conservation code	Category
(T) Threatened species pursuant to Sect 19 of the BC Act 2016.	
T	<p>(T) CR – Critically endangered</p> <p>Threatened species considered to be <i>“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”</i>.</p>
	<p>(T) EN - Endangered</p> <p>Threatened species considered to be <i>“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”</i>.</p>
	<p>(T) VU - Vulnerable</p> <p>Threatened species considered to be <i>“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”</i>.</p>
(P) Priority species – possible Threatened species.	
P1	<p>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.</p>
P2	<p>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.</p>

Conservation code	Category
P3	<p>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.</p>
P4	<p>(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.</p> <p>(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.</p> <p>(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>

Appendix 9. Categories of Threatened species under the EPBC Act.

Category	Definition
Extinct (Ex)	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 (ExW)	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 (CE)	A native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
Endangered (EN)	A native species is eligible to be included in the endangered category at a particular time if, at that time (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
Vulnerable (VU)	A native species is eligible to be included in the vulnerable category at a particular time if, at that time (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.
Conservation Dependent (CD)	A native species is eligible to be included in the conservation dependent category at a particular time if, at that time, 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 within a period of 5 years.

Appendix 10. Data search results.

AREA REPORT



Area: 364.88 sq km	Species: 1311	Occurrences: 9153
Endemic species: 1	All threatened species: 151	Migratory species: 0
All invasive species: 10	Iconic species: 19	JournalMap Articles: 0
Animals: 406	Plants: 851	Birds: 187

Table of Contents

U120_10km_buffer.zip	3
National Dynamic Land Cover	4
Occurrences	5
Species	6
Endemic Species	30
All threatened species	31
All invasive species	35
Migratory species	36
Lifeform - Algae	37
Lifeform - Angiosperms	38
Lifeform - Bryophytes	39
Lifeform - Dicots	40
Lifeform - FernsAndAllies	51
Lifeform - Fungi	52
Lifeform - Gymnosperms	54
Lifeform - Monocots	55
Lifeform - Plants	61
Further Links	77
References	78

U120_10km_buffer.zip

Area: 364.88 sq km

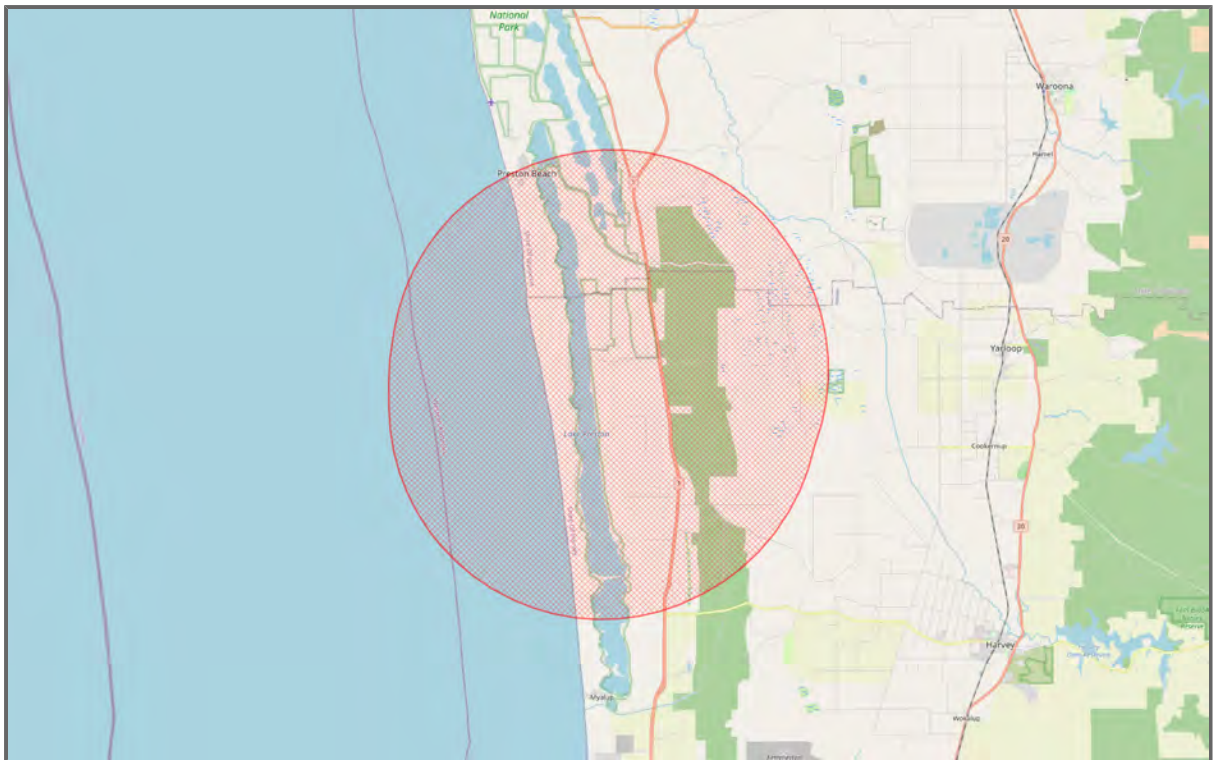
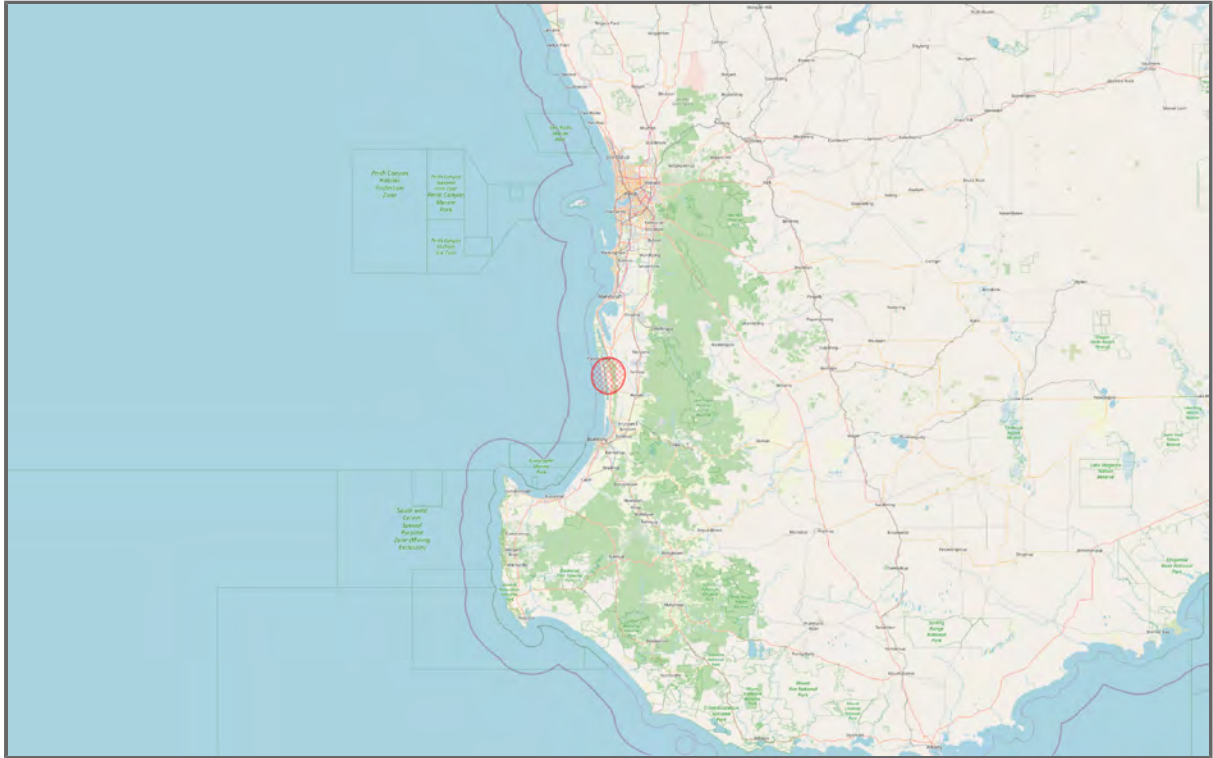


Figure 1 : Map of U120_10km_buffer.zip

National Dynamic Land Cover

The Dynamic Land Cover Dataset is the first nationally consistent and thematically comprehensive land cover reference for Australia. It provides a base-line for reporting on change and trends in vegetation cover and extent. Information about land cover dynamics is essential to understanding and addressing a range of national challenges such as drought, salinity, water availability and ecosystem health. The data is a synopsis of land cover information for every 250m by 250m area of the country from April 2000 to April 2008. The classification scheme used to describe land cover categories in the Dataset conforms to the 2007 International Standards Organisation (ISO) land cover standard (19144-2). The Dataset shows Australian land covers clustered into 34 ISO classes. These reflect the structural character of vegetation, ranging from cultivated and managed land covers (crops and pastures) to natural land covers such as closed forest and open grasslands. [Ref1]

Australia's Dynamic Land Cover: <http://www.ga.gov.au/earth-observation/landcover.html>

National Dynamic Land Cover layer: Classification: Vegetation; Type: Contextual (polygonal); Metadata contact organisation: Geoscience Australia (GA). <https://spatial.ala.org.au/ws/layers/view/more/dlcmv1>

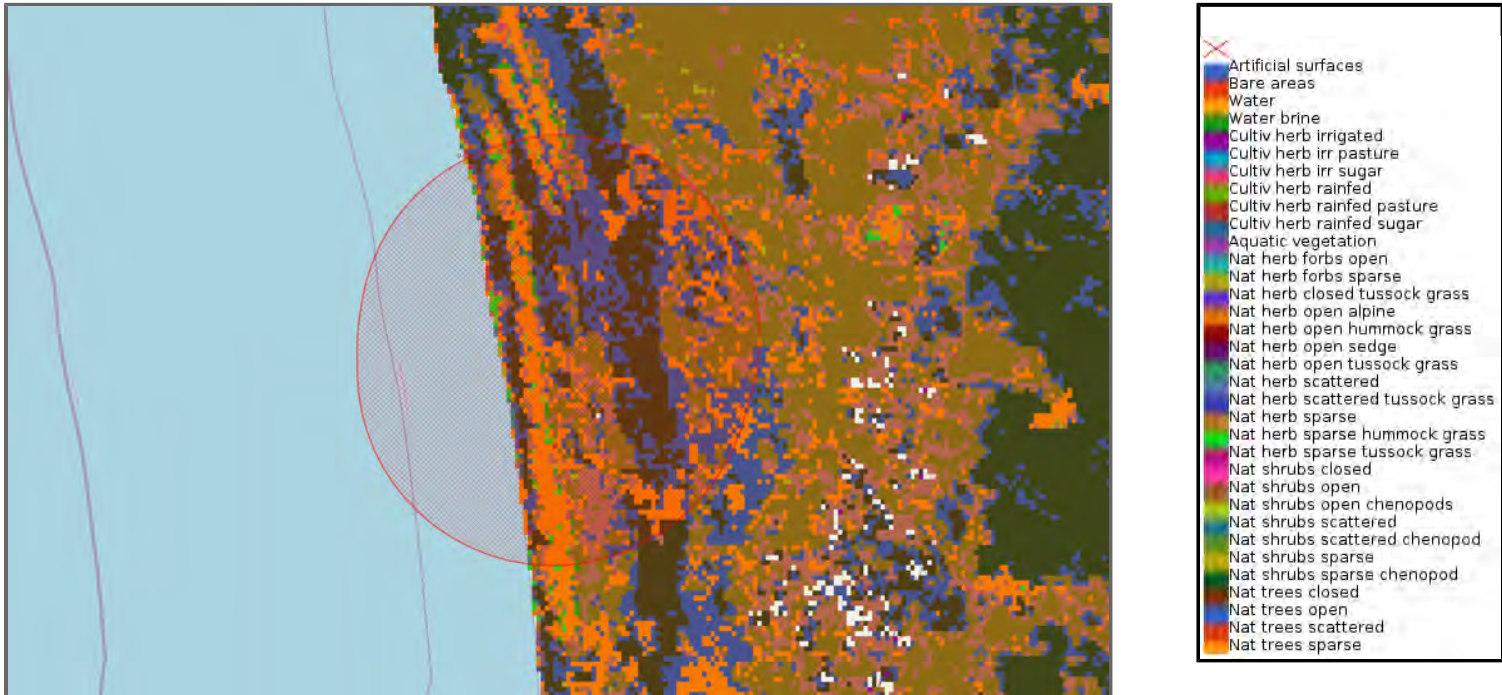


Figure 2 : Map of National Dynamic Land Cover

Table 1: National Dynamic Land Cover

Class/Region	Area (sq km)	% of total area
Primarily Non-Vegetated Bare Areas	0.27	0.09
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Closed	66.26	22.66
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Open	76.03	26.00
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Scattered	0.82	0.28
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Sparse	41.64	14.24
Primarily Non-Vegetated Waterbodies Water	19.76	6.76
Primarily Non-Vegetated Waterbodies Water Brine	2.80	0.96
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Herbaceous Graminoids Open Tussock Grasses	0.41	0.14
Primarily Vegetated Cultivated & Managed Lands Herbaceous Graminoids Rainfed	30.63	10.47
Primarily Vegetated Cultivated & Managed Lands Herbaceous Graminoids Rainfed Pasture	46.50	15.90
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Herbaceous Graminoids Sparse Hummock Grasses	2.12	0.72
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Herbaceous Graminoids Sparse Tussock Grasses	0.07	0.02
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Shrubs Open	0.82	0.28
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Shrubs Sparse	3.56	1.22
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Shrubs Scattered	0.75	0.26

Occurrences

Occurrences: **9153**

Spatially valid records are considered those that do not have any type of flag questioning their location, for example a terrestrial species being recorded in the ocean. [Ref6]

Number of occurrences (spatially valid only): **9149**

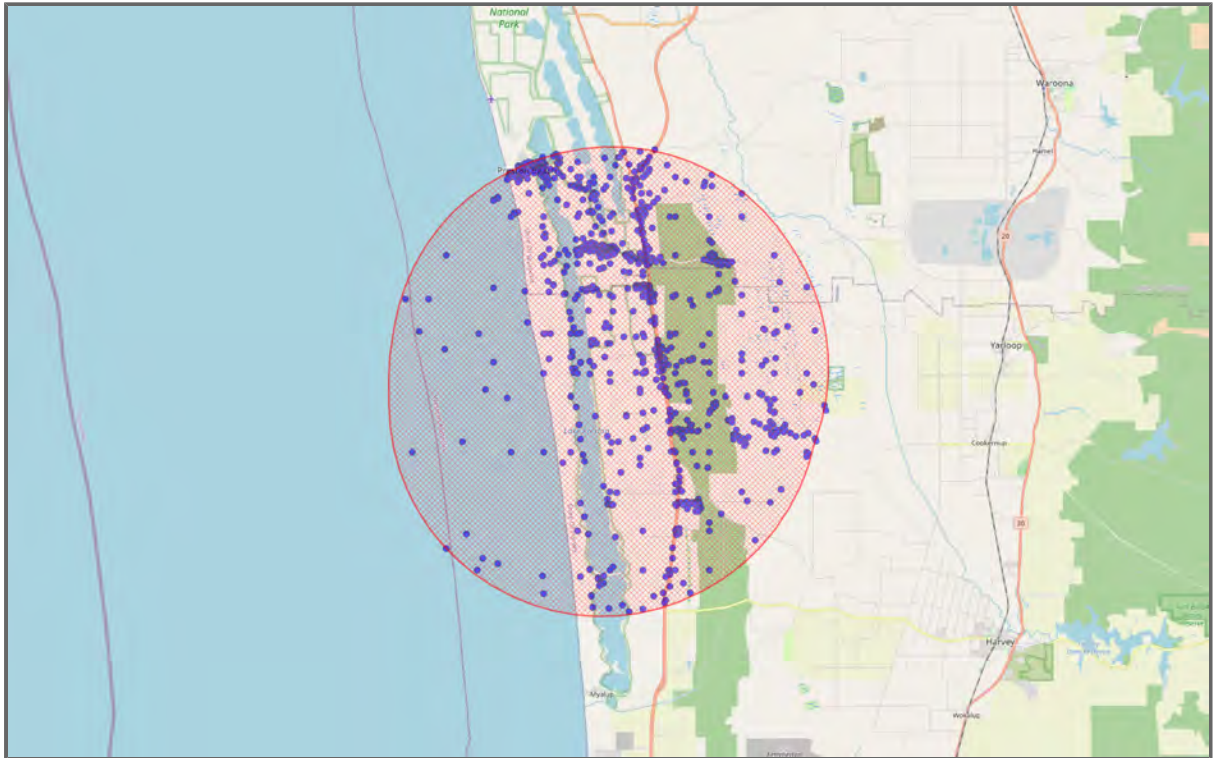


Figure 3 : Map of Occurrences

Species

Species: 1311

Spatially valid records are considered those that do not have any type of flag questioning their location, for example a terrestrial species being recorded in the ocean. [Ref6]

Number of species (spatially valid only): 1311

Table 2: Species

Family	Scientific Name	Common Name	No. Occurrences
Anatidae	<i>Tadorna (Casarca) tadornoides</i>	Australian Shelduck	338
Charadriidae	<i>Thinornis cucullatus</i>	Hooded Plover	286
Charadriidae	<i>Charadrius (Charadrius) ruficapillus</i>	Red-capped Plover	282
Corvidae	<i>Corvus coronoides</i>	Australian Raven	193
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck	167
Artamidae	<i>Gymnorhina tibicen</i>	Australian Magpie	166
Rhipiduridae	<i>Rhipidura (Rhipidura) albiscapa</i>	Grey Fantail	140
Maluridae	<i>Malurus (Malurus) splendens</i>	Splendid Fairy-wren	121
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah	116
Zosteropidae	<i>Zosterops lateralis</i>	Silveryeye	113
Recurvirostridae	<i>Cladorhynchus leucocephalus</i>	Banded Stilt	104
Laridae	<i>Chroicocephalus novaehollandiae</i>	Silver Gull	102
Rhipiduridae	<i>Rhipidura (Sauloprocta) leucophrys</i>	Willie Wagtail	101
Hirundinidae	<i>Hirundo (Hirundo) neoxena</i>	Welcome Swallow	98
Acanthizidae	<i>Acanthiza (Acanthiza) apicalis</i>	Red-rumped Tit	91
Meliphagidae	<i>Epthianura (Epthianura) albifrons</i>	White-fronted Chat	79
Pardalotidae	<i>Pardalotus (Pardalotinus) striatus</i>	Striated Pardalote	78
Scolopacidae	<i>Calidris (Ereunetes) ruficollis</i>	Red-necked Stint	73
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	73
Meliphagidae	<i>Anthochaera (Anthochaera) carunculata</i>	Red Wattlebird	70
Accipitridae	<i>Haliastur sphenurus</i>	Whistling Kite	70
Anatidae	<i>Anas (Anas) superciliosa</i>	Pacific Black Duck	69
Meliphagidae	<i>Gavicalis virescens</i>	Singing Honeyeater	67
Acanthizidae	<i>Gerygone fusca</i>	Western Gerygone	67
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit	67
Alcedinidae	<i>Dacelo (Dacelo) novaeguineae</i>	Laughing Kookaburra	66
Dolichopodidae	<i>Parentia nudicosta</i>		66
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	60
Motacillidae	<i>Anthus (Anthus) novaeseelandiae</i>	Australian Pipit	55
Petroicidae	<i>Petroica (Petroica) boodang</i>	Scarlet Robin	52
Threskiornithidae	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	52
Anatidae	<i>Cygnus atratus</i>	Black Swan	50
Hirundinidae	<i>Petrochelidon (Hylochelidon) nigricans</i>	Tree Martin	48
Accipitridae	<i>Aquila (Uroaetus) audax</i>	Wedge-tailed Eagle	45
Artamidae	<i>Cracticus torquatus</i>	Grey Butcherbird	45
Anatidae	<i>Anas gracilis</i>	Grey Teal	44
Motacillidae	<i>Anthus (Anthus) novaeseelandiae novaeseelandiae</i>		44
Columbidae	<i>Phaps (Phaps) chalcoptera</i>	Common Bronzewing	43
Campephagidae	<i>Coracina (Coracina) novaehollandiae</i>	Black-faced Cuckoo-shrike	41
Pachycephalidae	<i>Pachycephala (Alisterornis) rufiventris</i>	Rufous Whistler	41
Acanthizidae	<i>Smicronis brevirostris</i>	Weebill	41
Meliphagidae	<i>Lichmera (Lichmera) indistincta</i>	Brown Honeyeater	40
Dolichopodidae	<i>Parentia perthensis</i>		40

Acanthizidae	<i>Sericornis (Sericornis) frontalis maculatus</i>	South-western Spotted Scrubwren	40
Scolopacidae	<i>Calidris (Erolia) ferruginea</i>	Curlew Sandpiper	37
Threskiornithidae	<i>Threskiornis moluccus</i>	Australian White Ibis	37
Meliphagidae	<i>Phylidonyris (Meliornis) novaehollandiae</i>	New Holland Honeyeater	35
Recurvirostridae	<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet	35
Zamiaceae	<i>Macrozamia riedlei</i>	Zamia Palm	33
Orchidaceae	<i>Pterostylis vittata</i>	Banded Greenhood	31
Cacatuidae	<i>Zanda latirostris</i>	Short-billed Black-cockatoo	31
Falconidae	<i>Falco (Tinnunculus) cenchroides</i>	Nankeen Kestrel	30
Orchidaceae	<i>Caladenia latifolia</i>	Pink Fairies	29
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	28
Dilleniaceae	<i>Hibbertia hypericoides</i>	Yellow Buttercups	28
Dilleniaceae	<i>Hibbertia racemosa</i>	Stalked Guinea Flower	28
Pachycephalidae	<i>Pachycephala (Pachycephala) pectoralis</i>	Golden Whistler	28
Apiaceae	<i>Daucus glochidiatus</i>	Native Carrot	27
Acanthizidae	<i>Acanthiza (Geobasileus) chrysorrhoa</i>	Yellow-rumped Thornbill	26
Pachycephalidae	<i>Pachycephala (Pachycephala) pectoralis fuliginosa</i>	South Australian Golden Whistler	26
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt	25
Orchidaceae	<i>Cyrtostylis huegelii</i>	Midge Orchid	24
Colletidae	<i>Euhesma (Euhesma) morrisoni</i>		24
Meropidae	<i>Merops (Merops) ornatus</i>	Rainbow Bee-eater	24
Orchidaceae	<i>Pterostylis ectypha</i>	Thick-sepaled Snail Orchid	24
Psittacidae	<i>Purpurecephalus spurius</i>	Red-capped Parrot	24
Charadriidae	<i>Thinornis cucullatus cucullatus</i>	Eastern Hooded Dotteral	24
Phalacrocoracidae	<i>Phalacrocorax (Phalacrocorax) varius</i>	Pied Cormorant	23
Charadriidae	<i>Charadrius (Charadrius) leschenaultii</i>	Greater Sand Plover	22
Asteraceae	<i>Hypochaeris glabra</i>	Smooth Cat's Ear	22
Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian Pelican	22
Fabaceae	<i>Acacia truncata</i>		21
Pachycephalidae	<i>Colluricincla (Colluricincla) harmonica</i>	Grey Shrike-thrush	21
Dolichopodidae	<i>Parentia caldyanup</i>		21
Locustellidae	<i>Poodytes gramineus</i>	Little Grassbird	21
Acanthizidae	<i>Sericornis (Sericornis) frontalis</i>	White-browed Scrubwren	21
Araliaceae	<i>Trachymene pilosa</i>	Dwarf Trachymene	21
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>	Grasstree	21
Proteaceae	<i>Banksia attenuata</i>	Coast Banksia	20
Restionaceae	<i>Desmocladius flexuosus</i>		20
Santalaceae	<i>Leptomeria ellytes</i>		19
Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	19
Ericaceae	<i>Astroloma microcalyx</i>	Native Cranberry	18
Proteaceae	<i>Banksia grandis</i>	Giant Banksia	18
Orchidaceae	<i>Caladenia flava</i>	Cowslip Orchid	18
Accipitridae	<i>Circus approximans</i>	Swamp Harrier	18
Fabaceae	<i>Hardenbergia comptoniana</i>	Western Australian Coral-pea	18
Ericaceae	<i>Leucopogon parviflorus</i>	Coast Beard-heath	18
Dolichopodidae	<i>Nothorhaphium aemulans</i>	Long-legged Fly	18
Phyllanthaceae	<i>Phyllanthus calycinus</i>	Snowdrop Spurge	18
Orchidaceae	<i>Pterostylis pyramidalis</i>	Tall Snail Orchid	18
Asparagaceae	<i>Sowerbaea laxiflora</i>	Vanilla Lily	18
Scolopacidae	<i>Calidris (Calidris) tenuirostris</i>	Great Knot	17
Droseraceae	<i>Drosera stolonifera</i>	Leafy Sundew	17
Accipitridae	<i>Hieraaetus (Hieraaetus) morphnoides</i>	Little Eagle	17
Cyperaceae	<i>Lepidosperma squamatum</i>		17
Psittacidae	<i>Polytelis anthopeplus</i>	Regent Parrot	17
Alcedinidae	<i>Todiramphus (Todiramphus) sanctus</i>	Sacred Kingfisher	17
Apiaceae	<i>Xanthosia huegelii</i>	Hairy Xanthosia	17

Artamidae	Artamus (Angroyan) cyanopterus	Dusky Woodswallow	16
Anatidae	Biziura lobata	Musk Duck	16
Cacatuidae	Calyptrorhynchus (Calyptrorhynchus) banksii	Red-tailed Black Cockatoo	16
Myrtaceae	Eucalyptus petrensis	Limestone Mallee	16
Myrtaceae	Melaleuca systema	Coastal Honeymyrtle	16
Fabaceae	Acacia pulchella	Prickly Moses	15
Accipitridae	Accipiter (Leucospiza) fasciatus	Brown Goshawk	15
Orchidaceae	Caladenia flava subsp. flava	Cowslip Orchid	15
Lauraceae	Cassytha glabella	Slender Dodder-laurel	15
Cuculidae	Chalcites lucidus	Shining Bronze-cuckoo	15
Asparagaceae	Lomandra caespitosa	Tufted Mat-rush	15
Asparagaceae	Lomandra maritima	Maritime Mat Rush	15
Psittacidae	Neophema (Neonanodes) elegans	Elegant Parrot	15
Asparagaceae	Thysanotus manglesianus	Fringed Lily	15
Orchidaceae	Caladenia georgei	Tuart Spider Orchid	14
Haemodoraceae	Conostylis aculeata	Prickly Conostylis	14
Myrtaceae	Eucalyptus gomphocephala	Tuart	14
Araliaceae	Hydrocotyle diantha	Kangaroo Island Pennywort	14
Rutaceae	Philothea spicata	Pepper And Salt	14
Fabaceae	Templetonia retusa	Cockies Tongue	14
Poaceae	Aira caryophyllea	Silvery Hairgrass	13
Ardeidae	Ardea pacifica	White-necked Heron	13
Droseraceae	Drosera erythrorhiza	Red Ink Sundew	13
Rallidae	Fulica atra	Eurasian Coot	13
Lamiaceae	Hemiandra pungens	Snakebush	13
Recurvirostridae	Himantopus himantopus leucocephalus	Pied Stilt	13
Cyperaceae	Lepidosperma angustatum		13
Santalaceae	Leptomeria cunninghamii		13
Ericaceae	Leucopogon propinquus		13
Scrophulariaceae	Myoporum caprarioides	Slender Myoporum	13
Phalacrocoracidae	Phalacrocorax (Phalacrocorax) sulcirostris	Little Black Cormorant	13
Orchidaceae	Pterostylis angulata	Helena River Snail Orchid	13
Orchidaceae	Pterostylis crispula	Slender Snail Orchid	13
Fabaceae	Sphaerolobium calcicola		13
Poaceae	Briza minor	Lesser Quaking-grass	12
Cuculidae	Cacomantis (Vidgenia) flabelliformis	Fan-tailed Cuckoo	12
Cuculidae	Chalcites		12
Myrtaceae	Melaleuca teretifolia	Banbar	12
Orchidaceae	Pterostylis frenchii	Tuart Rufous Greenhood	12
Orchidaceae	Pterostylis nana	Dwarf Greenhood	12
Asteraceae	Rhodanthe citrina	Pale Immortelle	12
Podicipedidae	Tachybaptus novaehollandiae	Australasian Grebe	12
Colchicaceae	Wurmbea monantha		12
Scolopacidae	Arenaria interpres	Ruddy Turnstone	11
Orobanchaceae	Bellardia trixago	Bellardia	11
Orchidaceae	Caladenia nobilis	Noble Spider Orchid	11
Anatidae	Chenonetta jubata	Australian Wood Duck	11
Tomichiidae	Coxiella (Coxiella) striatula	Freshwater Snail	11
Droseraceae	Drosera porrecta	Leafy Sundew	11
Accipitridae	Elanus axillaris	Black-shouldered Kite	11
Falconidae	Falco (Falco) longipennis	Australian Hobby	11
Cyperaceae	Gahnia trifida	Cutting Grass	11
Proteaceae	Hakea oligoneura		11
Proteaceae	Hakea ruscifolia	Candle Hakea	11
Proteaceae	Hakea varia	Variable-leaved Hakea	11
Scincidae	Hemiergis quadrilineata	Two-toed Earless Skink	11

Cyperaceae	<i>Isolepis marginata</i>	Little Club-rush	11
Primulaceae	<i>Lysimachia arvensis</i>	Pimpernel	11
Ericaceae	<i>Lysinema ciliatum</i>	Curry Flower	11
Macrostromidae	<i>Macrostromum</i>		11
Poaceae	<i>Poa drummondiana</i>	Knotted Poa	11
Orchidaceae	<i>Pterostylis</i>	Greenhoods	11
Hemerocallidaceae	<i>Tricoryne elatior</i>	Yellow Rush Lily	11
Fabaceae	<i>Acacia saligna</i>	Golden Wreath Wattle	10
Accipitridae	<i>Accipiter (Paraspizias) cirrocephalus</i>	Collared Sparrowhawk	10
Myrtaceae	<i>Agonis flexuosa</i>	Willow Myrtle	10
Orobanchaceae	<i>Bellardia viscosa</i>	Yellow Bartsia	10
Fabaceae	<i>Bossiaea eriocarpa</i>	Common Brown Pea	10
Polygalaceae	<i>Comesperma confertum</i>		10
Myrtaceae	<i>Eucalyptus decipiens</i>	Redheart	10
Fabaceae	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea	10
Proteaceae	<i>Grevillea preissii</i>	Spider Net Grevillea	10
Proteaceae	<i>Hakea prostrata</i>	Harsh Hakea	10
Proteaceae	<i>Hakea trifurcata</i>	Two-leaf Hakea	10
Myrtaceae	<i>Hypocalymma robustum</i>	Swan River Myrtle	10
Asteraceae	<i>Lagenophora huegelii</i>	Coarse Bottle-daisy	10
Loganiaceae	<i>Logania vaginalis</i>	White Spray	10
Myrtaceae	<i>Melaleuca incana</i> subsp. <i>incana</i>	Grey Honey-myrtle	10
Fabaceae	<i>Melilotus indicus</i>	Sweet Melilot	10
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	10
Asteraceae	<i>Olearia axillaris</i>	Coast Daisy-bush	10
Orchidaceae	<i>Pterostylis recurva</i>	Recurved Shell Orchid	10
Asteraceae	<i>Sonchus oleraceus</i>	Common Sow-thistle	10
Araliaceae	<i>Trachymene coerulea</i>	Rottnest Island Daisy	10
Poaceae	<i>Vulpia myuros</i>	Fescue	10
Asteraceae	<i>Angianthus preissianus</i>	Salt Angianthus	9
Artamidae	<i>Artamus (Angroyan) cinereus</i>	Black-faced Woodswallow	9
Proteaceae	<i>Banksia ilicifolia</i>	Holly Leaved Banksia	9
Cacatuidae	<i>Calyptorhynchus</i>		9
Centrolepidaceae	<i>Centrolepis drummondiana</i>	Drummond's Centrolepis	9
Myrtaceae	<i>Eucalyptus foecunda</i>	Narrow-leaved Red Mallee	9
Santalaceae	<i>Exocarpos sparteus</i>	Broombush	9
Violaceae	<i>Hybanthus calycinus</i>	Wild Violet	9
Asteraceae	<i>Ixiolaena viscosa</i>	Sticky Ixiolaena	9
Campanulaceae	<i>Lobelia tenuior</i>	Slender Lobelia	9
Accipitridae	<i>Lophoictinia isura</i>	Square-tailed Kite	9
Buthidae	<i>Lychas</i>		9
Anarthriaceae	<i>Lyginia barbata</i>		9
Iridaceae	<i>Patersonia occidentalis</i>	Long Purple-flag	9
Loganiaceae	<i>Phyllangium paradoxum</i>	Wiry Mitrewort	9
Orchidaceae	<i>Pyrorchis nigricans</i>	Black Fire-orchid	9
Ranunculaceae	<i>Ranunculus pumilio</i>	Ferny Buttercup	9
Cyperaceae	<i>Schoenus lanatus</i>	Woolly Bog-rush	9
Columbidae	<i>Spilopelia senegalensis</i>	Laughing Turtle-dove	9
Asparagaceae	<i>Thysanotus multiflorus</i>	Many-flowered Fringe	9
Fabaceae	<i>Trifolium dubium</i>	Suckling Clover	9
Scolopacidae	<i>Tringa (Glottis) nebularia</i>	Common Greenshank	9
Asteraceae	<i>Ursinia anthemoides</i>	Ursinia	9
Proteaceae	<i>Xylomelum occidentale</i>	Woody Pear	9
Cacatuidae	<i>Zanda baudinii</i>	Long-billed Black-cockatoo	9
Casuarinaceae	<i>Allocasuarina humilis</i>	Dwarf Sheoak	8
Asteraceae	<i>Asteridea pulverulenta</i>	Common Bristle Daisy	8

Proteaceae	<i>Banksia littoralis</i>	Swamp Banksia	8
Scolopacidae	<i>Calidris (Erolia) acuminata</i>	Sharp-tailed Sandpiper	8
Myrtaceae	<i>Calothamnus quadrifidus</i>	Common Net Bush	8
Chelidae	<i>Chelodina (Macrochelodina) oblonga</i>	Northern Snake-necked Turtle	8
Ranunculaceae	<i>Clematis pubescens</i>	Common Clematis	8
Haemodoraceae	<i>Conostylis juncea</i>		8
Myrtaceae	<i>Corymbia haematoxylon</i>	Mountain Marri	8
Goodeniaceae	<i>Dampiera linearis</i>	Wedge-leaved Dampiera	8
Dasypogonaceae	<i>Dasypogon bromeliifolius</i>	Pineapple Bush	8
Charadriidae	<i>Euseyornis melanops</i>	Black-fronted Dotterel	8
Cyperaceae	<i>Evandra pauciflora</i>		8
Falconidae	<i>Falco (Ieracidea) berigora</i>	Brown Falcon	8
Vespertilionidae	<i>Falsistrellus mackenziei</i>	Western False Pipistrelle	8
Rallidae	<i>Gallinula (Gallinula) tenebrosa</i>	Dusky Moorhen	8
Geraniaceae	<i>Geranium molle</i>	Soft Geranium	8
Apiaceae	<i>Homalosciadium homalocarpum</i>		8
Fabaceae	<i>Hovea trisperma</i>	Common Hovea	8
Restionaceae	<i>Hypolaena exsulca</i>		8
Cyperaceae	<i>Lepidosperma longitudinale</i>	Pithy Sword-sedge	8
Asparagaceae	<i>Lomandra micrantha</i> subsp. <i>micrantha</i>	Small-flower Mat-rush	8
Asparagaceae	<i>Lomandra micrantha</i>	Small-flower Mat-rush	8
Asparagaceae	<i>Lomandra sericea</i>	Silky Mat Rush	8
Myrtaceae	<i>Melaleuca raphiophylla</i>	Swamp Paperbark	8
Myrtaceae	<i>Melaleuca thymoides</i>		8
Poaceae	<i>Microlaena stipoides</i>	Weeping Grass	8
Rubiaceae	<i>Opercularia vaginata</i>	Dog Weed	8
Proteaceae	<i>Petrophile linearis</i>	Pixie Mops	8
Rallidae	<i>Porphyrio (Porphyrio) porphyrio melanotus</i>	Australasian Purple Swamphen	8
Orchidaceae	<i>Pterostylis</i> sp. crinkled leaf (G.J.Keighery 13426)		8
Asteraceae	<i>Quinetia urvillei</i>	Quinetia	8
Goodeniaceae	<i>Scaevola anchlussifolia</i>	Silky Scaevola	8
Rhamnaceae	<i>Spyridium globulosum</i>	Basket Bush	8
Cyperaceae	<i>Tetraria octandra</i>		8
Scolopacidae	<i>Tringa (Heteroscelus) brevipes</i>	Grey-tailed Tattler	8
Fabaceae	<i>Acacia semitrullata</i>		7
Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian Darter	7
Solanaceae	<i>Anthocercis ilicifolia</i>	Holly-leaf Tailflower	7
Araneidae	<i>Austracantha minax</i>	Jewel Spider	7
	CHORDATA	Chordates	7
Cacatuidae	<i>Cacatua (Licmetis) sanguinea</i>	Little Corella	7
Orchidaceae	<i>Caladenia</i>	Fairy Orchids	7
Portulacaceae	<i>Calandrinia brevipedata</i>	Short-stalked Purslane	7
Portulacaceae	<i>Calandrinia liniflora</i>	Parakeelya	7
Caryophyllaceae	<i>Cerastium glomeratum</i>	Common Mouse-ear Chickweed	7
Restionaceae	<i>Chaetanthus aristatus</i>	Bearded Twinerush	7
Asparagaceae	<i>Dichopogon capillipes</i>		7
Sapindaceae	<i>Diplopeltis huegelii</i> subsp. <i>huegelii</i>		7
Lycaenidae	<i>Erina gilesi</i>		7
Fabaceae	<i>Gastrolobium linearifolium</i>		7
Proteaceae	<i>Grevillea preissii</i> subsp. <i>preissii</i>		7
Limnodynastidae	<i>Heleioporus eyrei</i>	Moaning Frog	7
Brassicaceae	<i>Heliophila pusilla</i>	Fine Sunflax	7
Araliaceae	<i>Hydrocotyle callicarpa</i>	Tiny Pennywort	7
Araliaceae	<i>Hydrocotyle hispidula</i>		7
Asparagaceae	<i>Lomandra nigricans</i>		7
Myrtaceae	<i>Melaleuca cuticularis</i>	Western Swamp-paperbark	7

Punctidae	Paralaoma	Pinhead Snails	7
Caryophyllaceae	Petrorhagia dubia	Velvet Pink	7
Celastraceae	Stackhousia monogyna	Creamy Candles	7
Stylidiaceae	Stylidium paludicola	Swamp Reed Triggerplant	7
Asparagaceae	Thysanotus patersonii	Twining Fringe-lily	7
Fabaceae	Acacia willdenowiana	Grass Wattle	6
Meliphagidae	Acanthorhynchus superciliosus	Western Spinebill	6
Proteaceae	Adenanthos obovatus	Basket Flower	6
Proteaceae	Banksia dallanneyi		6
Proteaceae	Banksia nivea		6
Asteraceae	Brachyscome iberidifolia	Brachyscome	6
Colchicaceae	Burchardia congesta	Milkmaids	6
Orchidaceae	Caladenia vulgata	Spider Orchid	6
Lauraceae	Cassytha flava	Dodder Laurel	6
Hygromiidae	Cochlicella barbara	White Snail	6
Fabaceae	Daviesia physodes		6
Droseraceae	Drosera macrantha subsp. macrantha		6
Droseraceae	Drosera macrantha	Bridal Rainbow	6
Fabaceae	Gompholobium confertum		6
Haematopodidae	Haematopus longirostris	Australian Pied Oystercatcher	6
Accipitridae	Haliaeetus (Pontoaetus) leucogaster	White-bellied Sea-eagle	6
Araliaceae	Hydrocotyle scutellifera	Western Shield Pennywort	6
Campanulaceae	Isotoma hypocrateriformis	Woodbridge Poison	6
Orchidaceae	Leptoceras menziesii	Hare Orchid	6
Santalaceae	Leptomeria empetriformis		6
Pelodyadidae	Litoria moorei	Western Green And Golden Bell Frog	6
Juncaceae	Luzula meridionalis	Common Wood-rush	6
Asteraceae	Millotia myosotidifolia	Broad-leaf Millotia	6
Phasianidae	Pavo cristatus	Indian Peafowl	6
Proteaceae	Petrophile serruriae		6
Poaceae	Polypogon tenellus		6
Cyperaceae	Schoenus curvifolius		6
Anatidae	Spatula rhynchotis	Australasian Shoveler	6
Caryophyllaceae	Stellaria media	Chickweed	6
Stylidiaceae	Stylidium junceum	Reed Triggerplant	6
Stylidiaceae	Stylidium repens	Matted Triggerplant	6
Stylidiaceae	Stylidium schoenoides	Cow Kicks	6
Leptoceridae	Symphitoneuria wheeleri	Caddisfly	6
Helicidae	Theba pisana	White Italian Snail	6
Asphodelaceae	Trachyandra divaricata	Dune Onion Weed	6
Juncaginaceae	Triglochin trichophora	Torpedo Arrowgrass	6
Rhamnaceae	Trymalium ledifolium var. ledifolium		6
Ardeidae	Ardea alba modesta	Great Egret	5
Asphodelaceae	Asphodelus fistulosus	Onion Weed	5
Poaceae	Austrostipa compressa		5
Proteaceae	Banksia	Banksia	5
Pittosporaceae	Billardiera variifolia		5
Poaceae	Bromus diandrus	Great Brome	5
	CHARADRIIFORMES		5
Scolopacidae	Calidris (Calidris) canutus	Red Knot	5
Lauraceae	Cassytha racemosa	Dodder Laurel	5
Carabidae	Clivina		5
Phasianidae	Coturnix (Coturnix) pectoralis	Stubble Quail	5
Crassulaceae	Crassula colorata	Dense Stonecrop	5
Rhamnaceae	Cryptandra mutila		5
Sapindaceae	Diplopeltis huegelii		5

Droseraceae	<i>Drosera pallida</i>	Pale Rainbow	5
Droseraceae	<i>Drosera squamosa</i>		5
Orchidaceae	<i>Elythranthera brunonis</i>	Purple Enamel Orchid	5
Petroicidae	<i>Eopsaltria (Eopsaltria) griseogularis</i>	Western Yellow Robin	5
Orchidaceae	<i>Eriochilus dilatatus</i> subsp. <i>dilatatus</i>	White Bunny Orchid	5
Myrtaceae	<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	Jarrah	5
Myrtaceae	<i>Eucalyptus marginata</i>	Jarrah	5
Euphorbiaceae	<i>Euphorbia paralias</i>	Sea Spurge	5
Araliaceae	<i>Hydrocotyle alata</i>		5
Cyperaceae	<i>Isolepis cernua</i>	Nodding Club Rush	5
Fabaceae	<i>Jacksonia furcellata</i>	Grey Stinkwood	5
Fabaceae	<i>Jacksonia sternbergiana</i>	Stinkwood	5
Cyperaceae	<i>Lepidosperma</i>	Swordsedges	5
Ericaceae	<i>Leucopogon racemulosus</i>		5
Limnodynastidae	<i>Limnodynastes dorsalis</i>	Western Banjo Frog	5
Linaceae	<i>Linum marginale</i>	Native Flax	5
Asparagaceae	<i>Lomandra suaveolens</i>		5
Myrtaceae	<i>Melaleuca lanceolata</i>	Dryland Tea-tree	5
Myrtaceae	<i>Melaleuca pauciflora</i>		5
Myrtaceae	<i>Melaleuca</i>	Tea-tree	5
Menyanthaceae	<i>Ornduffia albiflora</i>		5
Fabaceae	<i>Ornithopus compressus</i>	Neat Bird's-foot	5
Urticaceae	<i>Parietaria debilis</i>	Shade Pellitory	5
Geraniaceae	<i>Pelargonium capitatum</i>	Rose-scented Pelargonium	5
Haemodoraceae	<i>Phlebocarya ciliata</i>		5
Thymelaeaceae	<i>Pimelea rosea</i>	Rose Banjine	5
Asteraceae	<i>Podotheca angustifolia</i>	Sticky Long-heads	5
Podicipedidae	<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe	5
Orchidaceae	<i>Prasophyllum elatum</i>	Tall Leek-orchid	5
Orchidaceae	<i>Prasophyllum giganteum</i>	Bronze Leek Orchid	5
Orchidaceae	<i>Prasophyllum macrostachyum</i>	Laughing Leek Orchid	5
Poaceae	<i>Rostraria cristata</i>	Annual Cats-tail	5
Primulaceae	<i>Samolus junceus</i>		5
Cyperaceae	<i>Schoenus efoliatus</i>		5
Cyperaceae	<i>Schoenus grandiflorus</i>	Large Flowered Bog-rush	5
Proteaceae	<i>Stirlingia latifolia</i>	Blueboy	5
Stylidiaceae	<i>Stylidium brunonianum</i>	Pink Fountain Triggerplant	5
Gyrostemonaceae	<i>Tersonia cyathiflora</i>	Button Creeper	5
Malvaceae	<i>Thomasia triphylla</i>		5
Asparagaceae	<i>Thysanotus arenarius</i>	Sand-dune Fringed Lily	5
Fabaceae	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	5
Myrtaceae	<i>Verticordia nitens</i>	Yellow Morrison	5
Fabaceae	<i>Acacia pulchella</i> var. <i>pulchella</i>	Prickly Moses	4
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	4
Euphorbiaceae	<i>Adriana quadripartita</i>	Rare Bitter-bush	4
Malvaceae	<i>Alyogyne</i> sp. Rockingham (G.J.Keighery 14463)		4
Anarthriaceae	<i>Anarthria prolifera</i>		4
Anatidae	<i>Anas (Nettion) castanea</i>	Chestnut Teal	4
Solanaceae	<i>Anthocercis</i>		4
Chthoniidae	<i>Austrochthonius</i>		4
Rutaceae	<i>Boronia capitata</i> subsp. <i>gracilis</i>		4
Poaceae	<i>Briza maxima</i>	Large Quaking-grass	4
Colchicaceae	<i>Burchardia umbellata</i>	Milkmaids	4
Myrtaceae	<i>Calothamnus lateralis</i>		4
Cyperaceae	<i>Carex thecata</i>		4
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo	4

Myrtaceae	Chamelaucium uncinatum	Geraldton Wax	4
Gekkonidae	Christinus marmoratus	Marbled Gecko	4
Columbidae	Columba (Columba) livia	Rock Dove	4
Orchidaceae	Corybas recurvus	Helmet Orchid	4
Myrtaceae	Corymbia calophylla	Marri	4
Crassulaceae	Crassula colorata var. colorata	Dense Crassula	4
Convolvulaceae	Cuscuta epithymum	Common Dodder	4
Neosittidae	Daphoenositta (Neositta) chrysoptera	Varied Sittella	4
Orchidaceae	Disa bracteata	South African Orchid	4
Orchidaceae	Diuris micrantha	Dwarf Bee Orchid	4
Orchidaceae	Diuris porphyrochila	Yalgorup Donkey Orchid	4
Orchidaceae	Eriochilus dilatatus	White Bunny Orchid	4
Funariaceae	Funaria hygrometrica	Common Cord-moss	4
Proteaceae	Hakea	Needle Bushes	4
Haloragaceae	Haloragis scoparia		4
Lamiaceae	Hemiandra glabra		4
Lamiaceae	Hemigenia microphylla		4
Dilleniaceae	Hibbertia stellaris	Guinea Flower	4
Fabaceae	Hovea trisperma var. trisperma	Common Hovea	4
Asteraceae	Hyalosperma cotula		4
Hydrococcidae	Hydrococcus brazieri		4
Araliaceae	Hydrocotyle medicaginoides	Medic Pennywort	4
Myrtaceae	Hypocalymma ericifolium		4
Restionaceae	Hypolaena pubescens		4
Fabaceae	Kennedia coccinea	Coral Vine	4
Fabaceae	Kennedia prostrata	Scarlet Runner	4
Restionaceae	Leptocarpus canus	Hoary Twine-rush	4
Restionaceae	Leptocarpus coangustus		4
Poaceae	Lolium rigidum	Wimmera Ryegrass	4
Asparagaceae	Lomandra hermaphrodita		4
Maluridae	Malurus		4
Megachilidae	Megachile ignita	Bee	4
Myrtaceae	Melaleuca viminea subsp. viminea	Weeping Honey-myrtle	4
Dolichopodidae	Mesorhaga turneri		4
Asteraceae	Millotia tenuifolia var. tenuifolia	Soft Millotia	4
Asteraceae	Millotia tenuifolia	Soft Millotia	4
Tineidae	Moerarchis clathrata		4
Loranthaceae	Nuytsia floribunda	Western Australian Christmas Tree	4
Marasmiaceae	Omphalotus nidiformis		4
Loganiaceae	Orianthera serpyllifolia		4
Orobanchaceae	Orobanche minor	Lesser Broomrape	4
Proteaceae	Persoonia saccata	Snottygobble	4
Threskiornithidae	Platalea (Platibis) flavipes	Yellow-billed Spoonbill	4
Poaceae	Poa poiformis	Coast Tussock-grass	4
Orchidaceae	Pterostylis karri	Karri Snail Orchid	4
Ranunculaceae	Ranunculus colonorum	Common Buttercup	4
Chenopodiaceae	Rhagodia baccata subsp. baccata	Berry Saltbush	4
Rhipiduridae	Rhipidura (Rhipidura) albiscapa preissi	South-western Grey Fantail	4
Primulaceae	Samolus repens	Creeping Brookweed	4
Goodeniaceae	Scaevola crassifolia	Cushion Fanflower	4
Goodeniaceae	Scaevola thesioides subsp. thesioides		4
Cyperaceae	Schoenus asperocarpus	Poison Sedge	4
Asteraceae	Senecio pinnatifolius var. latilobus	Variable Groundsel	4
Asteraceae	Sonchus hydrophilus	Native Sow-thistle	4
Stylidiaceae	Stylidium carnosum	Fleshy-leaved Triggerplant	4
Tateidae	Tatea		4

Orchidaceae	<i>Thelymitra fuscolutea</i>	Chestnut Sun Orchid	4
Chenopodiaceae	<i>Threlkeldia diffusa</i>	Coast Bonefruit	4
Fabaceae	<i>Trifolium campestre</i>	Hop Clover	4
Juncaginaceae	<i>Triglochin</i>	Lilaea	4
Charadriidae	<i>Vanellus (Lobivanellus) tricolor</i>	Banded Lapwing	4
Fabaceae	<i>Acacia cyclops</i>	Western Coastal Wattle	3
Fabaceae	<i>Acacia lasiocalyx</i>	Shaggy Wattle	3
Fabaceae	<i>Acacia lasiocarpa</i>		3
Acanthizidae	<i>Acanthiza (Geobasileus) inornata</i>	Western Thornbill	3
Acrocephalidae	<i>Acrocephalus (Acrocephalus) australis</i>	Australian Reed Warbler	3
Malvaceae	<i>Alyogyne huegelii</i>	Lilac Hibiscus	3
Apocynaceae	<i>Alyxia buxifolia</i>	Sea Box	3
Solanaceae	<i>Anthocercis littorea</i>	Yellow Tailflower	3
Brassicaceae	<i>Arabidopsis thaliana</i>	Thale Cress	3
Asteraceae	<i>Arctotheca calendula</i>	Cape Weed	3
Ardeidae	<i>Ardea alba</i>	Great Egret	3
Poaceae	<i>Avellinia festucoides</i>	Avellinia	3
Poaceae	<i>Bromus arenarius</i>	Sand Brome	3
Poaceae	<i>Bromus hordeaceus</i>	Soft Brome	3
Hemerocallidaceae	<i>Caesia micrantha</i>	Pale Grass Lily	3
Orchidaceae	<i>Caladenia arenicola</i>	Carousel Spider Orchid	3
Orchidaceae	<i>Caladenia attingens</i>	Forest Mantis Orchid	3
Orchidaceae	<i>Caladenia cairnsiana</i>	Zebra Orchid	3
Orchidaceae	<i>Caladenia discoidea</i>	Dancing Spider Orchid	3
Orchidaceae	<i>Caladenia longicauda</i> subsp. <i>longicauda</i>	White Spider Orchid	3
Orchidaceae	<i>Caladenia paludosa</i>	Swamp Spider Orchid	3
Orchidaceae	<i>Caladenia speciosa</i>	Sandplain White Spider Orchid	3
Cupressaceae	<i>Callitris pyramidalis</i>	Swamp Cypress	3
Cacatuidae	<i>Calyptorhynchus (Calyptorhynchus) banksii</i> naso	Forest Red-tailed Black-cockatoo	3
Aizoaceae	<i>Carpobrotus virescens</i>	Pigface	3
Lauraceae	<i>Cassutha micrantha</i>		3
Caprifoliaceae	<i>Centranthus macrosiphon</i>	Pretty Betsy	3
Asparagaceae	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	Blue Stars	3
Asparagaceae	<i>Chamaescilla corymbosa</i>	Blue Stars	3
Ericaceae	<i>Conostephium pendulum</i>	Pearl Flower	3
Myobatrachidae	<i>Crinia glauerti</i>	Glauert's Froglet	3
Myobatrachidae	<i>Crinia insignifera</i>	Sign-bearing Froglet	3
Daphniidae	<i>Daphnia</i>		3
Rutaceae	<i>Diplolaena dampieri</i>	Southern Diplolaena	3
Orchidaceae	<i>Diuris tinctoria</i>	Sandplain Donkey Orchid	3
Geraniaceae	<i>Erodium cicutarium</i>	Common Herons-bill	3
Charadriidae	<i>Erythrogonys cinctus</i>	Red-kneed Dotterel	3
Myrtaceae	<i>Eucalyptus</i>	Studley Park Gum	3
Fabaceae	<i>Euchilopsis linearis</i>	Swamp Pea	3
Falconidae	<i>Falco (Hierofalco) peregrinus</i>	Peregrine Falcon	3
Rubiaceae	<i>Galium murale</i>	Small Bedstraw	3
Geogarypidae	<i>Geogarypus taylori</i>	Pseudoscorpion	3
Geraniaceae	<i>Geranium retrorsum</i>	Grassland Crane's-bill	3
Gryllotalpidae	<i>Gryllotalpa</i>		3
Haloragaceae	<i>Haloragis aculeolata</i>		3
Fabaceae	<i>Hovea pungens</i>	Devils Pins	3
Araliaceae	<i>Hydrocotyle tetragonocarpa</i>	Limestone Pennywort	3
Myrtaceae	<i>Hypocalymma angustifolium</i>	White Myrtle	3
Fabaceae	<i>Isotropis cuneifolia</i>	Granny Bonnets	3
	LEPIDOPTERA	Butterflies	3
Campephagidae	<i>Lalage</i>		3

Malvaceae	<i>Lasiopetalum membranaceum</i>		3
Malvaceae	<i>Lawrenzia glomerata</i>	Clustered Lawrenzia	3
Restionaceae	<i>Leptocarpus decipiens</i>		3
Restionaceae	<i>Leptocarpus roycei</i>		3
Plumbaginaceae	<i>Limonium companyonis</i>	Sea-lavender	3
Fabaceae	<i>Lotus angustissimus</i>	Slender Bird's-foot Trefoil	3
Fabaceae	<i>Lotus subbiflorus</i>	Hairy Bird's-foot Trefoil	3
Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo	3
Sabellidae	<i>Manayunkia athalassia</i>		3
Salticidae	<i>Maratus flavus</i>		3
Salticidae	<i>Maratus suae</i>		3
Myrtaceae	<i>Melaleuca huegelii</i> subsp. <i>huegelii</i>	Chenille Honeymyrtle	3
Myrtaceae	<i>Melaleuca huegelii</i>	Chenille Honeymyrtle	3
Myrtaceae	<i>Melaleuca viminea</i>	Mohan	3
Orchidaceae	<i>Microtis</i>	Onion Orchids	3
Scrophulariaceae	<i>Myoporum insulare</i>	Common Boobialla	3
Loganiaceae	<i>Orianthera serpyllifolia</i> subsp. <i>angustifolia</i>		3
Menyanthaceae	<i>Ornduffia parnassifolia</i>		3
Fabaceae	<i>Ornithopus pinnatus</i>	Slender Serradella	3
Polyporaceae	<i>Panus fasciatus</i>		3
Pardalotidae	<i>Pardalotus (Pardalotus) punctatus</i>	Spotted Pardalote	3
Phalacrocoracidae	<i>Phalacrocorax (Phalacrocorax) carbo</i>	Great Cormorant	3
Thymelaeaceae	<i>Pimelea calcicola</i>	Coastal Banjine	3
Thymelaeaceae	<i>Pimelea rosea</i> subsp. <i>rosea</i>	Rose Banjine	3
Pinaceae	<i>Pinus pinaster</i>	Maritime Pine	3
	Plantae		3
Poaceae	<i>Poa annua</i>	Annual Meadow-grass	3
Poaceae	<i>Poa porphyroclados</i>		3
Asteraceae	<i>Podolepis gracilis</i>	Slender Podolepis	3
Phyllanthaceae	<i>Poranthera microphylla</i>	Small Poranthera	3
Orchidaceae	<i>Prasophyllum parvifolium</i>	Autumn Leek Orchid	3
Orchidaceae	<i>Pterostylis aspera</i>	Brown-veined Shell Orchid	3
Orchidaceae	<i>Pterostylis brevisepala</i>	Short-eared Snail Orchid	3
Fabaceae	<i>Pultenaea ochreatea</i>		3
Chenopodiaceae	<i>Rhagodia baccata</i>	Berry Saltbush	3
Poaceae	<i>Rytidosperma occidentale</i>	Western Wallaby Grass	3
Salticidae	SALTICIDAE	Jumping Spiders	3
Scarabaeidae	<i>Sauvagesinella monstrosa</i>		3
Caryophyllaceae	<i>Silene gallica</i>	French Catchfly	3
Solanaceae	<i>Solanum symonii</i>	Symon's Kangaroo-apple	3
Fabaceae	<i>Sphaerolobium medium</i>		3
Fabaceae	<i>Sphaerolobium vimineum</i>	Leafless Globe-pea	3
Columbidae	<i>Spilopelia chinensis</i>	Spotted Turtle-dove	3
Poaceae	<i>Sporobolus virginicus</i>	Marine Couch	3
Brassicaceae	<i>Stenopetalum gracile</i>		3
Brassicaceae	<i>Stenopetalum robustum</i>		3
Poaceae	<i>Stenotaphrum secundatum</i>	Buffalo Grass	3
Elaeocarpaceae	<i>Tetratheca hirsuta</i>	Black-eyed Susan	3
Laridae	<i>Thalasseus bergii</i>	Crested Tern	3
Orchidaceae	<i>Thelymitra benthamiana</i>	Leopard Sun-orchid	3
Asparagaceae	<i>Thysanotus</i>	Fringed Lily	3
	Tracheophyta		3
Fabaceae	<i>Trifolium scabrum</i>	Rough Clover	3
Juncaginaceae	<i>Triglochin isingiana</i>	Spurred Arrowgrass	3
Juncaginaceae	<i>Triglochin mucronata</i>	Prickly Arrowgrass	3
Tytonidae	Tyto	Barn Owl	3

Acrididae	<i>Urnisa guttulosa</i>		3
Convolvulaceae	<i>Wilsonia backhousei</i>	Narrow-leaf <i>Wilsonia</i>	3
	ANURA	Bakuŋbakuŋ	2
Araneidae	ARANEIDAE		2
Fabaceae	<i>Acacia cochlearis</i>	Rigid Wattle	2
Fabaceae	<i>Acacia huegelii</i>	Huegel's Wattle	2
Fabaceae	<i>Acacia</i>	Wattle	2
Ericaceae	<i>Acrotriche cordata</i>	Blunt-leaf Ground-berry	2
Apiaceae	<i>Actinotus glomeratus</i>		2
Proteaceae	<i>Adenanthos meisneri</i>		2
	Agaricales		2
	Agaricomycetes		2
Poaceae	<i>Amphipogon laguroides</i>		2
Poaceae	<i>Amphipogon turbinatus</i>		2
Therevidae	<i>Anabarhynchus</i>		2
Ericaceae	<i>Andersonia involucrata</i>		2
Haemodoraceae	<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Catspaw	2
Haemodoraceae	<i>Anigozanthos humilis</i>	Common Catspaw	2
Solanaceae	<i>Anthocercis ilicifolia</i> subsp. <i>ilicifolia</i>		2
Meliphagidae	<i>Anthochaera (Anellobia) lunulata</i>	Western Wattlebird	2
Poaceae	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	2
Fabaceae	<i>Aotus gracillima</i>		2
Asteraceae	Asteraceae	Daisy	2
Ericaceae	<i>Astroloma ciliatum</i>	Candle Cranberry	2
Ericaceae	<i>Astroloma pallidum</i>	Kick Bush	2
Dolichopodidae	<i>Austrosciapus pulvillus</i>		2
Poaceae	<i>Austrostipa</i>	Spear-grasses	2
Anatidae	<i>Aythya (Nyroca) australis</i>	Hardhead	2
Rutaceae	<i>Boronia crenulata</i> subsp. <i>viminea</i>		2
Rutaceae	<i>Boronia dichotoma</i>		2
Ericaceae	<i>Brachyloma preissii</i>	Globe Heath	2
Asteraceae	<i>Brachyscome bellidioides</i>		2
Colchicaceae	<i>Burchardia multiflora</i>	Lesser Burchardia	2
Hemerocallidaceae	<i>Caesia occidentalis</i>	Pale Grass Lily	2
Orchidaceae	<i>Caladenia chapmanii</i>	Chapman's Spider Orchid	2
Orchidaceae	<i>Caladenia hirta</i> subsp. <i>hirta</i>	Sugar Candy Orchid	2
Orchidaceae	<i>Caladenia huegelii</i>	Grand Spider Orchid	2
Orchidaceae	<i>Caladenia nana</i> subsp. <i>nana</i>	Little Pink Fan Orchid	2
Orchidaceae	<i>Caladenia swartziorum</i>	Island Point Spider Orchid	2
Scolopacidae	<i>Calidris (Crocethia) alba</i>	Sanderling	2
Myrtaceae	<i>Calytrix fraseri</i>	Pink Summer Calytrix	2
Aizoaceae	<i>Carpobrotus</i>	Pigface	2
Asteraceae	<i>Centaurea melitensis</i>	Maltese Cockspur	2
Gentianaceae	<i>Centaurium</i>	Centaury	2
Centrolepidaceae	<i>Centrolepis aristata</i>	Pointed Centrolepis	2
Bothriuridae	<i>Cercophonius sulcatus</i>		2
Coccinellidae	<i>Cheilomenes sexmaculata</i>		2
Locustellidae	<i>Cincloramphus (Maclennania) mathewsi</i>	Rufous Songlark	2
Hygromiidae	<i>Cochlicella acuta</i>	Pointed Snail	2
Phallaceae	<i>Colus pusillus</i>		2
Proteaceae	<i>Conospermum triplinervium</i>	Tree Smokebush	2
Haemodoraceae	<i>Conostylis candicans</i> subsp. <i>calcicola</i>		2
Haemodoraceae	<i>Conostylis pauciflora</i>		2
Orchidaceae	<i>Corybas</i>	Spurred Helmet Orchid	2
Asteraceae	<i>Cotula cotuloides</i>	Smooth Cotula	2
Asteraceae	<i>Craspedia</i> sp. Yalgorup National Park (G.J.Keighery 14449)		2

Asteraceae	<i>Craspedia variabilis</i>	Common Billy-buttons	2
Crassulaceae	<i>Crassula glomerata</i>	Clustered Crassula	2
Crassulaceae	<i>Crassula thunbergiana</i>		2
Orchidaceae	<i>Cyanicula gemmata</i>	Blue China Orchid	2
Diaspididae	DIASPIDIDAE	Diaspidids	2
	DIPTERA	Flies	2
Goodeniaceae	<i>Dampiera trigona</i>	Angled-stem Dampiera	2
Nymphalidae	<i>Danaus plexippus</i>	Wanderer	2
Fabaceae	<i>Daviesia divaricata</i>	Marno	2
Corticaceae	<i>Dendrothele</i>		2
Restionaceae	<i>Desmocladius asper</i>		2
Hemerocallidaceae	<i>Dianella brevicaulis</i>	Small-flower Flax-lily	2
Dicaeidae	<i>Dicaeum (Dicaeum) hirundinaceum</i>	Mistletoebird	2
Orchidaceae	<i>Diuris corymbosa</i>	Common Donkey Orchid	2
Orchidaceae	<i>Diuris cruenta</i>	Kermerton [sic; Kemerton] Donkey Orchid	2
Orchidaceae	<i>Diuris longifolia</i>	Common Donkey Orchid	2
Orchidaceae	<i>Diuris magnifica</i>	Pansy Orchid	2
Orchidaceae	<i>Diuris</i>	Donkey Orchids	2
Droseraceae	<i>Drosera gigantea</i>	Giant Sundew	2
Droseraceae	<i>Drosera paleacea</i>	Dwarf Sundew	2
Ardeidae	<i>Egretta garzetta</i>	Little Egret	2
Poaceae	<i>Ehrharta calycina</i>	Perennial Veldt-grass	2
Poaceae	<i>Ehrharta longiflora</i>	Annual Veldt-grass	2
Orchidaceae	<i>Elythranthera emarginata</i>	Pink Enamel Orchid	2
Ericaceae	Ericaceae	Austral Heaths	2
Geraniaceae	<i>Erodium botrys</i>	Big Herons-bill	2
Euphorbiaceae	<i>Euphorbia helioscopia</i>	Sun Spurge	2
Fabaceae	Fabaceae		2
Iridaceae	<i>Freesia</i>	Freesia	2
Nymphalidae	<i>Geitoneura minyas</i>	Western Xenica	2
Bryaceae	<i>Gemmabryum pachythea</i>	Acorn-fruited Thread-moss	2
Geraniaceae	<i>Geranium solanderi</i>	Austral Geranium	2
Fabaceae	<i>Gompholobium polymorphum</i>		2
Proteaceae	<i>Grevillea crithmifolia</i>		2
Proteaceae	<i>Hakea amplexicaulis</i>	Prickly Hakea	2
Scincidae	<i>Hemiergis peronii</i>	Lowlands Earless Skink	2
Cuculidae	<i>Heteroscenes pallidus</i>	Pallid Cuckoo	2
Dilleniaceae	<i>Hibbertia spicata</i> subsp. <i>leptotheca</i>		2
Violaceae	<i>Hybanthus debilissimus</i>		2
Hydrobiidae	Hydrobiidae		2
Araliaceae	<i>Hydrocotyle perplexa</i>	Intricate Pennywort	2
Elapidae	<i>Hydrophis platurus platurus</i>	Yellow-bellied Seasnake	2
Formicidae	<i>Iridomyrmex</i>		2
Fabaceae	<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	Granny Bonnets	2
Juncaceae	<i>Juncus bufonius</i>	Toad Rush	2
Poaceae	<i>Lagurus ovatus</i>	Hare's Tail Grass	2
Campephagidae	<i>Lalage (Lalage) tricolor</i>	White-winged Triller	2
Goodeniaceae	<i>Lechenaultia expansa</i>		2
Cyperaceae	<i>Lepidosperma calcicola</i>		2
Cyperaceae	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	2
Restionaceae	<i>Leptocarpus scariosus</i>		2
Restionaceae	<i>Leptocarpus tephrius</i>		2
Santalaceae	<i>Leptomeria lehmannii</i>		2
Restionaceae	<i>Lepyrodia muirii</i>		2
Ericaceae	<i>Leucopogon australis</i>	Spike Beard-heath	2

Ericaceae	Leucopogon glabellus		2
Ericaceae	Leucopogon polymorphus		2
Stylidiaceae	Levenhookia stipitata	Common Stylewort	2
Halictidae	Lipotriches		2
Campanulaceae	Lobelia anceps	Angled Lobelia	2
Campanulaceae	Lobelia rarifolia		2
Poaceae	Lolium perenne	Perennial Rye-grass	2
Asparagaceae	Lomandra preissii	Preiss' Mat Rush	2
Anarthriaceae	Lyginia imberbis		2
Primulaceae	Lysimachia loeflingii		2
Ericaceae	Lysinema pentapetalum	Curry Flower	2
Cyperaceae	Machaerina arthropylla	Baumea	2
Cyperaceae	Machaerina juncea	Bare Twig-rush	2
Mactridae	Mactra		2
Anatidae	Malacorhynchus membranaceus	Pink-eared Duck	2
Salticidae	Maratus spicatus		2
Fabaceae	Medicago sativa	Lucerne	2
Megachilidae	Megachile (Eutricharaea) chrysopyga	Bee	2
Megachilidae	Megachile		2
Myrtaceae	Melaleuca incana	Grey Honeymyrtle	2
Myrtaceae	Melaleuca lateritia	Robin Redbreast Bush	2
Orchidaceae	Microtis media	Common Mignonette Orchid	2
Iridaceae	Moraea flaccida	One-leaf Cape Tulip	2
Muridae	Mus musculus	House Mouse	2
Araneidae	Nephila		2
Strigidae	Ninox (Ninox) novaeseelandiae	Southern Boobook	2
Onagraceae	Oenothera affinis	Long-flowered Evening Primrose	2
Asteraceae	Olearia paucidentata	Autumn Scrub Daisy	2
Scarabaeidae	Onthophagus haagi		2
Rubiaceae	Opercularia hispidula	Hispid Stinkweed	2
Orchidaceae	Orchidaceae	Orchids	2
Oxalidaceae	Oxalis perennans	Native Sorrel	2
Procellariidae	PROCELLARIIDAE	Atlantic Petrel	2
Procellariidae	Pachyptila desolata	Antarctic Prion	2
Pannariaceae	Parmeliella thysanota		2
Myrtaceae	Pericalymma ellipticum var. ellipticum		2
Myrtaceae	Pericalymma ellipticum	Swamp Teatree	2
Proteaceae	Persoonia elliptica	Snottygobble	2
Petroicidae	Petroica (Petroica) goodenovii	Red-capped Robin	2
Petroicidae	Petroica (Petroica) multicolor	Pacific Robin	2
Proteaceae	Petrophile axillaris		2
Columbidae	Phaps (Phaps) elegans	Brush Bronzewing	2
Loganiaceae	Phyllangium divergens	Wiry Mitrewort	2
Physaraceae	Physarum leucophaeum		2
Thymelaeaceae	Pimelea ferruginea	Pink Rice-flower	2
Thymelaeaceae	Pimelea lanata		2
Thymelaeaceae	Pimelea preissii		2
Thymelaeaceae	Pimelea	Rice Flowers	2
Fomitopsidaceae	Piptoporus australiensis		2
Sclerodermataceae	Pisolithus		2
Plantaginaceae	Plantago major	Greater Plantain	2
Psittacidae	Platycercus (Violania) icterotis	Western Rosella	2
Apiaceae	Platysace compressa	Tapeworm Plant	2
Apiaceae	Platysace filliformis		2
Charadriidae	Pluvialis fulva	Pacific Golden Plover	2
Phyllanthaceae	Poranthera huegelii	Heath Poranthera	2

Rallidae	Porphyrio (Porphyrio) porphyrio	Purple Swamphen	2
Orchidaceae	Prasophyllum calcicola	Limestone Leek-orchid	2
Orchidaceae	Prasophyllum fimbria	Fringed Leek Orchid	2
Cheliferidae	Protochelifer		2
Pterocladaceae	Pterocladia lucida		2
Orchidaceae	Pterostylis barbata	Bird Orchid	2
Orchidaceae	Pterostylis concava	Cupped Banded Greenhood	2
Orchidaceae	Pterostylis sanguinea	Blood Greenhood	2
Orchidaceae	Pterostylis scabrella	Rough-lipped Snail Orchid	2
Meliphagidae	Ptilotula ornata	Yellow-plumed Honeyeater	2
Pyronemataceae	Pyronemataceae		2
Ranunculaceae	Ranunculus sessiliflorus var. sessiliflorus	Annual Buttercup	2
Caryophyllaceae	Sagina apetala	Common Pearlwort	2
Goodeniaceae	Scaevola thesioides	Gibbous-fruited Scaevola	2
Cyperaceae	Schoenus cruentus		2
Cyperaceae	Schoenus nanus	Little Bog-rush	2
Cyperaceae	Schoenus nitens	Shiny Bogrush	2
Cyperaceae	Schoenus plumosus		2
Cyperaceae	Schoenus		2
Asteraceae	Senecio depressicola	Senecio	2
Asteraceae	Senecio lautus	Variable Groundsel	2
Asteraceae	Senecio multicaulis subsp. multicaulis		2
Malvaceae	Sida hookeriana		2
Solanaceae	Solanum nigrum	Black Nightshade	2
Celastraceae	Stackhousia huegelii		2
Stylidiaceae	Stylidium hesperium	Western Reed Triggerplant	2
Stylidiaceae	Stylidium longitubum	Jumping Jacks	2
Stylidiaceae	Stylidium maritimum	Coastal Triggerplant	2
Stylidiaceae	Stylidium	Trigger-plants	2
Succineidae	Succinea		2
Tabanidae	TABANIDAE		2
Lycosidae	Tasmanicosa gilberta	Gilbert's Wolf Spider	2
Orchidaceae	Thelymitra crinita	Blue Lady Orchid	2
Orchidaceae	Thelymitra flexuosa	Twisted Sun-orchid	2
Tiphiidae	Thynninae		2
Scincidae	Tiliqua rugosa rugosa		2
Scincidae	Tiliqua rugosa	Shingle-back	2
Scincidae	Tiliqua	Yourn	2
Chrysomelidae	Trachymela		2
Psittacidae	Trichoglossus		2
Fabaceae	Trifolium resupinatum var. resupinatum	Shaftal Clover	2
Juncaginaceae	Triglochin calcitrapa	Spurred Arrowgrass	2
Juncaginaceae	Triglochin muelleri		2
Pileolariaceae	Uromycladium		2
Varanidae	Varanus rosenbergi	Heath Monitor	2
Poaceae	Vulpia bromoides	Squirrel-tail Fescue	2
Poaceae	Vulpia	Fescue	2
Campanulaceae	Wahlenbergia preissii		2
Xanthorrhoeaceae	Xanthorrhoea brunonis		2
Scolopacidae	Xenus cinereus	Terek Sandpiper	2
Proteaceae	Xylomelum angustifolium	Sandplain Woody Pear	2
Acrididae	ACRIDIDAE		1
Anatidae	ANATIDAE	Ducks	1
Asilidae	ASILIDAE	Robber Flies	1
	AUCHENORRHYNCHA		1
Hepialidae	Abantiades		1

Fabaceae	Acacia horridula		1
Fabaceae	Acacia rostellifera	Summer-scented Wattle	1
Fabaceae	Acacia saligna subsp. Southern forest (B.R.Maslin & J.E.Reid BRM 9952)		1
Fabaceae	Acacia saligna subsp. Wheatbelt (B.R.Maslin 8602)		1
Asparagaceae	Acanthocarpus preissii		1
Pteridaceae	Adiantum aethiopicum	Common Maidenhair	1
Poaceae	Aira cupaniana	Quicksilver Grass	1
Pentatomidae	Alcaeus		1
Bombyliidae	Aleucosia		1
Aleyrodidae	Aleurocanthus banksiae	Whitefly	1
Alliaceae	Allium ampeloprasum	Great-head Garlic	1
Amaranthaceae	Alternanthera denticulata var. denticulata	Lesser Joyweed	1
Fissurellidae	Amblychilepas nigrita	Black Keyhole Limpet	1
Clypeasteridae	Ammotrophus arachnoides		1
Euphorbiaceae	Amperea ericoides		1
Euphorbiaceae	Amperea simulans		1
Euphorbiaceae	Amperea volubilis		1
Therevidae	Anabarhynchus ferrugineus		1
Anarthriaceae	Anarthria scabra		1
Anatidae	Anas (Anas) platyrhynchos	Common Mallard	1
Haemodoraceae	Anigozanthos flavidus	Tall Kangaroo Paw	1
Haemodoraceae	Anigozanthos manglesii subsp. manglesii	Mangles' Kangaroo Paw	1
Haemodoraceae	Anigozanthos manglesii	Red And Green Kangaroo Paw	1
Notodontidae	Antimima cryptica		1
Eriococcidae	Apiomorpha ovicoloides	Felt Scale Insect	1
Asteraceae	Arctotheca populifolia	Beach Daisy	1
Otididae	Ardeotis australis	Australian Bustard	1
Asparagaceae	Arthropodium	Vanilla Lilies	1
Myrtaceae	Astartea fascicularis	Recherche Astartea	1
Myrtaceae	Astartea scoparia	Common Astartea	1
Myrtaceae	Astartea		1
	Asterales		1
Ericaceae	Astroloma drummondii		1
Ericaceae	Astroloma stomarrhena	Red Swamp Cranberry	1
Araneidae	Austracantha minax lugubris		1
Lestidae	Austrolestes		1
Parmeliaceae	Austroparmelina conlabrosa		1
Poaceae	Austrostipa flavescens	Coast Spear-grass	1
Poaceae	Avena barbata	Bearded Oats	1
Poaceae	Avena fatua	Wild Oats	1
	BIVALVIA		1
	BLABEROIDEA		1
Bombyliidae	BOMBYLIIDAE	Bee Flies	1
Araneidae	Backobourkia heroine		1
Proteaceae	Banksia sessilis		1
Pottiaceae	Barbula calycina	Common Beard-moss	1
Psittacidae	Barnardius zonarius semitorquatus	Twenty-eight Parrot	1
	Batrachochytrium dendrobatidis	Chytrid Fungus	1
Agaricaceae	Battarrea stevenii		1
Myrtaceae	Beaufortia macrostemon	Darling Range Beaufortia	1
Myrtaceae	Beaufortia squarrosa	Sand Bottlebrush	1
Crabronidae	Bembix		1
Pittosporaceae	Billardiera floribunda	White Flowered Billardiera	1
Pittosporaceae	Billardiera fusiformis	Bluebell Creeper	1
Asteraceae	Blennospora		1
Rutaceae	Boronia juncea subsp. juncea		1

Boryaceae	<i>Borya sphaerocephala</i>	Pincushions	1
Fabaceae	<i>Bossiaea linophylla</i>	Narrow-leaved Bossiaea	1
	Bryophyta		1
Bryaceae	<i>Bryum</i>		1
Physciaceae	<i>Buellia albula</i>		1
Byblidaceae	<i>Byblis gigantea</i>	Rainbow Plant	1
Orchidaceae	<i>Caladenia denticulata</i>	Wispy Spider Orchid	1
Orchidaceae	<i>Caladenia hirta</i> subsp. <i>rosea</i>	Pink Candy Orchid	1
Orchidaceae	<i>Caladenia hirta</i>	Sugar Candy Orchid	1
Orchidaceae	<i>Caladenia longicauda</i>	White Spider Orchid	1
Orchidaceae	<i>Caladenia macrostylis</i>	Leaping Spider Orchid	1
Orchidaceae	<i>Caladenia marginata</i>	White Fairy Orchid	1
Orchidaceae	<i>Caladenia nana</i>	Pink Fan Orchid	1
Orchidaceae	<i>Caladenia occidentalis</i>	Ruby Spider Orchid	1
Orchidaceae	<i>Caladenia reptans</i> subsp. <i>reptans</i>	Little Pink Fairies	1
Portulacaceae	<i>Calandrinia calyptata</i>	Pink Purslane	1
Portulacaceae	<i>Calandrinia corrigioloides</i>	Strap Purslane	1
Dasypogonaceae	<i>Calectasia narragara</i>	Star Of Bethlehem	1
Cupressaceae	<i>Callitris acuminata</i>		1
Myrtaceae	<i>Calothamnus hirsutus</i>		1
Myrtaceae	<i>Calytrix aurea</i>		1
Formicidae	<i>Camponotus terebrans</i>	Brown Bearded Sugar Ant	1
Formicidae	<i>Camponotus</i>		1
Leucobryaceae	<i>Campylopus introflexus</i>	Swan-neck Moss	1
Capitellidae	<i>Capitella</i>		1
Asteraceae	<i>Carduus pycnocephalus</i>	Slender Thistle	1
Lauraceae	<i>Cassytha</i>	Dodder-laurel	1
Gentianaceae	<i>Centaurium erythraea</i>	Common Centaury	1
Asteraceae	<i>Centipeda cunninghamii</i>	Common Sneezeweed	1
Bothriuridae	<i>Cercophonius squama</i>	Wood Scorpion	1
Bothriuridae	<i>Cercophonius</i>		1
Asilidae	<i>Cerdistus</i>		1
Tachinidae	<i>Chaetophthalmus</i>		1
Vespertilionidae	<i>Chalinobus gouldii</i>	Gould's Wattled Bat	1
Cheloniidae	<i>Chelonia mydas</i>	Green Turtle	1
Parastacidae	<i>Cherax quinquecarinatus</i>	Djilgi	1
Rutaceae	<i>Chorilaena</i>		1
Fabaceae	<i>Chorizema cordatum</i>	Flame Pea	1
Fabaceae	<i>Chorizema dicksonii</i>	Yellow-eyed Flame Pea	1
Fabaceae	<i>Chorizema diversifolium</i>		1
Locustellidae	<i>Cincloramphus (Cincloramphus) cruralis</i>	Brown Songlark	1
Cucurbitaceae	<i>Citrullus amarus</i>	Paddy Melon	1
Cladoniaceae	<i>Cladonia rigida</i>		1
Ranunculaceae	<i>Clematis aristata</i>	Mountain Old Man's Beard	1
Pachycephalidae	<i>Colluricincla (Colluricincla) harmonica rufiventris</i>	Western Grey Shrike-thrush	1
Hymenochaetaceae	<i>Coltricia</i>		1
Phallaceae	<i>Colus</i>		1
Polygalaceae	<i>Comesperma flavum</i>		1
Polygalaceae	<i>Comesperma virgatum</i>	Milkwort	1
Proteaceae	<i>Conospermum capitatum</i> subsp. <i>glabratum</i>		1
Proteaceae	<i>Conospermum crassinervium</i>	Summer Smoke-bush	1
Ericaceae	<i>Conostephium preissii</i>		1
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>aculeata</i>		1
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>gracilis</i>		1
Haemodoraceae	<i>Conostylis pauciflora</i> subsp. <i>pauciflora</i>		1
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>	Bristly Cottonhead	1

Haemodoraceae	<i>Conostylis setigera</i>	Bristly Cottonhead	1
Psathyrellaceae	<i>Coprinellus truncorum</i>	Fungi	1
Corallinaceae	<i>Corallina</i>		1
Scolopendridae	<i>Cormocephalus aurantiipes</i>	Orange-footed Centipede	1
Cortinariaceae	<i>Cortinarius</i>		1
Corvidae	<i>Corvus bennetti</i>	Little Crow	1
Hemerocallidaceae	<i>Corynotheca micrantha</i> var. <i>micrantha</i>	Sand Lily	1
Hemerocallidaceae	<i>Corynotheca micrantha</i>	Sand Lily	1
Acrididae	<i>Coryphistes ruricola</i>	Bark-mimicking Grasshopper	1
Tomichiidae	<i>Coxiella</i>		1
Artamidae	<i>Cracticus nigrogularis</i>	Pied Butcherbird	1
Crassulaceae	<i>Crassula alata</i> var. <i>alata</i>	Three-part Crassula	1
Crassulaceae	<i>Crassula</i>		1
Asteraceae	<i>Crepis foetida</i>	Foetid Hawk's-beard	1
Myobatrachidae	<i>Crinia</i>		1
Geometridae	<i>Crypsiphona ocularia</i>	Redlined Geometrid Moth	1
Rhamnaceae	<i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i>		1
Rhamnaceae	<i>Cryptandra arbutiflora</i> var. <i>tubulosa</i>	Waxy Cryptandra	1
Rhamnaceae	<i>Cryptandra arbutiflora</i>	Waxy Cryptandra	1
Orchidaceae	<i>Cryptostylis ovata</i>	Tongue Orchid	1
Agamidae	<i>Ctenophorus adelaidensis</i>	Western Heath Dragon	1
Convolvulaceae	<i>Cuscuta planiflora</i>	Small-seed Alfalfa-dodder	1
Pentatomidae	<i>Cuspicona simplex</i>	Green Potato Bug	1
Orchidaceae	<i>Cyanicula gertrudae</i>	Pale China Orchid	1
Cynoglossidae	<i>Cynoglossus broadhursti</i>	Southern Tongue Sole	1
Poaceae	<i>Cynosurus echinatus</i>	Rough Dog's Tail	1
Orchidaceae	<i>Cyrtostylis reniformis</i>	Small Gnat-orchid	1
	DERMAPTERA	Earwigs	1
Cheilodactylidae	<i>Dactylophora nigricans</i>	Dusky Morwong	1
Goodeniaceae	<i>Dampiera</i>		1
Myrtaceae	<i>Darwinia citriodora</i>	Lemon-scented Darwinia	1
Erebidae	<i>Dasypodia selenophora</i>	Granny Moth	1
Fabaceae	<i>Daviesia brachyphylla</i>		1
Fabaceae	<i>Daviesia divaricata</i> subsp. <i>divaricata</i>		1
Fabaceae	<i>Daviesia preissii</i>		1
Pygopodidae	<i>Delma grayii</i>	Side-barred Delma	1
Elapidae	<i>Demansia reticulata</i>	Yellow-faced Whipsnake	1
Dermestidae	<i>Dermestes (Dermestes) ater</i>	Black Larder Beetle	1
Tettigoniidae	<i>Dexerra angularis</i>		1
Stemonitidaceae	<i>Diachea leucopodia</i>		1
Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>divaricata</i>	Broad-leaf Flax-lily	1
Hemerocallidaceae	<i>Dianella revoluta</i>	Blueberry Lily	1
Poaceae	<i>Dichelachne crinita</i>	Long-hair Plume-grass	1
Melyridae	<i>Dicranolaius bellulus</i>	Red And Blue Beetle	1
Fabaceae	<i>Dillwynia dillwynioides</i>		1
Fabaceae	<i>Dillwynia</i>	Egg And Bacon Peas	1
Diomedeidae	<i>Diomedea exulans</i>	Wandering Albatross	1
Rutaceae	<i>Diplolaena</i>		1
Sapindaceae	<i>Diplopeltis</i>		1
Brassicaceae	<i>Diplotaxis muralis</i>	Wall Rocket	1
Scrophulariaceae	<i>Dischisma arenarium</i>	Sand Dichisma	1
Orchidaceae	<i>Diuris jonesii</i>	Dunsborough Donkey Orchid	1
Sapindaceae	<i>Dodonaea aptera</i>	Coast Hopbush	1
Sapindaceae	<i>Dodonaea viscosa</i>	Sticky Hop-bush	1
Erebidae	<i>Donuca spectabilis</i>	White-spotted Owl Moth	1
Orchidaceae	<i>Drakaea glyptodon</i>	King-in-his-carriage	1

Orchidaceae	<i>Drakaea micrantha</i>	Dwarf Hammer Orchid	1
Droseraceae	<i>Drosera geniculata</i>		1
Droseraceae	<i>Drosera micrantha</i>		1
Droseraceae	<i>Drosera nitidula</i>	Shining Sundew	1
Droseraceae	<i>Drosera pulchella</i>	Pretty Sundew	1
Droseraceae	<i>Drosera</i>	Sundews	1
Chenopodiaceae	<i>Dysphania glomulifera</i> subsp. <i>glomulifera</i>	Globular Pigweed	1
Scincidae	<i>Egernia kingii</i>	King's Skink	1
Cleridae	<i>Eleale</i>		1
Funariaceae	<i>Entosthodon</i>		1
Cacatuidae	<i>Eolophus roseicapilla</i> <i>roseicapilla</i>	Western Galah	1
Petroicidae	<i>Eopsaltria</i>		1
Asteraceae	<i>Erigeron bonariensis</i>	Flaxleaf Fleabane	1
Asteraceae	<i>Erigeron sumatrensis</i>	Tall Fleabane	1
Orchidaceae	<i>Eriochilus dilatatus</i> subsp. <i>multiflorus</i>	Common Bunny Orchid	1
Monacanthidae	<i>Eubalichthys caeruleoguttatus</i>	Bluespotted Leatherjacket	1
Asteraceae	<i>Euchiton sphaericus</i>	Common Cudweed	1
Syrphidae	<i>Eumerus</i>		1
Euphorbiaceae	Euphorbiaceae	Spurge	1
Euphorbiaceae	<i>Euphorbia</i>	Spurge	1
Scrophulariaceae	<i>Euphrasia scabra</i>	Rough Eyebright	1
Caprimulgidae	<i>Eurostopodus</i> (<i>Eurostopodus</i>) <i>argus</i>	Spotted Nightjar	1
Pyralidae	<i>Faveria tritalis</i>	Couchgrass Webworm Moth	1
Iridaceae	<i>Ferraria crispa</i>	Black Flag	1
Cyperaceae	<i>Ficinia nodosa</i>	Knobby Club-rush	1
Hymenochaetaceae	<i>Fulvifomes rimosus</i>		1
Papaveraceae	<i>Fumaria muralis</i>	Fumitory	1
Funariaceae	Funariaceae		1
Funariaceae	<i>Funaria</i>		1
	Fungi		1
Geometridae	GEOMETRIDAE		1
Glycymerididae	GLYCYMERIDIDAE	Dog Cockles	1
Cyperaceae	<i>Gahnia</i>	Saw-sedges	1
Rubiaceae	<i>Galium aparine</i>	Cleavers	1
Rubiaceae	<i>Galium leptogonium</i>	Reflexed Bedstraw	1
Gasteruptionidae	<i>Gasteruption</i>		1
Fabaceae	<i>Gastrolobium ebracteolatum</i>		1
Fabaceae	<i>Gastrolobium praemorsum</i>		1
Fabaceae	<i>Gastrolobium</i>		1
Lamiaceae	Genus		1
Geraniaceae	<i>Geranium purpureum</i>	Little-robin	1
Haloragaceae	<i>Glischrocaryon angustifolium</i>	Golden Pennants	1
Carabidae	<i>Gnathoxys</i>		1
Veneridae	<i>Gomphina undulosa</i>	Waved Venus	1
Fabaceae	<i>Gompholobium capitatum</i>	Yellow Pea	1
Fabaceae	<i>Gompholobium marginatum</i>		1
Fabaceae	<i>Gompholobium</i>	Wedge Peas	1
Acrididae	<i>Goniaea australasiae</i>	Gumleaf Grasshopper	1
Acrididae	<i>Goniaea vocans</i>	Slender Gumleaf Grasshopper	1
Goodeniaceae	<i>Goodenia coerulea</i>		1
Goodeniaceae	<i>Goodenia eatoniana</i>		1
Goodeniaceae	Goodeniaceae	Fan Flower	1
Proteaceae	<i>Grevillea bipinnatifida</i>	Fuchsia Grevillea	1
Proteaceae	<i>Grevillea candolleana</i>	Toodyay Grevillea	1
Proteaceae	<i>Grevillea vestita</i> subsp. <i>vestita</i>		1
Proteaceae	<i>Grevillea wilsonii</i>	Wilson's Grevillea	1

	HYMENOPTERA	Wasps	1
Haemodoraceae	Haemodorum simplex		1
Proteaceae	Hakea candolleana		1
Proteaceae	Hakea lissocarpha	Honey Bush	1
Proteaceae	Hakea lorea	Corkbark Tree	1
Hydrocharitaceae	Halophila ovalis	Halophila	1
Pentatomidae	Halyini		1
Bittacidae	Harpobittacus similis		1
Noctuidae	Helicoverpa punctigera	Native Budworm	1
Brassicaceae	Heliophila		1
Poaceae	Hemarthria uncinata	Matgrass	1
Lamiaceae	Hemiandra linearis	Speckled Snakebush	1
Nymphalidae	Heteronympha merope	Common Brown Butterfly	1
Dilleniaceae	Hibbertia hypericoides subsp. hypericoides	Yellow Buttercups	1
Syngnathidae	Hippocampus breviceps	Shorthead Seahorse	1
Lycosidae	Hoggicosa castanea	Wolf Spider	1
Poaceae	Holcus setiger	Annual Fog	1
Araneidae	Hortophora biapicata		1
Araneidae	Hortophora		1
Asteraceae	Hyalosperma pusillum		1
Araliaceae	Hydrocotyle intertexta	Buttercup Pennywort	1
Laridae	Hydroprogne caspia	Caspian Tern	1
Myrtaceae	Hypocalymma angustifolium subsp. Swan Coastal Plain (G.J.Keighery 16777)		1
Myrtaceae	Hypocalymma angustifolium subsp. angustifolium		1
Idiopidae	IDIOPIDAE		1
	INSECTA	Insects	1
Cyperaceae	Isolepis fluitans	Floating Club-rush	1
Sparassidae	Isopeda leishmanni	Huntsman Spider	1
Proteaceae	Isopogon asper		1
Fabaceae	Jacksonia horrida		1
Juncaceae	Juncus kraussii subsp. australiensis	Juncus	1
Juncaceae	Juncus oxycarpus	Spiny-fruit Rush	1
Kogiidae	Kogia sima	Dwarf Sperm Whale	1
Myrtaceae	Kunzea ericifolia subsp. ericifolia		1
Myrtaceae	Kunzea ericifolia	Spearwood	1
Myrtaceae	Kunzea glabrescens	Spearwood	1
Myrtaceae	Kunzea micrantha subsp. micrantha		1
Myrtaceae	Kunzea recurva		1
Kyphosidae	Kyphosus	Drummer	1
Linyphiidae	LINYPHIIDAE	Money Spiders	1
Lycosidae	LYCOSIDAE	Wolf Spider	1
Poaceae	Lachnagrostis filiformis	Common Blown-grass	1
Poaceae	Lachnagrostis	Blowngrasses	1
Asteraceae	Lagenophora gracilis	Slender Lagenophora	1
Asteraceae	Lagenophora platysperma		1
Verbenaceae	Lantana camara	Lantana	1
Laridae	Larus pacificus	Pacific Gull	1
Malvaceae	Lasiopetalum floribundum	Free Flowering Lasiopetalum	1
Theridiidae	Latrodectus hasseltii	Redback Spider	1
Asparagaceae	Laxmannia ramosa subsp. ramosa	Branching Lily	1
Asparagaceae	Laxmannia ramosa		1
Lecanoraceae	Lecidella		1
Colletidae	Leioproctus (Exleycolletes) microdontus		1
Colletidae	Leioproctus		1
Asteraceae	Leontodon rhagadioloides	Hedypnois	1

Asteraceae	Leontodon saxatilis	Lesser Hawkbit	1
Brassicaceae	Lepidium	Swine's Cress	1
Psychidae	Lepidoscia		1
Cyperaceae	Lepidosperma effusum	Spreading Sword-sedge	1
Orchidaceae	Leporella fimbriata	Fringed Hare-orchid	1
Restionaceae	Leptocarpus laxus		1
Asteraceae	Leptorhynchos scaber	Annual Buttons	1
Scincidae	Lerista lineata	Perth Slider	1
Ericaceae	Leucopogon sp. Busselton (D.Cooper 243)		1
Ericaceae	Leucopogon squarrosus		1
Ericaceae	Leucopogon		1
Stylidiaceae	Levenhookia pusilla	Tiny Stylewort	1
Liliaceae	Liliaceae		1
Lindsaeaceae	Lindsaea linearis	Screw Fern	1
Linaceae	Linum trigynum	French Flax	1
Menyanthaceae	Liparophyllum capitatum		1
Pelodyrididae	Litoria adelaidensis	Slender Tree Frog	1
Poaceae	Lolium arundinaceum subsp. arundinaceum		1
Poaceae	Lolium x hybridum	Hybrid Ryegrass	1
Asparagaceae	Lomandra	Mat Rushes	1
Turbinidae	Lunella (Ninella) torquata	Rough Turban Shell	1
Cyperaceae	Machaerina articulata	Jointed Twig-rush	1
Cyperaceae	Machaerina vaginalis		1
Zamiaceae	Macrozamia	Cycad	1
	Magnoliopsida		1
Malvaceae	Malvaceae	Mallow Family	1
Salticidae	Maratus tessellatus		1
Salticidae	Maratus		1
Noctuidae	Mataeomera mesotaenia	Owlet Moth	1
Fabaceae	Medicago littoralis	Strand Medic	1
Fabaceae	Medicago truncatula	Barrel Medic	1
Haloragaceae	Meionectes brownii	Swamp Raspwort	1
Haloragaceae	Meionectes tenuifolia		1
Myrtaceae	Melaleuca preissiana	Moonah	1
Myrtaceae	Melaleuca scabra	Rough Honeymyrtle	1
Lygaeidae	Melanerythrus mactans	Bug	1
Melianthaceae	Melianthus major	Cape Honey-flower	1
Meliphagidae	Melithreptus (Melithreptus) chloropsis	Gilbert's Honeyeater	1
Tenebrionidae	Metistete		1
Petroicidae	Microeca (Microeca) fascians	Jacky Winter	1
Orchidaceae	Microtis alboviridis	Scented Mignonette Orchid	1
Orchidaceae	Microtis media subsp. densiflora	Dense Mignonette Orchid	1
Orchidaceae	Microtis media subsp. media	Common Mignonette Orchid	1
Orchidaceae	Microtis unifolia	Common Onion Orchid	1
Caryophyllaceae	Minuartia mediterranea	Slender Sandwort	1
Fabaceae	Mirbelia dilatata	Holly-leaved Mirbelia	1
Miturgidae	Miturga		1
Poaceae	Molineriella minuta	Small Hair-grass	1
Morabidae	Morabinae	Matchstick Grasshoppers	1
Scincidae	Morethia lineocellata	West Coast Morethia Skink	1
Sulidae	Morus serrator	Australasian Gannet	1
Polygonaceae	Muehlenbeckia adpressa	Climbing Lignum	1
Polygonaceae	Muehlenbeckia polybotrya		1
Mycocaliciaceae	Mycocalicium victoriae		1
Haloragaceae	Myriophyllum crispatum	Upright Milfoil	1
Formicidae	Myrmecia vindex	Bull Ant	1

Formicidae	Myrmecia		1
Otariidae	Neophoca cinerea	Australian Sea-lion	1
Asilidae	Neoscleropogon		1
Chernetidae	Nesidiochernes		1
Strigidae	Ninox (Ninox) boobook	Southern Boobook	1
Elapidae	Notechis scutatus	Tiger Snake	1
Neurochaetidae	Nothoasteia clausa		1
Coccinellidae	Novius cardinalis	Vedalia	1
Scolopacidae	Numenius (Numenius) madagascariensis	Eastern Curlew	1
Ardeidae	Nycticorax caledonicus	Nankeen Night-heron	1
Corinnidae	Nyssus coloripes	Spotted Ground Swift Spider	1
Termitidae	Occasitermes occasus		1
Onagraceae	Oenothera drummondii	Beach Evening Primrose	1
Onagraceae	Oenothera mollissima		1
Asteraceae	Olearia rudis	Azure Daisy-bush	1
Bombyliidae	Oncodosia patula		1
Bombyliidae	Oncodosia		1
Scarabaeidae	Onthophagus evanidus		1
Scarabaeidae	Onthophagus vermiculatus		1
Labridae	Ophthalmolepis lineolata	Southern Maori Wrasse	1
Salticidae	Opisthoncus		1
Coccinellidae	Orcus australasiae		1
Hydrocharitaceae	Ottelia ovalifolia	Swamp Lily	1
Physalacriaceae	Oudemansiella radicata		1
Oxalidaceae	Oxalis corniculata	Creeping Wood-sorrel	1
Oxalidaceae	Oxalis purpurea	One-o'clock	1
Procellariidae	Pachyptila belcheri	Slender-billed Prion	1
Procellariidae	Pachyptila salvini	Salvin's Prion	1
Accipitridae	Pandion haliaetus cristatus	Eastern Osprey	1
Parmeliaceae	Pannoparmelia wilsonii		1
Papilionidae	Papilio (Princeps) aegaeus	Large Citrus Butterfly	1
Myrtaceae	Paragonis grandiflora		1
Poaceae	Parapholis incurva	Curly Ryegrass	1
Orobanchaceae	Parentucellia latifolia	Red Bartsia	1
Iridaceae	Patersonia babianoides		1
Iridaceae	Patersonia occidentalis var. occidentalis	Long Purple-flag	1
Hypoxidaceae	Pauridia glabella		1
Pegasidae	Pegasus volitans	Slender Seamoth	1
Pompilidae	Pepsinae		1
Acrididae	Perbelliina		1
Myrtaceae	Pericalymma ellipticum var. floridum		1
Polygonaceae	Persicaria hydropiper	Water Pepper	1
Petalophyllaceae	Petalophyllum preissii	Petalwort	1
Hirundinidae	Petrochelidon (Petrochelidon) ariel	Fairy Martin	1
Petroicidae	Petroica (Petroica) boodang campbelli	South-western Scarlet Robin	1
Proteaceae	Petrophile striata		1
Pezizaceae	Peziza		1
Dasyuridae	Phascogale tapoatafa wambenger	Wambenger	1
Tachinidae	Phasia		1
Orchidaceae	Pheladenia deformis	Bluebeard Orchid	1
Strophariaceae	Pholiota		1
Loganiaceae	Phyllangium		1
Physaliidae	Physalia utriculus		1
Solanaceae	Physalis peruviana	Cape Gooseberry	1
Physaraceae	Physarum		1
Physciaceae	Physcia neonubila		1

Cicadidae	Physeema quadricincta	Tick-tock	1
Asteraceae	Picris angustifolia subsp. angustifolia	Coast Picris	1
Pieridae	Pieris rapae	Cabbage White Butterfly	1
Plantaginaceae	Plantago drummondii	Dark Plantain	1
Plantaginaceae	Plantago lanceolata	Ribwort	1
Elaeocarpaceae	Platytheca galioides		1
Podargidae	Podargus strigoides	Tawny Frogmouth	1
Podicipedidae	Podiceps cristatus	Great Crested Grebe	1
Pentatomidae	Poecilometis lineatus		1
Agamidae	Pogona minor	Dwarf Bearded Dragon	1
Asteraceae	Pogonolepis stricta		1
	Polyporales		1
Phyllanthaceae	Poranthera drummondii		1
Portunidae	Portunus armatus	Blue Swimmer Crab	1
Rallidae	Porzana (Porzana) fluminea	Australian Spotted Crake	1
Pottiaceae	Pottiaceae		1
Orchidaceae	Prasophyllum cyphochilum	Pouched Leek Orchid	1
Orchidaceae	Prasophyllum gibbosum	Hooded Leek Orchid	1
Orchidaceae	Prasophyllum ovale	Little Leek Orchid	1
Orchidaceae	Prasophyllum sp. early (G.Brockman GBB 1626)		1
Mycosphaerellaceae	Pseudocercospora		1
Pseudocheiridae	Pseudocheirus occidentalis	Western Ringtail Possum	1
Gasteruptionidae	Pseudofoenus		1
Dennstaedtiaceae	Pteridium esculentum	Austral Bracken	1
Anthelidae	Pterolocera		1
Orchidaceae	Pterostylis actites	Coastal Short-eared Snail Orchid	1
Orchidaceae	Pterostylis erubescens	Red-sepaled Snail Orchid	1
Orchidaceae	Pterostylis glebosa	Clubbed Snail Orchid	1
Orchidaceae	Pterostylis longicornis	Muir's Highway Bird Orchid	1
Amaranthaceae	Ptilotus drummondii var. drummondii	Pussytail	1
Amaranthaceae	Ptilotus drummondii var. minor		1
Fabaceae	Pultenaea reticulata		1
Rissoiidae	RISSOIDAE		1
Racopilaceae	Racopilum cuspidigerum	Carpet Moss	1
Muridae	Rattus rattus	Black Rat	1
Anapidae	Raveniella peckorum		1
Restionaceae	Restionaceae	Rush	1
Asteraceae	Rhodanthe manglesii		1
Repetobasidiaceae	Rickenella fibula		1
Iridaceae	Romulea rosea	Onion Grass	1
Rosaceae	Rosa rubiginosa	Sweet Briar	1
Chenopodiaceae	Salicornia blackiana	Thick-head Samphire	1
Chenopodiaceae	Salicornia quinqueflora	Beaded Glasswort	1
Chenopodiaceae	Salicornia	Samphires	1
Primulaceae	Samolus	Brook Weed	1
Santalaceae	Santalum acuminatum	Sweet Quandong	1
Goodeniaceae	Scaevola canescens	Grey Scaevola	1
Goodeniaceae	Scaevola lanceolata	Long-leaved Scaevola	1
Goodeniaceae	Scaevola repens var. repens		1
Schizophyllaceae	Schizophyllum commune	Splitgill Mushroom	1
Cyperaceae	Schoenus breviculmis	Matted Bog-rush	1
Cyperaceae	Schoenus elegans		1
Myrtaceae	Scholtzia involucrata	Spiked Scholtzia	1
Sclerodermataceae	Scleroderma		1
Scolopendridae	Scolopendra laeta		1
Coccinellidae	Scymnomorphus luteus		1

Selaginellaceae	Selaginella gracillima	Tiny Clubmoss	1
Asteraceae	Senecio leucoglossus		1
Asteraceae	Senecio pinnatifolius	Variable Groundsel	1
Asteraceae	Senecio ramosissimus		1
Sepiidae	Sepia	Cuttlefishes	1
Rubiaceae	Sherardia arvensis	Field Madder	1
Caryophyllaceae	Silene gallica var. gallica	French Catchfly	1
Caryophyllaceae	Silene nocturna	Mediterranean Catchfly	1
Asteraceae	Siloxerus humifusus	Procumbent Siloxerus	1
Asteraceae	Siloxerus		1
Labridae	Siphonognathus argyrophanes	Tubemouth	1
Araneidae	Socca		1
Solanaceae	Solanum linnaeanum	Apple Of Sodom	1
Solanaceae	Solanum simile	Kangaroo Apple	1
Leptosphaeriaceae	Sphaerellopsis filum		1
Poaceae	Spinifex		1
Picrodendraceae	Stachystemon vermicularis		1
Celastraceae	Stackhousia	Candles	1
Estrilidae	Stagonopleura (Zonaeginthus) oculata	Red-eared Firetail	1
Artamidae	Strepera (Neostrepera) versicolor	Grey Currawong	1
Columbidae	Streptopelia		1
Stylidiaceae	Stylidium adnatum	Common Beaked Triggerplant	1
Stylidiaceae	Stylidium amoenum	Lovely Triggerplant	1
Stylidiaceae	Stylidium bulbiferum	Circus Triggerplant	1
Stylidiaceae	Stylidium calcaratum	Spurred Trigger-plant	1
Stylidiaceae	Stylidium divaricatum	Daddy-long-legs	1
Stylidiaceae	Stylidium guttatum	Dotted Triggerplant	1
Ericaceae	Styphelia tubiflora	Red Five-corner	1
Ericaceae	Styphelia	Styphelia	1
Succineidae	Succinea (Succinea) scalarina		1
Succineidae	Succinea (Succinea)		1
Suidae	Sus scrofa	Pig	1
Dolichopodidae	Sympycnus		1
Proteaceae	Synaphea		1
Phasianidae	Synoicus ypsilophora	Brown Quail	1
Temnopleuridae	TEMNOPLEURIDAE		1
Theridiidae	THERIDIIDAE		1
Tapinellaceae	Tapinella panuoides		1
Teloschistaceae	Teloschistes chrysophthalmus	Golden-eye Lichen	1
	Termitoidae	White Ants	1
Aizoaceae	Tetragonia decumbens	Sea Spinach	1
Elaeocarpaceae	Tetratea hirsuta subsp. viminea		1
Orchidaceae	Thelymitra graminea	Shy Sun Orchid	1
Orchidaceae	Thelymitra macrophylla	Scented Sun Orchid	1
Orchidaceae	Thelymitra mucida	Plum Orchid	1
Orchidaceae	Thelymitra paludosa	Plain Sun Orchid	1
Orchidaceae	Thelymitra pauciflora	Slender Sun Orchid	1
Malvaceae	Thomasia cognata		1
Thuidiaceae	Thuidiopsis sparsa	Weft Moss	1
Asparagaceae	Thysanotus gracilis		1
Asparagaceae	Thysanotus sparteus	Leafless Fringed Lily	1
Asparagaceae	Thysanotus tenellus	Grassy Fringe-lily	1
Araliaceae	Trachymene coerulea subsp. coerulea	Rottnest Island Daisy	1
Araliaceae	Trachymene cyanopetala	Purple Trachymene	1
Haemodoraceae	Tribonanthes australis	Southern Tiurndin	1
Asteraceae	Trichocline spathulata	Native Gerbera	1

Psittacidae	Trichoglossus haematodus	Rainbow Lorikeet	1
Phalangeridae	Trichosurus vulpecula hypoleucus	Koomal, Kumari	1
Fabaceae	Trifolium arvense var. arvense	Hare's-foot Clover	1
Fabaceae	Trifolium arvense	Haresfoot Clover	1
Fabaceae	Trifolium hirtum	Rose Clover	1
Fabaceae	Trifolium incarnatum	Crimson Clover	1
Juncaginaceae	Triglochin nana	Dwarf Arrowgrass	1
Juncaginaceae	Triglochin striata	Streaked Arrowgrass	1
Rhamnaceae	Trymalium ledifolium var. rosmarinifolium		1
Rhamnaceae	Trymalium ledifolium		1
Tytonidae	Tyto javanica	Eastern Barn Owl	1
	Uredo angiosperma		1
Parmeliaceae	Usnea		1
Nymphalidae	Vanessa kershawi	Australian Painted Lady	1
Varanidae	Varanus gouldii	Gould's Goanna	1
Asteraceae	Vellereophyton dealbatum	White Cudweed	1
Lycosidae	Venator immansueta	Wolf Spider	1
Plantaginaceae	Veronica	Hebe	1
Myrtaceae	Verticordia plumosa var. plumosa		1
Vespertilionidae	Vespardelus regulus	Southern Forest Bat	1
Campanulaceae	Wahlenbergia gracilentia	Hairy Annual-bluebell	1
Campanulaceae	Wahlenbergia tumidifruca	Swollen-fruit Bluebell	1
Asteraceae	Waitzia nitida		1
Asteraceae	Waitzia suaveolens var. suaveolens		1
Asteraceae	Waitzia suaveolens	Fragrant Waitzia	1
Colchicaceae	Wurmbea dioica subsp. alba		1
Colchicaceae	Wurmbea		1
Physalacriaceae	Xerula		1
Buprestidae	Xyrosceles crocata		1
Araceae	Zantedeschia aethiopica	White Arum Lily	1
Batillariidae	Zeacumantus		1

Endemic Species

Endemic Species: 1

Spatially valid records are considered those that do not have any type of flag questioning their location, for example a terrestrial species being recorded in the ocean. [Ref6]

Number of endemic species (spatially valid only): 1

Table 3: Endemic Species

Family	Scientific Name	Common Name	No. Occurrences
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All threatened species

Number of threatened species: 151

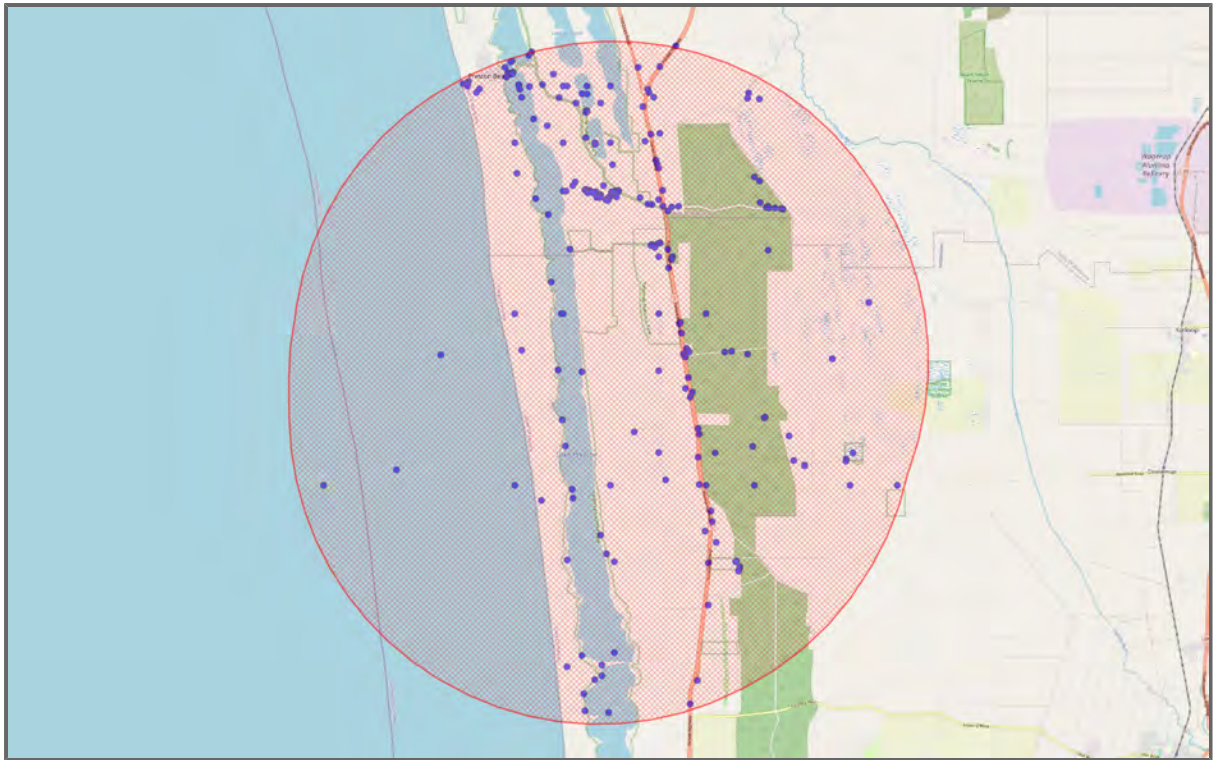


Figure 4 : Map of All threatened species

Table 4: All threatened species ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Charadriidae	<i>Thinornis cucullatus</i>	Hooded Plover	286
Recurvirostridae	<i>Cladorhynchus leucocephalus</i>	Banded Stilt	104
Meliphagidae	<i>Epthianura (Epthianura) albifrons</i>	White-fronted Chat	79
Scolopacidae	<i>Calidris (Ereunetes) ruficollis</i>	Red-necked Stint	73
Acanthizidae	<i>Gerygone fusca</i>	Western Gerygone	67
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	60
Petroicidae	<i>Petroica (Petroica) boodang</i>	Scarlet Robin	52
Scolopacidae	<i>Calidris (Erolia) ferruginea</i>	Curlew Sandpiper	37
Cacatuidae	<i>Zanda latirostris</i>	Short-billed Black-cockatoo	31
Apiaceae	<i>Daucus glochidiatus</i>	Native Carrot	27
Charadriidae	<i>Thinornis cucullatus cucullatus</i>	Eastern Hooded Dotteral	24
Charadriidae	<i>Charadrius (Charadrius) leschenaultii</i>	Greater Sand Plover	22
Phyllanthaceae	<i>Phyllanthus calycinus</i>	Snowdrop Spurge	18
Scolopacidae	<i>Calidris (Calidris) tenuirostris</i>	Great Knot	17
Accipitridae	<i>Hieraaetus (Hieraaetus) morphnoides</i>	Little Eagle	17
Psittacidae	<i>Polytelis anthopeplus</i>	Regent Parrot	17
Anatidae	<i>Biziura lobata</i>	Musk Duck	16
Cacatuidae	<i>Calyptorhynchus (Calyptorhynchus) banksii</i>	Red-tailed Black Cockatoo	16
Psittacidae	<i>Neophema (Neonanodes) elegans</i>	Elegant Parrot	15
Araliaceae	<i>Hydrocotyle diantha</i>	Kangaroo Island Pennywort	14
Fabaceae	<i>Sphaerolobium calcicola</i>		13
Orchidaceae	<i>Pterostylis frenchii</i>	Tuart Rufous Greenhood	12
Scolopacidae	<i>Arenaria interpres</i>	Ruddy Turnstone	11
Proteaceae	<i>Hakea oligoneura</i>		11
Poaceae	<i>Poa drummondiana</i>	Knotted Poa	11

Orchidaceae	<i>Pterostylis</i>	Greenhoods	11
Hemerocallidaceae	<i>Tricoryne elatior</i>	Yellow Rush Lily	11
Myrtaceae	<i>Eucalyptus foecunda</i>	Narrow-leaved Red Mallee	9
Accipitridae	<i>Lophoictinia isura</i>	Square-tailed Kite	9
Scolopacidae	<i>Tringa (Glottis) nebularia</i>	Common Greenshank	9
Cacatuidae	<i>Zanda baudinii</i>	Long-billed Black-cockatoo	9
Scolopacidae	<i>Calidris (Erolia) acuminata</i>	Sharp-tailed Sandpiper	8
Myrtaceae	<i>Corymbia haematoxylon</i>	Mountain Marri	8
Vespertilionidae	<i>Falsistrellus mackenziei</i>	Western False Pipistrelle	8
Asteraceae	<i>Quinetia urvillei</i>	Quinetia	8
Scolopacidae	<i>Tringa (Heteroscelus) brevipes</i>	Grey-tailed Tattler	8
Fabaceae	<i>Acacia semitrullata</i>		7
Orchidaceae	<i>Caladenia</i>	Fairy Orchids	7
Myrtaceae	<i>Melaleuca cuticularis</i>	Western Swamp-paperbark	7
Stylidiaceae	<i>Stylidium paludicola</i>	Swamp Reed Triggerplant	7
Haematopodidae	<i>Haematopus longirostris</i>	Australian Pied Oystercatcher	6
Accipitridae	<i>Haliaeetus (Pontoaetus) leucogaster</i>	White-bellied Sea-eagle	6
Poaceae	<i>Polypogon tenellus</i>		6
Anatidae	<i>Spatula rhynchotis</i>	Australasian Shoveler	6
Juncaginaceae	<i>Triglochin trichophora</i>	Torpedo Arrowgrass	6
Ardeidae	<i>Ardea alba modesta</i>	Great Egret	5
Scolopacidae	<i>Calidris (Calidris) canutus</i>	Red Knot	5
Myrtaceae	<i>Melaleuca</i>	Tea-tree	5
Urticaceae	<i>Parietaria debilis</i>	Shade Pellitory	5
Asteraceae	<i>Podotheca angustifolia</i>	Sticky Long-heads	5
Orchidaceae	<i>Prasophyllum elatum</i>	Tall Leek-orchid	5
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	4
Euphorbiaceae	<i>Adriana quadripartita</i>	Rare Bitter-bush	4
Malvaceae	<i>Alyogyne</i> sp. Rockingham (G.J.Keighery 14463)		4
Rutaceae	<i>Boronia capitata</i> subsp. <i>gracilis</i>		4
Neosittidae	<i>Daphoenositta (Neositta) chrysoptera</i>	Varied Sittella	4
Orchidaceae	<i>Diuris micrantha</i>	Dwarf Bee Orchid	4
Haloragaceae	<i>Haloragis scoparia</i>		4
Lamiaceae	<i>Hemigenia microphylla</i>		4
Asteraceae	<i>Sonchus hydrophilus</i>	Native Sow-thistle	4
Acrocephalidae	<i>Acrocephalus (Acrocephalus) australis</i>	Australian Reed Warbler	3
Orchidaceae	<i>Caladenia speciosa</i>	Sandplain White Spider Orchid	3
Cacatuidae	<i>Calyptorhynchus (Calyptorhynchus) banksii naso</i>	Forest Red-tailed Black-cockatoo	3
Myrtaceae	<i>Eucalyptus</i>	Studley Park Gum	3
Falconidae	<i>Falco (Hierofalco) peregrinus</i>	Peregrine Falcon	3
Haloragaceae	<i>Haloragis aculeolata</i>		3
Malvaceae	<i>Lasiopetalum membranaceum</i>		3
Orchidaceae	<i>Microtis</i>	Onion Orchids	3
Thymelaeaceae	<i>Pimelea calcicola</i>	Coastal Banjine	3
Laridae	<i>Thalasseus bergii</i>	Crested Tern	3
Orchidaceae	<i>Thelymitra benthamiana</i>	Leopard Sun-orchid	3
Juncaginaceae	<i>Triglochin isingiana</i>	Spurred Arrowgrass	3
Juncaginaceae	<i>Triglochin mucronata</i>	Prickly Arrowgrass	3
Convolvulaceae	<i>Wilsonia backhousei</i>	Narrow-leaf Wilsonia	3
Fabaceae	<i>Acacia</i>	Wattle	2
Ericaceae	<i>Acrotriche cordata</i>	Blunt-leaf Ground-berry	2
Anatidae	<i>Aythya (Nyroca) australis</i>	Hardhead	2
Orchidaceae	<i>Caladenia huegelii</i>	Grand Spider Orchid	2
Orchidaceae	<i>Caladenia swartsiorum</i>	Island Point Spider Orchid	2
Scolopacidae	<i>Calidris (Crocethia) alba</i>	Sanderling	2
Orchidaceae	<i>Corybas</i>	Spurred Helmet Orchid	2

Orchidaceae	Diuris	Donkey Orchids	2
Droseraceae	Drosera paleacea	Dwarf Sundew	2
Ardeidae	Egretta garzetta	Little Egret	2
Dilleniaceae	Hibbertia spicata subsp. leptotheca		2
Campephagidae	Lalage (Lalage) tricolor	White-winged Triller	2
Stylidiaceae	Levenhookia stipitata	Common Stylewort	2
Cyperaceae	Machaerina arthropylla	Baumea	2
Orchidaceae	Orchidaceae	Orchids	2
Petroicidae	Petroica (Petroica) multicolor	Pacific Robin	2
Columbidae	Phaps (Phaps) elegans	Brush Bronzewing	2
Loganiaceae	Phyllangium divergens	Wiry Mitrewort	2
Charadriidae	Pluvialis fulva	Pacific Golden Plover	2
Orchidaceae	Prasophyllum calcicola	Limestone Leek-orchid	2
Orchidaceae	Pterostylis sanguinea	Blood Greenhood	2
Cyperaceae	Schoenus nanus	Little Bog-rush	2
Asteraceae	Senecio depressicola	Senecio	2
Stylidiaceae	Stylidium longitubum	Jumping Jacks	2
Stylidiaceae	Stylidium maritimum	Coastal Triggerplant	2
Orchidaceae	Thelymitra flexuosa	Twisted Sun-orchid	2
Varanidae	Varanus rosenbergi	Heath Monitor	2
Scolopacidae	Xenus cinereus	Terek Sandpiper	2
Fabaceae	Acacia horridula		1
Otididae	Ardeotis australis	Australian Bustard	1
Rutaceae	Boronia juncea subsp. juncea		1
Byblidaceae	Byblis gigantea	Rainbow Plant	1
Asteraceae	Centipeda cunninghamii	Common Sneezeweed	1
Cheloniidae	Chelonia mydas	Green Turtle	1
Ranunculaceae	Clematis aristata	Mountain Old Man's Beard	1
Haemodoraceae	Conostylis pauciflora subsp. pauciflora		1
Orchidaceae	Cyrtostylis reniformis	Small Gnat-orchid	1
Fabaceae	Dillwynia dillwynioides		1
Diomedeidae	Diomedea exulans	Wandering Albatross	1
Orchidaceae	Drakaea micrantha	Dwarf Hammer Orchid	1
Droseraceae	Drosera	Sundews	1
Scrophulariaceae	Euphrasia scabra	Rough Eyebright	1
Rubiaceae	Galium leptogonium	Reflexed Bedstraw	1
Haloragaceae	Glischrocaryon angustifolium	Golden Pennants	1
Proteaceae	Grevillea candolleana	Toodyay Grevillea	1
Hydrocharitaceae	Halophila ovalis	Halophila	1
Araliaceae	Hydrocotyle intertexta	Buttercup Pennywort	1
Laridae	Hydroprogne caspia	Caspian Tern	1
Juncaceae	Juncus kraussii subsp. australiensis	Juncus	1
Kogiidae	Kogia sima	Dwarf Sperm Whale	1
Poaceae	Lachnagrostis filiformis	Common Blown-grass	1
Asteraceae	Leptorhynchus scaber	Annual Buttons	1
Scincidae	Lerista lineata	Perth Slider	1
Ericaceae	Leucopogon sp. Busselton (D.Cooper 243)		1
Ericaceae	Leucopogon		1
Stylidiaceae	Levenhookia pusilla	Tiny Stylewort	1
Cyperaceae	Machaerina articulata	Jointed Twig-rush	1
Zamiaceae	Macrozamia	Cycad	1
Haloragaceae	Meionectes tenuifolia		1
Orchidaceae	Microtis unifolia	Common Onion Orchid	1
Haloragaceae	Myriophyllum crispatum	Upright Milfoil	1
Otariidae	Neophoca cinerea	Australian Sea-lion	1
Elapidae	Notechis scutatus	Tiger Snake	1

Scolopacidae	Numenius (Numenius) madagascariensis	Eastern Curlew	1
Accipitridae	Pandion haliaetus cristatus	Eastern Osprey	1
Petalophyllaceae	Petalophyllum preissii	Petalwort	1
Dasyuridae	Phascogale tapoatafa wambenger	Wambenger	1
Podicipedidae	Podiceps cristatus	Great Crested Grebe	1
Rallidae	Porzana (Porzana) fluminea	Australian Spotted Crake	1
Pseudocheiridae	Pseudocheirus occidentalis	Western Ringtail Possum	1
Santalaceae	Santalum acuminatum	Sweet Quandong	1
Asteraceae	Senecio leucoglossus		1
Celastraceae	Stackhousia	Candles	1
Orchidaceae	Thelymitra mucida	Plum Orchid	1
Orchidaceae	Thelymitra pauciflora	Slender Sun Orchid	1
Asparagaceae	Thysanotus tenellus	Grassy Fringe-lily	1
Campanulaceae	Wahlenbergia tumidifructa	Swollen-fruit Bluebell	1

All invasive species

Number of invasive species: 10

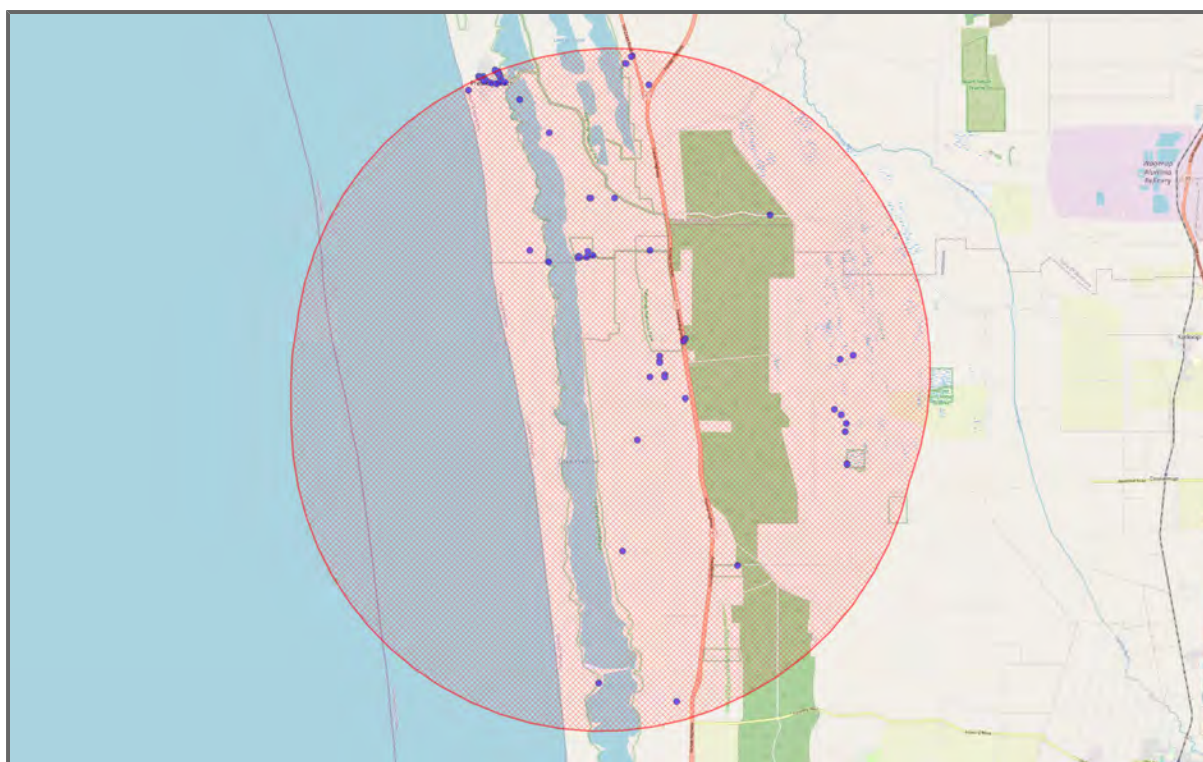


Figure 5 : Map of All invasive species

Table 5: All invasive species ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit	67
Helicidae	<i>Theba pisana</i>	White Italian Snail	6
Hygromiidae	<i>Cochlicella acuta</i>	Pointed Snail	2
Formicidae	<i>Iridomyrmex</i>		2
Iridaceae	<i>Moraea flaccida</i>	One-leaf Cape Tulip	2
Verbenaceae	<i>Lantana camara</i>	Lantana	1
Pieridae	<i>Pieris rapae</i>	Cabbage White Butterfly	1
Solanaceae	<i>Solanum linnaeanum</i>	Apple Of Sodom	1
Suidae	<i>Sus scrofa</i>	Pig	1
Araceae	<i>Zantedeschia aethiopica</i>	White Arum Lily	1

Migratory species

Number of migratory species: 0

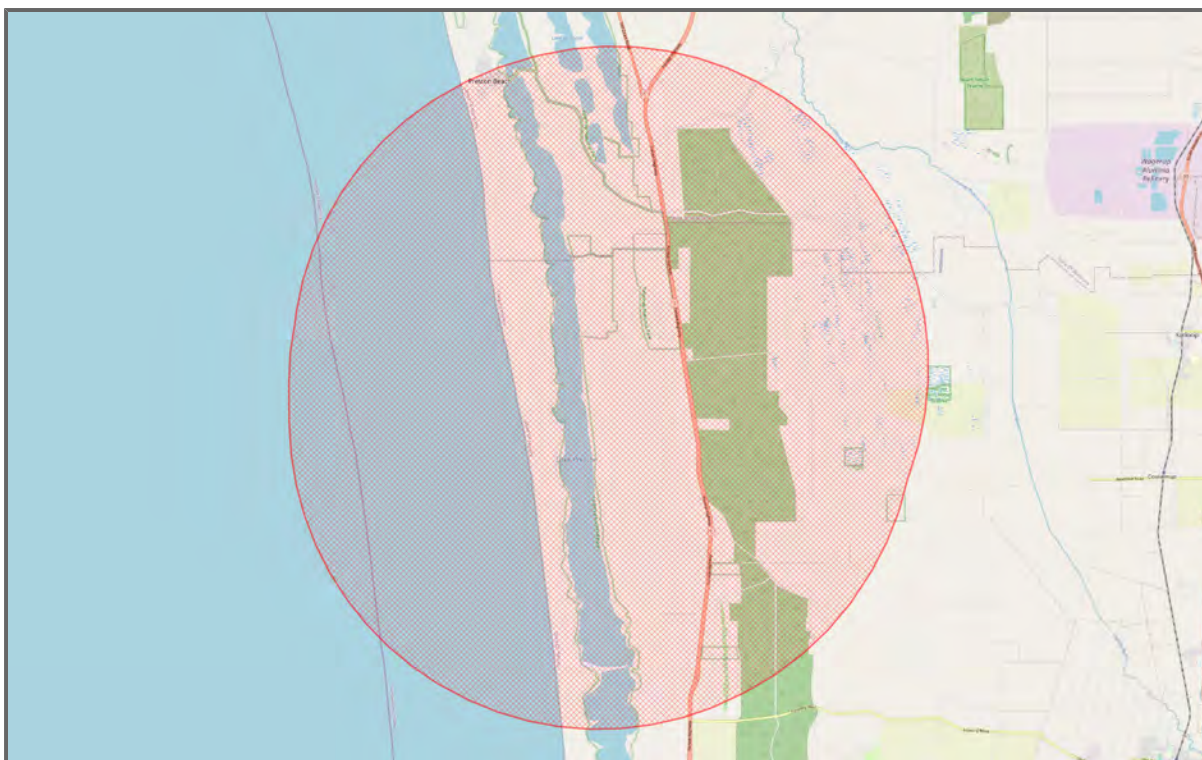


Figure 6 : Map of Migratory species

Table 6: Migratory species ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
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Lifeform - Algae

Number of Algae 1

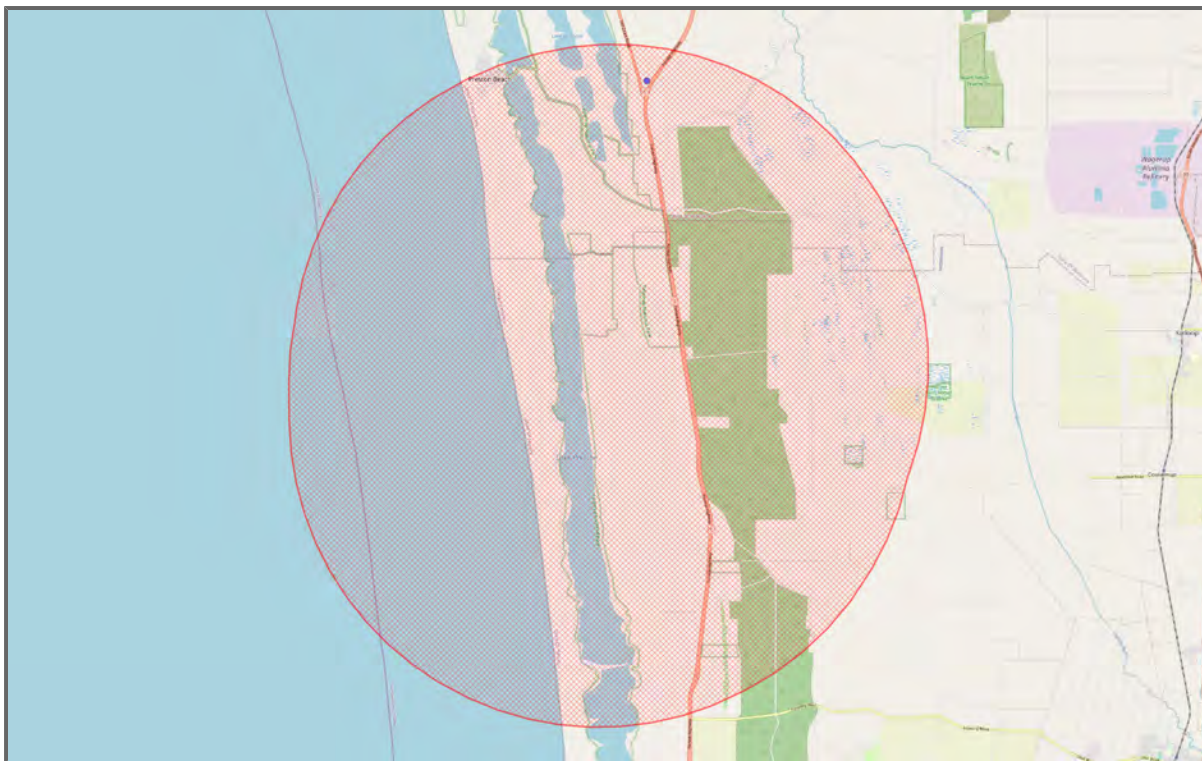


Figure 7 : Map of Lifeform - Algae

Table 7: Lifeform - Algae ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Corallinaceae	Corallina		1

Lifeform - Angiosperms

Number of Angiosperms 0

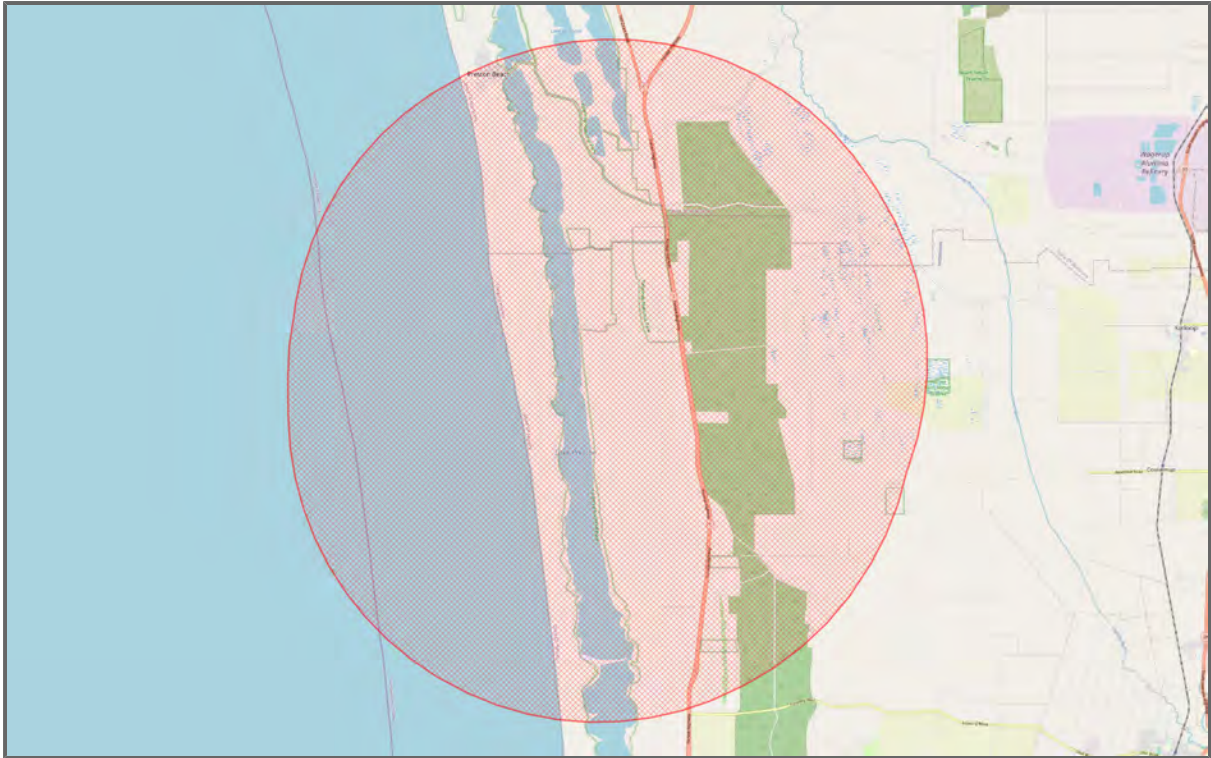


Figure 8 : Map of Lifeform - Angiosperms

Table 8: Lifeform - Angiosperms [\(Link to full list\)](#)

Family	Scientific Name	Common Name	No. Occurrences
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Lifeform - Bryophytes

Number of Bryophytes 13

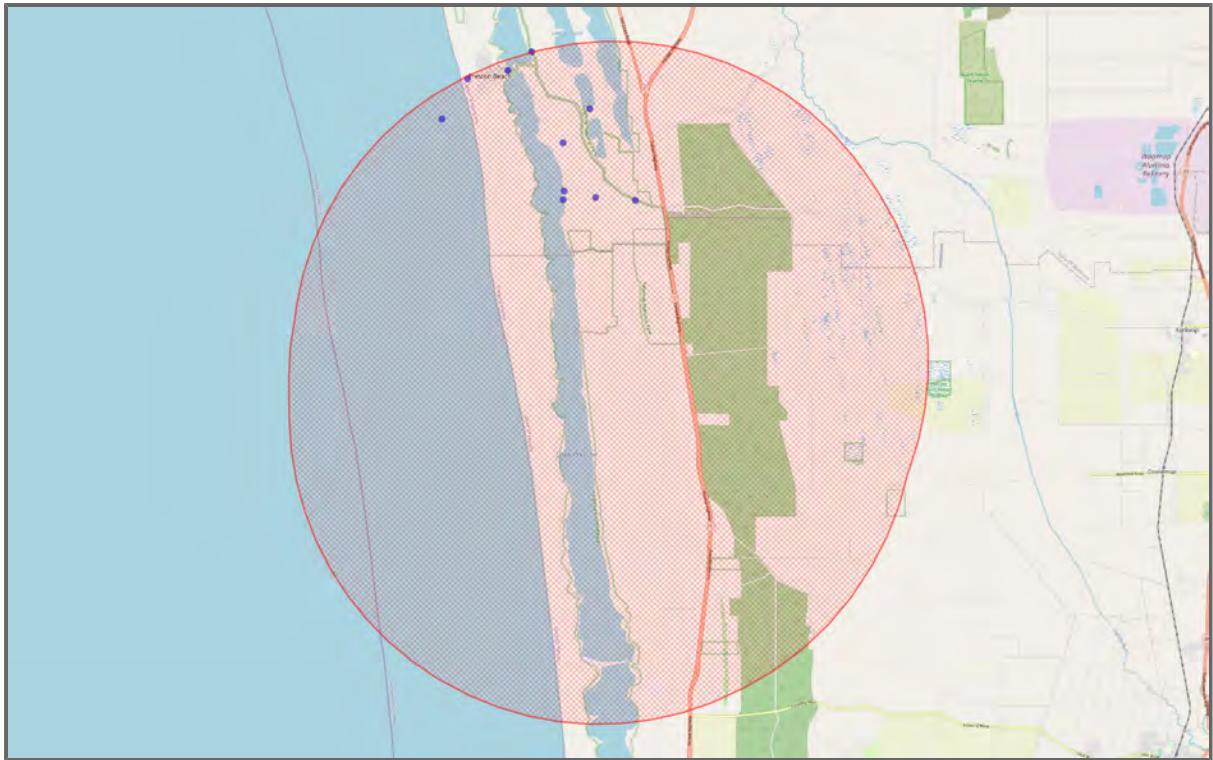


Figure 9 : Map of Lifeform - Bryophytes

Table 9: Lifeform - Bryophytes ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Funariaceae	<i>Funaria hygrometrica</i>	Common Cord-moss	4
Bryaceae	<i>Gemmabryum pachythea</i>	Acorn-fruited Thread-moss	2
Pottiaceae	<i>Barbula calycina</i>	Common Beard-moss	1
	Bryophyta		1
Bryaceae	<i>Bryum</i>		1
Leucobryaceae	<i>Campylopus introflexus</i>	Swan-neck Moss	1
Funariaceae	<i>Entosthodon</i>		1
Funariaceae	Funariaceae		1
Funariaceae	<i>Funaria</i>		1
Petalophyllaceae	<i>Petalophyllum preissii</i>	Petalwort	1
Pottiaceae	Pottiaceae		1
Racopilaceae	<i>Racopilum cuspidigerum</i>	Carpet Moss	1
Thuidiaceae	<i>Thuidiopsis sparsa</i>	Weft Moss	1

Lifeform - Dicots

Number of Dicots 539

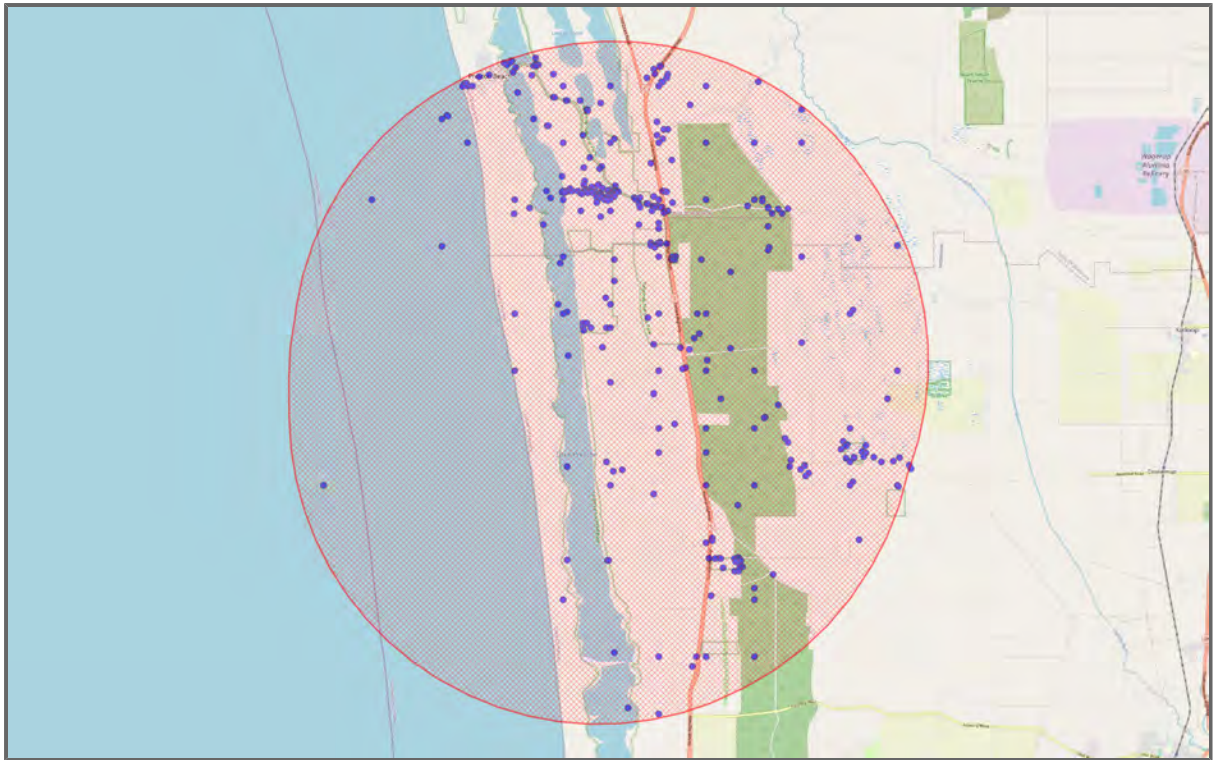


Figure 10 : Map of Lifeform - Dicots

Table 10: Lifeform - Dicots ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Dilleniaceae	<i>Hibbertia hypericoides</i>	Yellow Buttercups	28
Dilleniaceae	<i>Hibbertia racemosa</i>	Stalked Guinea Flower	28
Apiaceae	<i>Daucus glochidiatus</i>	Native Carrot	27
Asteraceae	<i>Hypochaeris glabra</i>	Smooth Cat's Ear	22
Fabaceae	<i>Acacia truncata</i>		21
Araliaceae	<i>Trachymene pilosa</i>	Dwarf Trachymene	21
Proteaceae	<i>Banksia attenuata</i>	Coast Banksia	20
Santalaceae	<i>Leptomeria ellytes</i>		19
Ericaceae	<i>Astroloma microcalyx</i>	Native Cranberry	18
Proteaceae	<i>Banksia grandis</i>	Giant Banksia	18
Fabaceae	<i>Hardenbergia comptoniana</i>	Western Australian Coral-pea	18
Ericaceae	<i>Leucopogon parviflorus</i>	Coast Beard-heath	18
Phyllanthaceae	<i>Phyllanthus calycinus</i>	Snowdrop Spurge	18
Droseraceae	<i>Drosera stolonifera</i>	Leafy Sundew	17
Apiaceae	<i>Xanthosia huegelii</i>	Hairy Xanthosia	17
Myrtaceae	<i>Eucalyptus petrensis</i>	Limestone Mallee	16
Myrtaceae	<i>Melaleuca systema</i>	Coastal Honeymyrtle	16
Fabaceae	<i>Acacia pulchella</i>	Prickly Moses	15
Lauraceae	<i>Cassytha glabella</i>	Slender Dodder-laurel	15
Myrtaceae	<i>Eucalyptus gomphocephala</i>	Tuart	14
Araliaceae	<i>Hydrocotyle diantha</i>	Kangaroo Island Pennywort	14
Rutaceae	<i>Philothea spicata</i>	Pepper And Salt	14
Fabaceae	<i>Templetonia retusa</i>	Cockies Tongue	14
Droseraceae	<i>Drosera erythrorhiza</i>	Red Ink Sundew	13
Lamiaceae	<i>Hemiandra pungens</i>	Snakebush	13

Santalaceae	<i>Leptomeria cunninghamii</i>		13
Ericaceae	<i>Leucopogon propinquus</i>		13
Scrophulariaceae	<i>Myoporum caprarioides</i>	Slender Myoporum	13
Fabaceae	<i>Sphaerolobium calcicola</i>		13
Myrtaceae	<i>Melaleuca teretifolia</i>	Banbar	12
Asteraceae	<i>Rhodanthe citrina</i>	Pale Immortelle	12
Orobanchaceae	<i>Bellardia trixago</i>	Bellardia	11
Droseraceae	<i>Drosera porrecta</i>	Leafy Sundew	11
Proteaceae	<i>Hakea oligoneura</i>		11
Proteaceae	<i>Hakea ruscifolia</i>	Candle Hakea	11
Proteaceae	<i>Hakea varia</i>	Variable-leaved Hakea	11
Primulaceae	<i>Lysimachia arvensis</i>	Pimpernel	11
Ericaceae	<i>Lysinema ciliatum</i>	Curry Flower	11
Fabaceae	<i>Acacia saligna</i>	Golden Wreath Wattle	10
Myrtaceae	<i>Agonis flexuosa</i>	Willow Myrtle	10
Orobanchaceae	<i>Bellardia viscosa</i>	Yellow Bartsia	10
Fabaceae	<i>Bossiaea eriocarpa</i>	Common Brown Pea	10
Polygalaceae	<i>Comesperma confertum</i>		10
Myrtaceae	<i>Eucalyptus decipiens</i>	Redheart	10
Fabaceae	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea	10
Proteaceae	<i>Grevillea preissii</i>	Spider Net Grevillea	10
Proteaceae	<i>Hakea prostrata</i>	Harsh Hakea	10
Proteaceae	<i>Hakea trifurcata</i>	Two-leaf Hakea	10
Myrtaceae	<i>Hypocalymma robustum</i>	Swan River Myrtle	10
Asteraceae	<i>Lagenophora huegelii</i>	Coarse Bottle-daisy	10
Loganiaceae	<i>Logania vaginalis</i>	White Spray	10
Myrtaceae	<i>Melaleuca incana</i> subsp. <i>incana</i>	Grey Honey-myrtle	10
Fabaceae	<i>Melilotus indicus</i>	Sweet Melilot	10
Asteraceae	<i>Olearia axillaris</i>	Coast Daisy-bush	10
Asteraceae	<i>Sonchus oleraceus</i>	Common Sow-thistle	10
Araliaceae	<i>Trachymene coerulea</i>	Rottnest Island Daisy	10
Asteraceae	<i>Angianthus preissianus</i>	Salt Angianthus	9
Proteaceae	<i>Banksia ilicifolia</i>	Holly Leaved Banksia	9
Myrtaceae	<i>Eucalyptus foecunda</i>	Narrow-leaved Red Mallee	9
Santalaceae	<i>Exocarpos sparteus</i>	Broombush	9
Violaceae	<i>Hybanthus calycinus</i>	Wild Violet	9
Asteraceae	<i>Ixiolaena viscosa</i>	Sticky Ixiolaena	9
Campanulaceae	<i>Lobelia tenuior</i>	Slender Lobelia	9
Loganiaceae	<i>Phyllangium paradoxum</i>	Wiry Mitrewort	9
Ranunculaceae	<i>Ranunculus pumilio</i>	Ferny Buttercup	9
Fabaceae	<i>Trifolium dubium</i>	Suckling Clover	9
Asteraceae	<i>Ursinia anthemoides</i>	Ursinia	9
Proteaceae	<i>Xylomelum occidentale</i>	Woody Pear	9
Casuarinaceae	<i>Allocasuarina humilis</i>	Dwarf Sheoak	8
Asteraceae	<i>Asteridea pulverulenta</i>	Common Bristle Daisy	8
Proteaceae	<i>Banksia littoralis</i>	Swamp Banksia	8
Myrtaceae	<i>Calothamnus quadrifidus</i>	Common Net Bush	8
Ranunculaceae	<i>Clematis pubescens</i>	Common Clematis	8
Myrtaceae	<i>Corymbia haematoxylon</i>	Mountain Marri	8
Goodeniaceae	<i>Dampiera linearis</i>	Wedge-leaved Dampiera	8
Geraniaceae	<i>Geranium molle</i>	Soft Geranium	8
Apiaceae	<i>Homalosciadium homalocarpum</i>		8
Fabaceae	<i>Hovea trisperma</i>	Common Hovea	8
Myrtaceae	<i>Melaleuca rhapsiophylla</i>	Swamp Paperbark	8
Myrtaceae	<i>Melaleuca thymoides</i>		8
Rubiaceae	<i>Opercularia vaginata</i>	Dog Weed	8

Proteaceae	<i>Petrophile linearis</i>	Pixie Mops	8
Asteraceae	<i>Quinetia urvillei</i>	Quinetia	8
Goodeniaceae	<i>Scaevola anchlussifolia</i>	Silky Scaevola	8
Rhamnaceae	<i>Spyridium globulosum</i>	Basket Bush	8
Fabaceae	<i>Acacia semitrullata</i>		7
Solanaceae	<i>Anthocercis ilicifolia</i>	Holly-leaf Tailflower	7
Portulacaceae	<i>Calandrinia brevipedata</i>	Short-stalked Purslane	7
Portulacaceae	<i>Calandrinia liniflora</i>	Parakeelya	7
Caryophyllaceae	<i>Cerastium glomeratum</i>	Common Mouse-ear Chickweed	7
Sapindaceae	<i>Diplopeltis huegelii</i> subsp. <i>huegelii</i>		7
Fabaceae	<i>Gastrolobium linearifolium</i>		7
Proteaceae	<i>Grevillea preissii</i> subsp. <i>preissii</i>		7
Brassicaceae	<i>Heliophila pusilla</i>	Fine Sunflax	7
Araliaceae	<i>Hydrocotyle callicarpa</i>	Tiny Pennywort	7
Araliaceae	<i>Hydrocotyle hispidula</i>		7
Myrtaceae	<i>Melaleuca cuticularis</i>	Western Swamp-paperbark	7
Caryophyllaceae	<i>Petrophagia dubia</i>	Velvet Pink	7
Celastraceae	<i>Stackhousia monogyna</i>	Creamy Candles	7
Stylidiaceae	<i>Stylidium paludicola</i>	Swamp Reed Triggerplant	7
Fabaceae	<i>Acacia willdenowiana</i>	Grass Wattle	6
Proteaceae	<i>Adenanthos obovatus</i>	Basket Flower	6
Proteaceae	<i>Banksia dallanneyi</i>		6
Proteaceae	<i>Banksia nivea</i>		6
Asteraceae	<i>Brachyscome iberidifolia</i>	Brachyscome	6
Lauraceae	<i>Cassytha flava</i>	Dodder Laurel	6
Fabaceae	<i>Daviesia physodes</i>		6
Droseraceae	<i>Drosera macrantha</i> subsp. <i>macrantha</i>		6
Droseraceae	<i>Drosera macrantha</i>	Bridal Rainbow	6
Fabaceae	<i>Gompholobium confertum</i>		6
Araliaceae	<i>Hydrocotyle scutellifera</i>	Western Shield Pennywort	6
Campanulaceae	<i>Isotoma hypocrateriformis</i>	Woodbridge Poison	6
Santalaceae	<i>Leptomeria empetriformis</i>		6
Asteraceae	<i>Millotia myosotidifolia</i>	Broad-leaf Millotia	6
Proteaceae	<i>Petrophile serruriae</i>		6
Caryophyllaceae	<i>Stellaria media</i>	Chickweed	6
Stylidiaceae	<i>Stylidium junceum</i>	Reed Triggerplant	6
Stylidiaceae	<i>Stylidium repens</i>	Matted Triggerplant	6
Stylidiaceae	<i>Stylidium schoenoides</i>	Cow Kicks	6
Rhamnaceae	<i>Trymalium ledifolium</i> var. <i>ledifolium</i>		6
Proteaceae	<i>Banksia</i>	Banksia	5
Pittosporaceae	<i>Billardiera variifolia</i>		5
Lauraceae	<i>Cassytha racemosa</i>	Dodder Laurel	5
Crassulaceae	<i>Crassula colorata</i>	Dense Stonecrop	5
Rhamnaceae	<i>Cryptandra mutila</i>		5
Sapindaceae	<i>Diplopeltis huegelii</i>		5
Droseraceae	<i>Drosera pallida</i>	Pale Rainbow	5
Droseraceae	<i>Drosera squamosa</i>		5
Myrtaceae	<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	Jarra	5
Myrtaceae	<i>Eucalyptus marginata</i>	Jarra	5
Euphorbiaceae	<i>Euphorbia paralias</i>	Sea Spurge	5
Araliaceae	<i>Hydrocotyle alata</i>		5
Fabaceae	<i>Jacksonia furcellata</i>	Grey Stinkwood	5
Fabaceae	<i>Jacksonia sternbergiana</i>	Stinkwood	5
Ericaceae	<i>Leucopogon racemulosus</i>		5
Linaceae	<i>Linum marginale</i>	Native Flax	5
Myrtaceae	<i>Melaleuca lanceolata</i>	Dryland Tea-tree	5

Myrtaceae	Melaleuca pauciflora		5
Myrtaceae	Melaleuca	Tea-tree	5
Menyanthaceae	Ornduffia albiflora		5
Fabaceae	Ornithopus compressus	Neat Bird's-foot	5
Urticaceae	Parietaria debilis	Shade Pellitory	5
Geraniaceae	Pelargonium capitatum	Rose-scented Pelargonium	5
Thymelaeaceae	Pimelea rosea	Rose Banjine	5
Asteraceae	Podotheca angustifolia	Sticky Long-heads	5
Primulaceae	Samolus junceus		5
Proteaceae	Stirlingia latifolia	Blueboy	5
Stylidiaceae	Stylidium brunonianum	Pink Fountain Triggerplant	5
Gyrostemonaceae	Tersonia cyathiflora	Button Creeper	5
Malvaceae	Thomasia triphylla		5
Fabaceae	Trifolium campestre var. campestre	Hop Clover	5
Myrtaceae	Verticordia nitens	Yellow Morrison	5
Fabaceae	Acacia pulchella var. pulchella	Prickly Moses	4
Euphorbiaceae	Adriana quadripartita	Rare Bitter-bush	4
Malvaceae	Alyogyne sp. Rockingham (G.J.Keighery 14463)		4
Solanaceae	Anthocercis		4
Rutaceae	Boronia capitata subsp. gracilis		4
Myrtaceae	Calothamnus lateralis		4
Myrtaceae	Chamelaucium uncinatum	Geraldton Wax	4
Myrtaceae	Corymbia calophylla	Marri	4
Crassulaceae	Crassula colorata var. colorata	Dense Crassula	4
Convolvulaceae	Cuscuta epithymum	Common Dodder	4
Proteaceae	Hakea	Needle Bushes	4
Haloragaceae	Haloragis scoparia		4
Lamiaceae	Hemiandra glabra		4
Lamiaceae	Hemigenia microphylla		4
Dilleniaceae	Hibbertia stellaris	Guinea Flower	4
Fabaceae	Hovea trisperma var. trisperma	Common Hovea	4
Asteraceae	Hyalosperma cotula		4
Araliaceae	Hydrocotyle medicaginoides	Medic Pennywort	4
Myrtaceae	Hypocalymma ericifolium		4
Fabaceae	Kennedia coccinea	Coral Vine	4
Fabaceae	Kennedia prostrata	Scarlet Runner	4
Myrtaceae	Melaleuca viminea subsp. viminea	Weeping Honey-myrtle	4
Asteraceae	Millotia tenuifolia var. tenuifolia	Soft Millotia	4
Asteraceae	Millotia tenuifolia	Soft Millotia	4
Loranthaceae	Nuytsia floribunda	Western Australian Christmas Tree	4
Loganiaceae	Orianthera serpyllifolia		4
Orobanchaceae	Orobanche minor	Lesser Broomrape	4
Proteaceae	Persoonia saccata	Snottygobble	4
Ranunculaceae	Ranunculus colonorum	Common Buttercup	4
Chenopodiaceae	Rhagodia baccata subsp. baccata	Berry Saltbush	4
Primulaceae	Samolus repens	Creeping Brookweed	4
Goodeniaceae	Scaevola crassifolia	Cushion Fanflower	4
Goodeniaceae	Scaevola thesioides subsp. thesioides		4
Asteraceae	Senecio pinnatifolius var. latilobus	Variable Groundsel	4
Asteraceae	Sonchus hydrophilus	Native Sow-thistle	4
Stylidiaceae	Stylidium carnosum	Fleshy-leaved Triggerplant	4
Chenopodiaceae	Threlkeldia diffusa	Coast Bonefruit	4
Fabaceae	Trifolium campestre	Hop Clover	4
Fabaceae	Acacia cyclops	Western Coastal Wattle	3
Fabaceae	Acacia lasiocalyx	Shaggy Wattle	3
Fabaceae	Acacia lasiocarpa		3

Malvaceae	<i>Alyogyne huegelii</i>	Lilac Hibiscus	3
Apocynaceae	<i>Alyxia buxifolia</i>	Sea Box	3
Solanaceae	<i>Anthocercis littorea</i>	Yellow Tailflower	3
Brassicaceae	<i>Arabidopsis thaliana</i>	Thale Cress	3
Asteraceae	<i>Arctotheca calendula</i>	Cape Weed	3
Aizoaceae	<i>Carpobrotus virescens</i>	Pigface	3
Lauraceae	<i>Cassytha micrantha</i>		3
Caprifoliaceae	<i>Centranthus macrosiphon</i>	Pretty Betsy	3
Ericaceae	<i>Conostephium pendulum</i>	Pearl Flower	3
Rutaceae	<i>Diplolaena dampieri</i>	Southern Diplolaena	3
Geraniaceae	<i>Erodium cicutarium</i>	Common Herons-bill	3
Myrtaceae	<i>Eucalyptus</i>	Studley Park Gum	3
Fabaceae	<i>Euchilopsis linearis</i>	Swamp Pea	3
Rubiaceae	<i>Galium murale</i>	Small Bedstraw	3
Geraniaceae	<i>Geranium retrorsum</i>	Grassland Crane's-bill	3
Haloragaceae	<i>Haloragis aculeolata</i>		3
Fabaceae	<i>Hovea pungens</i>	Devils Pins	3
Araliaceae	<i>Hydrocotyle tetragonocarpa</i>	Limestone Pennywort	3
Myrtaceae	<i>Hypocalymma angustifolium</i>	White Myrtle	3
Fabaceae	<i>Isotropis cuneifolia</i>	Granny Bonnets	3
Malvaceae	<i>Lasiopetalum membranaceum</i>		3
Malvaceae	<i>Lawrenzia glomerata</i>	Clustered Lawrenzia	3
Plumbaginaceae	<i>Limonium companyonis</i>	Sea-lavender	3
Fabaceae	<i>Lotus angustissimus</i>	Slender Bird's-foot Trefoil	3
Fabaceae	<i>Lotus subbiflorus</i>	Hairy Bird's-foot Trefoil	3
Myrtaceae	<i>Melaleuca huegelii</i> subsp. <i>huegelii</i>	Chenille Honeymyrtle	3
Myrtaceae	<i>Melaleuca huegelii</i>	Chenille Honeymyrtle	3
Myrtaceae	<i>Melaleuca viminea</i>	Mohan	3
Scrophulariaceae	<i>Myoporum insulare</i>	Common Boobialla	3
Loganiaceae	<i>Orianthera serpyllifolia</i> subsp. <i>angustifolia</i>		3
Menyanthaceae	<i>Ornuffia parnassifolia</i>		3
Fabaceae	<i>Ornithopus pinnatus</i>	Slender Serradella	3
Thymelaeaceae	<i>Pimelea calcicola</i>	Coastal Banjine	3
Thymelaeaceae	<i>Pimelea rosea</i> subsp. <i>rosea</i>	Rose Banjine	3
Asteraceae	<i>Podolepis gracilis</i>	Slender Podolepis	3
Phyllanthaceae	<i>Poranthera microphylla</i>	Small Poranthera	3
Fabaceae	<i>Pultenaea ochreatea</i>		3
Chenopodiaceae	<i>Rhagodia baccata</i>	Berry Saltbush	3
Caryophyllaceae	<i>Silene gallica</i>	French Catchfly	3
Solanaceae	<i>Solanum symonii</i>	Symon's Kangaroo-apple	3
Fabaceae	<i>Sphaerolobium medium</i>		3
Fabaceae	<i>Sphaerolobium vimineum</i>	Leafless Globe-pea	3
Brassicaceae	<i>Stenopetalum gracile</i>		3
Brassicaceae	<i>Stenopetalum robustum</i>		3
Elaeocarpaceae	<i>Tetratheca hirsuta</i>	Black-eyed Susan	3
Fabaceae	<i>Trifolium scabrum</i>	Rough Clover	3
Convolvulaceae	<i>Wilsonia backhousei</i>	Narrow-leaf Wilsonia	3
Fabaceae	<i>Acacia cochlearis</i>	Rigid Wattle	2
Fabaceae	<i>Acacia huegelii</i>	Huegel's Wattle	2
Fabaceae	<i>Acacia</i>	Wattle	2
Ericaceae	<i>Acrotriche cordata</i>	Blunt-leaf Ground-berry	2
Apiaceae	<i>Actinotus glomeratus</i>		2
Proteaceae	<i>Adenanthos meisneri</i>		2
Ericaceae	<i>Andersonia involucreta</i>		2
Solanaceae	<i>Anthocercis ilicifolia</i> subsp. <i>ilicifolia</i>		2
Fabaceae	<i>Aotus gracillima</i>		2

Asteraceae	Asteraceae	Daisy	2
Ericaceae	<i>Astroloma ciliatum</i>	Candle Cranberry	2
Ericaceae	<i>Astroloma pallidum</i>	Kick Bush	2
Rutaceae	<i>Boronia crenulata</i> subsp. <i>viminea</i>		2
Rutaceae	<i>Boronia dichotoma</i>		2
Ericaceae	<i>Brachyloma preissii</i>	Globe Heath	2
Asteraceae	<i>Brachyscome bellidioides</i>		2
Myrtaceae	<i>Calytrix fraseri</i>	Pink Summer Calytrix	2
Aizoaceae	<i>Carpobrotus</i>	Pigface	2
Asteraceae	<i>Centaurea melitensis</i>	Maltese Cockspur	2
Gentianaceae	<i>Centaurium</i>	Centaury	2
Proteaceae	<i>Conospermum triplinervium</i>	Tree Smokebush	2
Asteraceae	<i>Cotula cotuloides</i>	Smooth Cotula	2
Asteraceae	<i>Craspedia</i> sp. Yalgorup National Park (G.J.Keighery 14449)		2
Asteraceae	<i>Craspedia variabilis</i>	Common Billy-buttons	2
Crassulaceae	<i>Crassula glomerata</i>	Clustered Crassula	2
Crassulaceae	<i>Crassula thunbergiana</i>		2
Goodeniaceae	<i>Dampiera trigona</i>	Angled-stem Dampiera	2
Fabaceae	<i>Daviesia divaricata</i>	Marno	2
Droseraceae	<i>Drosera gigantea</i>	Giant Sundew	2
Droseraceae	<i>Drosera paleacea</i>	Dwarf Sundew	2
Ericaceae	Ericaceae	Austral Heaths	2
Geraniaceae	<i>Erodium botrys</i>	Big Herons-bill	2
Euphorbiaceae	<i>Euphorbia helioscopia</i>	Sun Spurge	2
Fabaceae	Fabaceae		2
Geraniaceae	<i>Geranium solanderi</i>	Austral Geranium	2
Fabaceae	<i>Gompholobium polymorphum</i>		2
Proteaceae	<i>Grevillea crithmifolia</i>		2
Proteaceae	<i>Hakea amplexicaulis</i>	Prickly Hakea	2
Dilleniaceae	<i>Hibbertia spicata</i> subsp. <i>leptotheca</i>		2
Violaceae	<i>Hybanthus debilissimus</i>		2
Araliaceae	<i>Hydrocotyle perplexa</i>	Intricate Pennywort	2
Fabaceae	<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	Granny Bonnets	2
Goodeniaceae	<i>Lechenaultia expansa</i>		2
Santalaceae	<i>Leptomeria lehmannii</i>		2
Ericaceae	<i>Leucopogon australis</i>	Spike Beard-heath	2
Ericaceae	<i>Leucopogon glabellus</i>		2
Ericaceae	<i>Leucopogon polymorphus</i>		2
Stylidiaceae	<i>Levenhookia stipitata</i>	Common Stylewort	2
Campanulaceae	<i>Lobelia anceps</i>	Angled Lobelia	2
Campanulaceae	<i>Lobelia rarifolia</i>		2
Primulaceae	<i>Lysimachia loeflingii</i>		2
Ericaceae	<i>Lysinema pentapetalum</i>	Curry Flower	2
Fabaceae	<i>Medicago sativa</i>	Lucerne	2
Myrtaceae	<i>Melaleuca incana</i>	Grey Honeymyrtle	2
Myrtaceae	<i>Melaleuca lateritia</i>	Robin Redbreast Bush	2
Onagraceae	<i>Oenothera affinis</i>	Long-flowered Evening Primrose	2
Asteraceae	<i>Olearia paucidentata</i>	Autumn Scrub Daisy	2
Rubiaceae	<i>Opercularia hispidula</i>	Hispid Stinkweed	2
Oxalidaceae	<i>Oxalis perennans</i>	Native Sorrel	2
Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>		2
Myrtaceae	<i>Pericalymma ellipticum</i>	Swamp Teatree	2
Proteaceae	<i>Persoonia elliptica</i>	Snottygobble	2
Proteaceae	<i>Petrophile axillaris</i>		2
Loganiaceae	<i>Phyllangium divergens</i>	Wiry Mitrewort	2
Thymelaeaceae	<i>Pimelea ferruginea</i>	Pink Rice-flower	2

Thymelaeaceae	<i>Pimelea lanata</i>		2
Thymelaeaceae	<i>Pimelea preissii</i>		2
Thymelaeaceae	<i>Pimelea</i>	Rice Flowers	2
Plantaginaceae	<i>Plantago major</i>	Greater Plantain	2
Apiaceae	<i>Platysace compressa</i>	Tapeworm Plant	2
Apiaceae	<i>Platysace filiformis</i>		2
Phyllanthaceae	<i>Poranthera huegelii</i>	Heath Poranthera	2
Ranunculaceae	<i>Ranunculus sessiliflorus</i> var. <i>sessiliflorus</i>	Annual Buttercup	2
Caryophyllaceae	<i>Sagina apetala</i>	Common Pearlwort	2
Goodeniaceae	<i>Scaevola thesioides</i>	Gibbous-fruited Scaevola	2
Asteraceae	<i>Senecio depressicola</i>	Senecio	2
Asteraceae	<i>Senecio lautus</i>	Variable Groundsel	2
Asteraceae	<i>Senecio multicaulis</i> subsp. <i>multicaulis</i>		2
Malvaceae	<i>Sida hookeriana</i>		2
Solanaceae	<i>Solanum nigrum</i>	Black Nightshade	2
Celastraceae	<i>Stackhousia huegelii</i>		2
Stylidiaceae	<i>Stylidium hesperium</i>	Western Reed Triggerplant	2
Stylidiaceae	<i>Stylidium longitubum</i>	Jumping Jacks	2
Stylidiaceae	<i>Stylidium maritimum</i>	Coastal Triggerplant	2
Stylidiaceae	<i>Stylidium</i>	Trigger-plants	2
Fabaceae	<i>Trifolium resupinatum</i> var. <i>resupinatum</i>	Shaftal Clover	2
Campanulaceae	<i>Wahlenbergia preissii</i>		2
Proteaceae	<i>Xylomelum angustifolium</i>	Sandplain Woody Pear	2
Fabaceae	<i>Acacia horridula</i>		1
Fabaceae	<i>Acacia rostellifera</i>	Summer-scented Wattle	1
Fabaceae	<i>Acacia saligna</i> subsp. Southern forest (B.R.Maslin & J.E.Reid BRM 9952)		1
Fabaceae	<i>Acacia saligna</i> subsp. Wheatbelt (B.R.Maslin 8602)		1
Amaranthaceae	<i>Alternanthera denticulata</i> var. <i>denticulata</i>	Lesser Joyweed	1
Euphorbiaceae	<i>Amperea ericoides</i>		1
Euphorbiaceae	<i>Amperea simulans</i>		1
Euphorbiaceae	<i>Amperea volubilis</i>		1
Asteraceae	<i>Arctotheca populifolia</i>	Beach Daisy	1
Myrtaceae	<i>Astartea fascicularis</i>	Recherche Astartea	1
Myrtaceae	<i>Astartea scoparia</i>	Common Astartea	1
Myrtaceae	<i>Astartea</i>		1
	Asterales		1
Ericaceae	<i>Astroloma drummondii</i>		1
Ericaceae	<i>Astroloma stomarrhena</i>	Red Swamp Cranberry	1
Proteaceae	<i>Banksia sessilis</i>		1
Myrtaceae	<i>Beaufortia macrostemon</i>	Darling Range Beaufortia	1
Myrtaceae	<i>Beaufortia squarrosa</i>	Sand Bottlebrush	1
Pittosporaceae	<i>Billardiera floribunda</i>	White Flowered Billardiera	1
Pittosporaceae	<i>Billardiera fusiformis</i>	Bluebell Creeper	1
Asteraceae	<i>Blennospora</i>		1
Rutaceae	<i>Boronia juncea</i> subsp. <i>juncea</i>		1
Fabaceae	<i>Bossiaea linophylla</i>	Narrow-leaved Bossiaea	1
Byblidaceae	<i>Byblis gigantea</i>	Rainbow Plant	1
Portulacaceae	<i>Calandrinia calyptrata</i>	Pink Purslane	1
Portulacaceae	<i>Calandrinia corrigioloides</i>	Strap Purslane	1
Myrtaceae	<i>Calothamnus hirsutus</i>		1
Myrtaceae	<i>Calytrix aurea</i>		1
Asteraceae	<i>Carduus pycnocephalus</i>	Slender Thistle	1
Lauraceae	<i>Cassytha</i>	Dodder-laurel	1
Gentianaceae	<i>Centaurium erythraea</i>	Common Centaury	1
Asteraceae	<i>Centipeda cunninghamii</i>	Common Sneezeweed	1
Rutaceae	<i>Chorilaena</i>		1

Fabaceae	<i>Chorizema cordatum</i>	Flame Pea	1
Fabaceae	<i>Chorizema dicksonii</i>	Yellow-eyed Flame Pea	1
Fabaceae	<i>Chorizema diversifolium</i>		1
Cucurbitaceae	<i>Citrullus amarus</i>	Paddy Melon	1
Ranunculaceae	<i>Clematis aristata</i>	Mountain Old Man's Beard	1
Polygalaceae	<i>Comesperma flavum</i>		1
Polygalaceae	<i>Comesperma virgatum</i>	Milkwort	1
Proteaceae	<i>Conospermum capitatum</i> subsp. <i>glabratum</i>		1
Proteaceae	<i>Conospermum crassinervium</i>	Summer Smoke-bush	1
Ericaceae	<i>Conostephium preissii</i>		1
Crassulaceae	<i>Crassula alata</i> var. <i>alata</i>	Three-part Crassula	1
Crassulaceae	<i>Crassula</i>		1
Asteraceae	<i>Crepis foetida</i>	Foetid Hawk's-beard	1
Rhamnaceae	<i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i>		1
Rhamnaceae	<i>Cryptandra arbutiflora</i> var. <i>tubulosa</i>	Waxy Cryptandra	1
Rhamnaceae	<i>Cryptandra arbutiflora</i>	Waxy Cryptandra	1
Convolvulaceae	<i>Cuscuta planiflora</i>	Small-seed Alfalfa-dodder	1
Goodeniaceae	<i>Dampiera</i>		1
Myrtaceae	<i>Darwinia citriodora</i>	Lemon-scented Darwinia	1
Fabaceae	<i>Daviesia brachyphylla</i>		1
Fabaceae	<i>Daviesia divaricata</i> subsp. <i>divaricata</i>		1
Fabaceae	<i>Daviesia preissii</i>		1
Fabaceae	<i>Dillwynia dillwynioides</i>		1
Fabaceae	<i>Dillwynia</i>	Egg And Bacon Peas	1
Rutaceae	<i>Diplolaena</i>		1
Sapindaceae	<i>Diplopeltis</i>		1
Brassicaceae	<i>Diplotaxis muralis</i>	Wall Rocket	1
Scrophulariaceae	<i>Dischisma arenarium</i>	Sand Dichisma	1
Sapindaceae	<i>Dodonaea aptera</i>	Coast Hopbush	1
Sapindaceae	<i>Dodonaea viscosa</i>	Sticky Hop-bush	1
Droseraceae	<i>Drosera geniculata</i>		1
Droseraceae	<i>Drosera micrantha</i>		1
Droseraceae	<i>Drosera nitidula</i>	Shining Sundew	1
Droseraceae	<i>Drosera pulchella</i>	Pretty Sundew	1
Droseraceae	<i>Drosera</i>	Sundews	1
Chenopodiaceae	<i>Dysphania glomulifera</i> subsp. <i>glomulifera</i>	Globular Pigweed	1
Asteraceae	<i>Erigeron bonariensis</i>	Flaxleaf Fleabane	1
Asteraceae	<i>Erigeron sumatrensis</i>	Tall Fleabane	1
Asteraceae	<i>Euchiton sphaericus</i>	Common Cudweed	1
Euphorbiaceae	Euphorbiaceae	Spurge	1
Euphorbiaceae	<i>Euphorbia</i>	Spurge	1
Scrophulariaceae	<i>Euphrasia scabra</i>	Rough Eyebright	1
Papaveraceae	<i>Fumaria muralis</i>	Fumitory	1
Rubiaceae	<i>Galium aparine</i>	Cleavers	1
Rubiaceae	<i>Galium leptogonium</i>	Reflexed Bedstraw	1
Fabaceae	<i>Gastrolobium ebracteolatum</i>		1
Fabaceae	<i>Gastrolobium praemorsum</i>		1
Fabaceae	<i>Gastrolobium</i>		1
Lamiaceae	Genus		1
Geraniaceae	<i>Geranium purpureum</i>	Little-robin	1
Haloragaceae	<i>Glischrocaryon angustifolium</i>	Golden Pennants	1
Fabaceae	<i>Gompholobium capitatum</i>	Yellow Pea	1
Fabaceae	<i>Gompholobium marginatum</i>		1
Fabaceae	<i>Gompholobium</i>	Wedge Peas	1
Goodeniaceae	<i>Goodenia coerulea</i>		1
Goodeniaceae	<i>Goodenia eatoniana</i>		1

Goodeniaceae	Goodeniaceae	Fan Flower	1
Proteaceae	<i>Grevillea bipinnatifida</i>	Fuchsia Grevillea	1
Proteaceae	<i>Grevillea candolleana</i>	Toodyay Grevillea	1
Proteaceae	<i>Grevillea vestita</i> subsp. <i>vestita</i>		1
Proteaceae	<i>Grevillea wilsonii</i>	Wilson's Grevillea	1
Proteaceae	<i>Hakea candolleana</i>		1
Proteaceae	<i>Hakea lissocarpha</i>	Honey Bush	1
Proteaceae	<i>Hakea lorea</i>	Corkbark Tree	1
Brassicaceae	<i>Heliophila</i>		1
Lamiaceae	<i>Hemiandra linearis</i>	Speckled Snakebush	1
Dilleniaceae	<i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>	Yellow Buttercups	1
Asteraceae	<i>Hyalosperma pusillum</i>		1
Araliaceae	<i>Hydrocotyle intertexta</i>	Buttercup Pennywort	1
Myrtaceae	<i>Hypocalymma angustifolium</i> subsp. <i>Swan Coastal Plain</i> (G.J.Keighery 16777)		1
Myrtaceae	<i>Hypocalymma angustifolium</i> subsp. <i>angustifolium</i>		1
Proteaceae	<i>Isopogon asper</i>		1
Fabaceae	<i>Jacksonia horrida</i>		1
Myrtaceae	<i>Kunzea ericifolia</i> subsp. <i>ericifolia</i>		1
Myrtaceae	<i>Kunzea ericifolia</i>	Spearwood	1
Myrtaceae	<i>Kunzea glabrescens</i>	Spearwood	1
Myrtaceae	<i>Kunzea micrantha</i> subsp. <i>micrantha</i>		1
Myrtaceae	<i>Kunzea recurva</i>		1
Asteraceae	<i>Lagenophora gracilis</i>	Slender Lagenophora	1
Asteraceae	<i>Lagenophora platysperma</i>		1
Verbenaceae	<i>Lantana camara</i>	Lantana	1
Malvaceae	<i>Lasiopetalum floribundum</i>	Free Flowering Lasiopetalum	1
Asteraceae	<i>Leontodon rhagadioloides</i>	Hedypnois	1
Asteraceae	<i>Leontodon saxatilis</i>	Lesser Hawkbit	1
Brassicaceae	<i>Lepidium</i>	Swine's Cress	1
Asteraceae	<i>Leptorhynchus scaber</i>	Annual Buttons	1
Ericaceae	<i>Leucopogon</i> sp. <i>Busselton</i> (D.Cooper 243)		1
Ericaceae	<i>Leucopogon squarrosus</i>		1
Ericaceae	<i>Leucopogon</i>		1
Stylidiaceae	<i>Levenhookia pusilla</i>	Tiny Stylewort	1
Linaceae	<i>Linum trigynum</i>	French Flax	1
Menyanthaceae	<i>Liparophyllum capitatum</i>		1
Malvaceae	Malvaceae	Mallow Family	1
Fabaceae	<i>Medicago littoralis</i>	Strand Medic	1
Fabaceae	<i>Medicago truncatula</i>	Barrel Medic	1
Haloragaceae	<i>Meionectes brownii</i>	Swamp Raspwort	1
Haloragaceae	<i>Meionectes tenuifolia</i>		1
Myrtaceae	<i>Melaleuca preissiana</i>	Moonah	1
Myrtaceae	<i>Melaleuca scabra</i>	Rough Honey-myrtle	1
Melianthaceae	<i>Melianthus major</i>	Cape Honey-flower	1
Caryophyllaceae	<i>Minuartia mediterranea</i>	Slender Sandwort	1
Fabaceae	<i>Mirbelia dilatata</i>	Holly-leaved Mirbelia	1
Polygonaceae	<i>Muehlenbeckia adpressa</i>	Climbing Lignum	1
Polygonaceae	<i>Muehlenbeckia polybotrya</i>		1
Haloragaceae	<i>Myriophyllum crispatum</i>	Upright Milfoil	1
Onagraceae	<i>Oenothera drummondii</i>	Beach Evening Primrose	1
Onagraceae	<i>Oenothera mollissima</i>		1
Asteraceae	<i>Olearia rudis</i>	Azure Daisy-bush	1
Oxalidaceae	<i>Oxalis corniculata</i>	Creeping Wood-sorrel	1
Oxalidaceae	<i>Oxalis purpurea</i>	One-o'clock	1
Myrtaceae	<i>Paragonis grandiflora</i>		1
Orobanchaceae	<i>Parentucellia latifolia</i>	Red Bartsia	1

Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>floridum</i>		1
Polygonaceae	<i>Persicaria hydropiper</i>	Water Pepper	1
Proteaceae	<i>Petrophile striata</i>		1
Loganiaceae	<i>Phyllangium</i>		1
Solanaceae	<i>Physalis peruviana</i>	Cape Gooseberry	1
Asteraceae	<i>Picris angustifolia</i> subsp. <i>angustifolia</i>	Coast Picris	1
Plantaginaceae	<i>Plantago drummondii</i>	Dark Plantain	1
Plantaginaceae	<i>Plantago lanceolata</i>	Ribwort	1
Elaeocarpaceae	<i>Platytheca galioides</i>		1
Asteraceae	<i>Pogonolepis stricta</i>		1
Phyllanthaceae	<i>Poranthera drummondii</i>		1
Amaranthaceae	<i>Ptilotus drummondii</i> var. <i>drummondii</i>	Pussytail	1
Amaranthaceae	<i>Ptilotus drummondii</i> var. <i>minor</i>		1
Fabaceae	<i>Pultenaea reticulata</i>		1
Asteraceae	<i>Rhodanthe manglesii</i>		1
Rosaceae	<i>Rosa rubiginosa</i>	Sweet Briar	1
Chenopodiaceae	<i>Salicornia blackiana</i>	Thick-head Samphire	1
Chenopodiaceae	<i>Salicornia quinqueflora</i>	Beaded Glasswort	1
Chenopodiaceae	<i>Salicornia</i>	Samphires	1
Primulaceae	<i>Samolus</i>	Brook Weed	1
Santalaceae	<i>Santalum acuminatum</i>	Sweet Quandong	1
Goodeniaceae	<i>Scaevola canescens</i>	Grey Scaevola	1
Goodeniaceae	<i>Scaevola lanceolata</i>	Long-leaved Scaevola	1
Goodeniaceae	<i>Scaevola repens</i> var. <i>repens</i>		1
Myrtaceae	<i>Scholtzia involucrata</i>	Spiked Scholtzia	1
Asteraceae	<i>Senecio leucoglossus</i>		1
Asteraceae	<i>Senecio pinnatifolius</i>	Variable Groundsel	1
Asteraceae	<i>Senecio ramosissimus</i>		1
Rubiaceae	<i>Sherardia arvensis</i>	Field Madder	1
Caryophyllaceae	<i>Silene gallica</i> var. <i>gallica</i>	French Catchfly	1
Caryophyllaceae	<i>Silene nocturna</i>	Mediterranean Catchfly	1
Asteraceae	<i>Siloxerus humifusus</i>	Procumbent Siloxerus	1
Asteraceae	<i>Siloxerus</i>		1
Solanaceae	<i>Solanum linnaeanum</i>	Apple Of Sodom	1
Solanaceae	<i>Solanum simile</i>	Kangaroo Apple	1
Picrodendraceae	<i>Stachystemon vermicularis</i>		1
Celastraceae	<i>Stackhousia</i>	Candles	1
Stylidiaceae	<i>Stylidium adnatum</i>	Common Beaked Triggerplant	1
Stylidiaceae	<i>Stylidium amoenum</i>	Lovely Triggerplant	1
Stylidiaceae	<i>Stylidium bulbiferum</i>	Circus Triggerplant	1
Stylidiaceae	<i>Stylidium calcaratum</i>	Spurred Trigger-plant	1
Stylidiaceae	<i>Stylidium divaricatum</i>	Daddy-long-legs	1
Stylidiaceae	<i>Stylidium guttatum</i>	Dotted Triggerplant	1
Ericaceae	<i>Styphelia tubiflora</i>	Red Five-corner	1
Ericaceae	<i>Styphelia</i>	Styphelia	1
Proteaceae	<i>Synaphea</i>		1
Aizoaceae	<i>Tetragonia decumbens</i>	Sea Spinach	1
Elaeocarpaceae	<i>Tetratheca hirsuta</i> subsp. <i>viminea</i>		1
Malvaceae	<i>Thomasia cognata</i>		1
Araliaceae	<i>Trachymene coerulea</i> subsp. <i>coerulea</i>	Rottnest Island Daisy	1
Araliaceae	<i>Trachymene cyanopetala</i>	Purple Trachymene	1
Asteraceae	<i>Trichocline spathulata</i>	Native Gerbera	1
Fabaceae	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	1
Fabaceae	<i>Trifolium arvense</i>	Haresfoot Clover	1
Fabaceae	<i>Trifolium hirtum</i>	Rose Clover	1
Fabaceae	<i>Trifolium incarnatum</i>	Crimson Clover	1

Rhamnaceae	<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>		1
Rhamnaceae	<i>Trymalium ledifolium</i>		1
Asteraceae	<i>Vellereophyton dealbatum</i>	White Cudweed	1
Plantaginaceae	<i>Veronica</i>	Hebe	1
Myrtaceae	<i>Verticordia plumosa</i> var. <i>plumosa</i>		1
Campanulaceae	<i>Wahlenbergia gracilentata</i>	Hairy Annual-bluebell	1
Campanulaceae	<i>Wahlenbergia tumidifruca</i>	Swollen-fruit Bluebell	1
Asteraceae	<i>Waitzia nitida</i>		1
Asteraceae	<i>Waitzia suaveolens</i> var. <i>suaveolens</i>		1
Asteraceae	<i>Waitzia suaveolens</i>	Fragrant Waitzia	1

Lifeform - FernsAndAllies

Number of FernsAndAllies 0

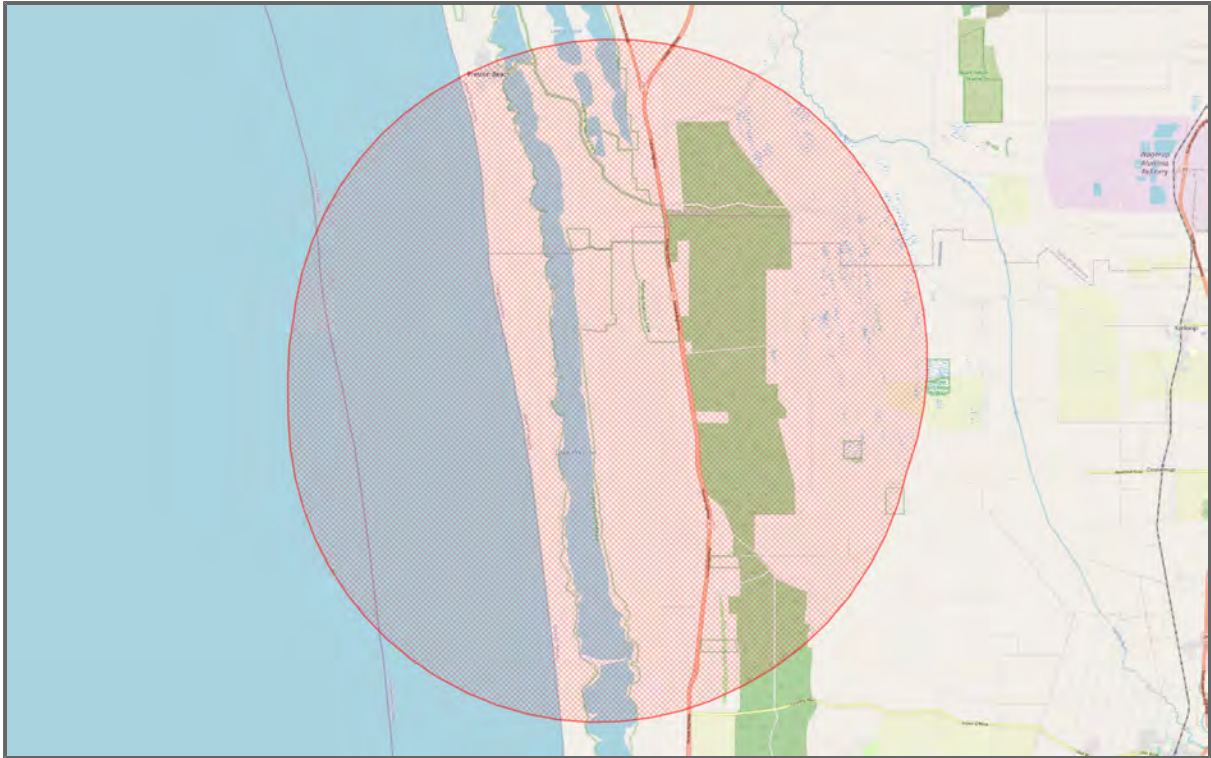


Figure 11 : Map of Lifeform - FernsAndAllies

Table 11: Lifeform - FernsAndAllies [\(Link to full list\)](#)

Family	Scientific Name	Common Name	No. Occurrences
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Lifeform - Fungi

Number of Fungi 40

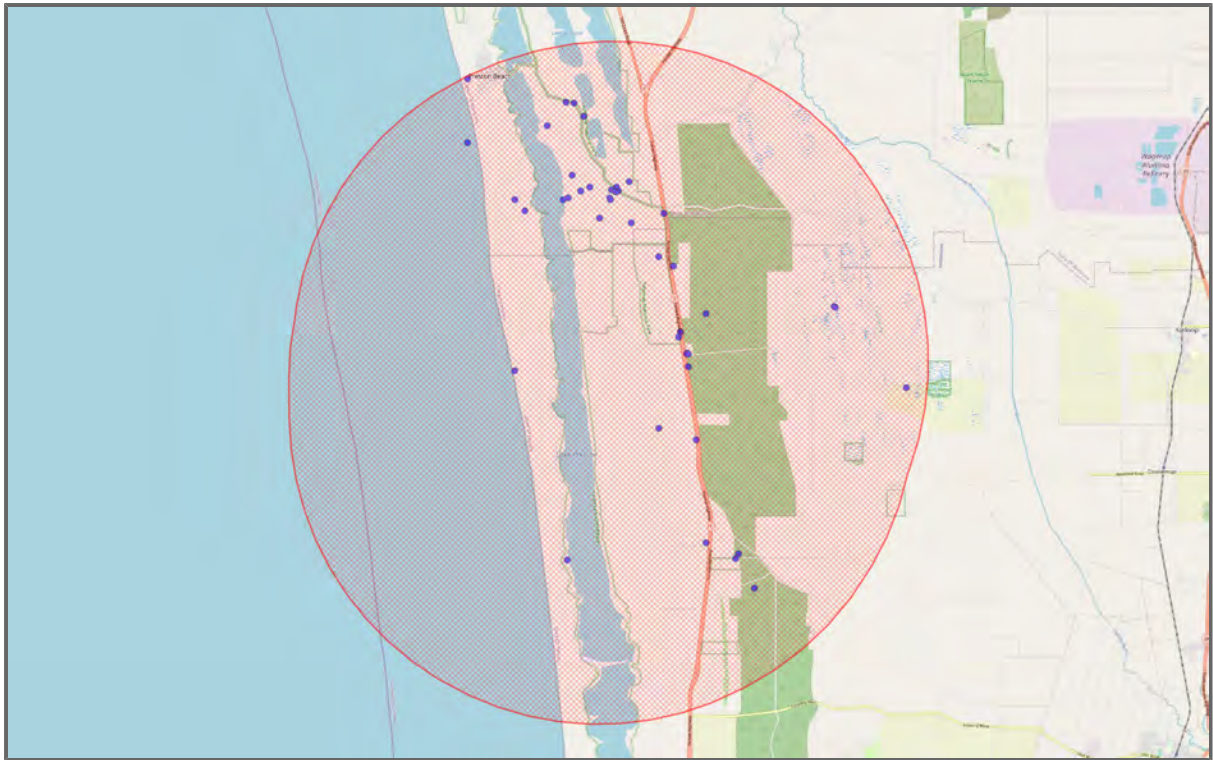


Figure 12 : Map of Lifeform - Fungi

Table 12: Lifeform - Fungi ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Marasmiaceae	<i>Omphalotus nidiformis</i>		4
Polyporaceae	<i>Panus fasciatus</i>		3
	Agaricales		2
	Agaricomycetes		2
Phallaceae	<i>Colus pusillus</i>		2
Corticaceae	<i>Dendrothele</i>		2
Pannariaceae	<i>Parmeliella thysanota</i>		2
Fomitopsidaceae	<i>Piptoporus australiensis</i>		2
Sclerodermataceae	<i>Pisolithus</i>		2
Pyronemataceae	Pyronemataceae		2
Pileolariaceae	<i>Uromycladium</i>		2
Parmeliaceae	<i>Austroparmelina conlabrosa</i>		1
	<i>Batrachochytrium dendrobatidis</i>	Chytrid Fungus	1
Agaricaceae	<i>Battarrea stevenii</i>		1
Physciaceae	<i>Buellia albula</i>		1
Cladoniaceae	<i>Cladonia rigida</i>		1
Hymenochaetaceae	<i>Coltricia</i>		1
Phallaceae	<i>Colus</i>		1
Psathyrellaceae	<i>Coprinellus truncorum</i>	Fungi	1
Cortinariaceae	<i>Cortinarius</i>		1
Hymenochaetaceae	<i>Fulvifomes rimosus</i>		1
	Fungi		1
Lecanoraceae	<i>Lecidella</i>		1
Mycocaliciaceae	<i>Mycocalicium victoriae</i>		1
Physalacriaceae	<i>Oudemansiella radicata</i>		1

Parmeliaceae	Pannoparmelia wilsonii		1
Pezizaceae	Peziza		1
Strophariaceae	Pholiota		1
Physciaceae	Physcia neonubila		1
	Polyporales		1
Mycosphaerellaceae	Pseudocercospora		1
Repetobasidiaceae	Rickenella fibula		1
Schizophyllaceae	Schizophyllum commune	Splitgill Mushroom	1
Sclerodermataceae	Scleroderma		1
Leptosphaeriaceae	Sphaerellopsis filum		1
Tapinellaceae	Tapinella panuoides		1
Teloschistaceae	Teloschistes chrysophthalmus	Golden-eye Lichen	1
	Uredo angiosperma		1
Parmeliaceae	Usnea		1
Physalacriaceae	Xerula		1

Lifeform - Gymnosperms

Number of Gymnosperms 0

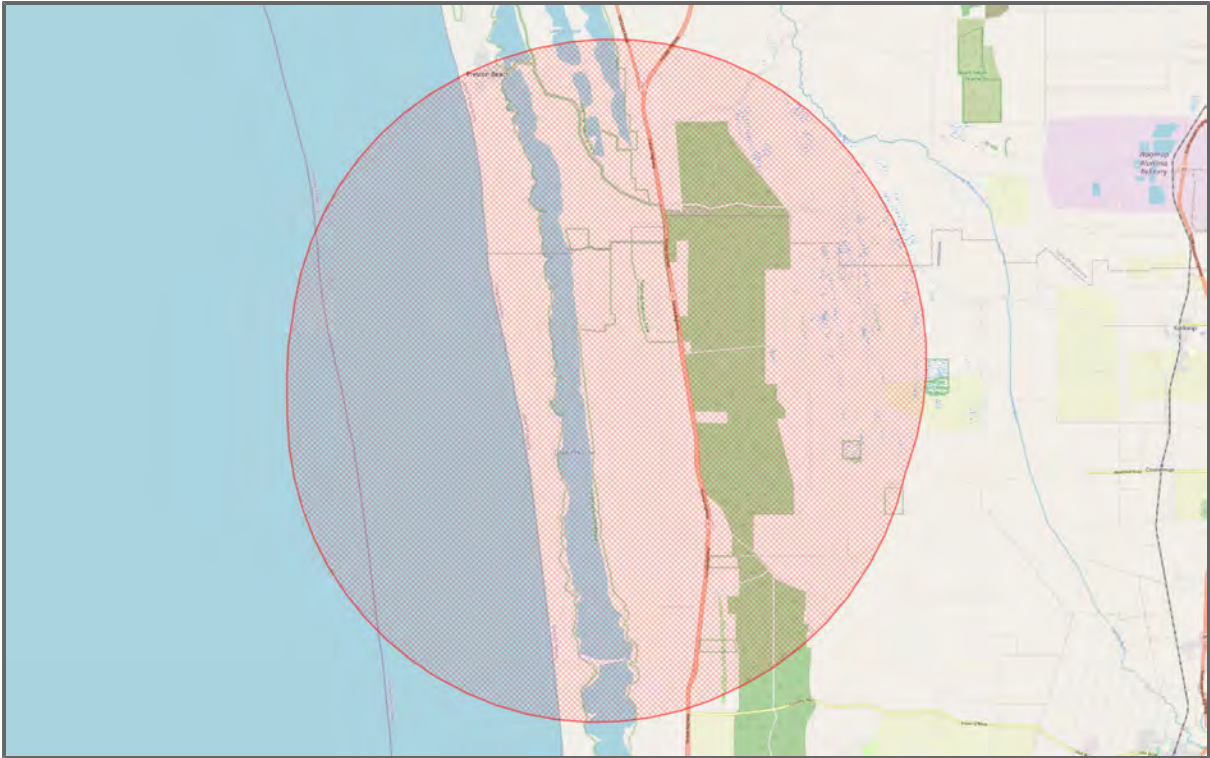


Figure 13 : Map of Lifeform - Gymnosperms

Table 13: Lifeform - Gymnosperms [\(Link to full list\)](#)

Family	Scientific Name	Common Name	No. Occurrences
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Lifeform - Monocots

Number of Monocots **289**

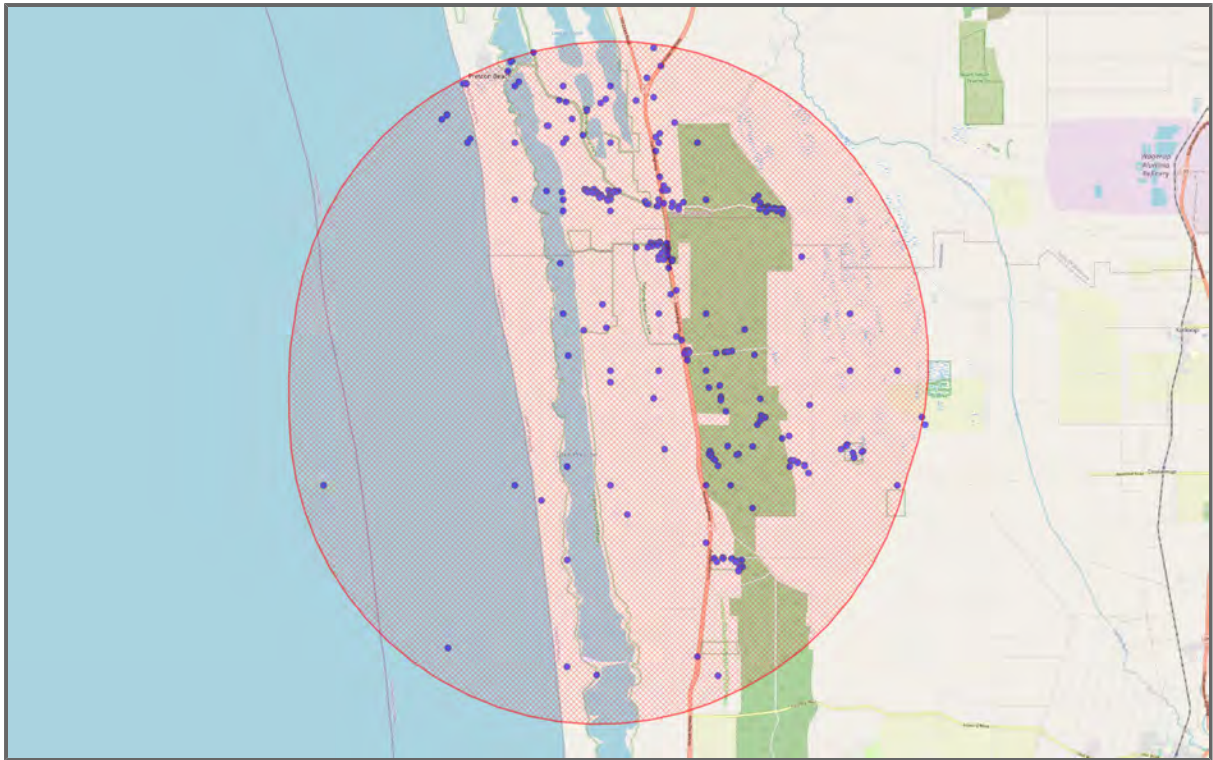


Figure 14 : Map of Lifeform - Monocots

Table 14: Lifeform - Monocots ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Orchidaceae	<i>Pterostylis vittata</i>	Banded Greenhood	31
Orchidaceae	<i>Caladenia latifolia</i>	Pink Fairies	29
Orchidaceae	<i>Cyrtostylis huegelii</i>	Midge Orchid	24
Orchidaceae	<i>Pterostylis ectypha</i>	Thick-sepaed Snail Orchid	24
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>	Grasstree	21
Restionaceae	<i>Desmodcladus flexuosus</i>		20
Orchidaceae	<i>Caladenia flava</i>	Cowslip Orchid	18
Orchidaceae	<i>Pterostylis pyramidalis</i>	Tall Snail Orchid	18
Asparagaceae	<i>Sowerbaea laxiflora</i>	Vanilla Lily	18
Cyperaceae	<i>Lepidosperma squamatum</i>		17
Orchidaceae	<i>Caladenia flava</i> subsp. <i>flava</i>	Cowslip Orchid	15
Asparagaceae	<i>Lomandra caespitosa</i>	Tufted Mat-rush	15
Asparagaceae	<i>Lomandra maritima</i>	Maritime Mat Rush	15
Asparagaceae	<i>Thysanotus manglesianus</i>	Fringed Lily	15
Orchidaceae	<i>Caladenia georgei</i>	Tuart Spider Orchid	14
Haemodoraceae	<i>Conostylis aculeata</i>	Prickly Conostylis	14
Poaceae	<i>Aira caryophyllea</i>	Silvery Hairgrass	13
Cyperaceae	<i>Lepidosperma angustatum</i>		13
Orchidaceae	<i>Pterostylis angulata</i>	Helena River Snail Orchid	13
Orchidaceae	<i>Pterostylis crispula</i>	Slender Snail Orchid	13
Poaceae	<i>Briza minor</i>	Lesser Quaking-grass	12
Orchidaceae	<i>Pterostylis frenchii</i>	Tuart Rufous Greenhood	12
Orchidaceae	<i>Pterostylis nana</i>	Dwarf Greenhood	12
Colchicaceae	<i>Wurmbea monantha</i>		12
Orchidaceae	<i>Caladenia nobilis</i>	Noble Spider Orchid	11

Cyperaceae	<i>Gahnia trifida</i>	Cutting Grass	11
Cyperaceae	<i>Isolepis marginata</i>	Little Club-rush	11
Poaceae	<i>Poa drummondiana</i>	Knotted Poa	11
Orchidaceae	<i>Pterostylis</i>	Greenhoods	11
Hemerocallidaceae	<i>Tricoryne elatior</i>	Yellow Rush Lily	11
Orchidaceae	<i>Pterostylis recurva</i>	Recurved Shell Orchid	10
Poaceae	<i>Vulpia myuros</i>	Fescue	10
Centrolepidaceae	<i>Centrolepis drummondiana</i>	Drummond's Centrolepis	9
Anarthriaceae	<i>Lyginia barbata</i>		9
Iridaceae	<i>Patersonia occidentalis</i>	Long Purple-flag	9
Orchidaceae	<i>Pyrorchis nigricans</i>	Black Fire-orchid	9
Cyperaceae	<i>Schoenus lanatus</i>	Woolly Bog-rush	9
Asparagaceae	<i>Thysanotus multiflorus</i>	Many-flowered Fringe	9
Haemodoraceae	<i>Conostylis juncea</i>		8
Dasypogonaceae	<i>Dasypogon bromeliifolius</i>	Pineapple Bush	8
Cyperaceae	<i>Evandra pauciflora</i>		8
Restionaceae	<i>Hypolaena exsulca</i>		8
Cyperaceae	<i>Lepidosperma longitudinale</i>	Pithy Sword-sedge	8
Asparagaceae	<i>Lomandra micrantha</i> subsp. <i>micrantha</i>	Small-flower Mat-rush	8
Asparagaceae	<i>Lomandra micrantha</i>	Small-flower Mat-rush	8
Asparagaceae	<i>Lomandra sericea</i>	Silky Mat Rush	8
Poaceae	<i>Microlaena stipoides</i>	Weeping Grass	8
Orchidaceae	<i>Pterostylis</i> sp. crinkled leaf (G.J.Keighery 13426)		8
Cyperaceae	<i>Tetraria octandra</i>		8
Orchidaceae	<i>Caladenia</i>	Fairy Orchids	7
Restionaceae	<i>Chaetanthus aristatus</i>	Bearded Twinerush	7
Asparagaceae	<i>Dichopogon capillipes</i>		7
Asparagaceae	<i>Lomandra nigricans</i>		7
Asparagaceae	<i>Thysanotus patersonii</i>	Twining Fringe-lily	7
Colchicaceae	<i>Burchardia congesta</i>	Milkmaids	6
Orchidaceae	<i>Caladenia vulgata</i>	Spider Orchid	6
Orchidaceae	<i>Leptoceras menziesii</i>	Hare Orchid	6
Juncaceae	<i>Luzula meridionalis</i>	Common Wood-rush	6
Poaceae	<i>Polypogon tenellus</i>		6
Cyperaceae	<i>Schoenus curvifolius</i>		6
Asphodelaceae	<i>Trachyandra divaricata</i>	Dune Onion Weed	6
Juncaginaceae	<i>Triglochin trichophora</i>	Torpedo Arrowgrass	6
Asphodelaceae	<i>Asphodelus fistulosus</i>	Onion Weed	5
Poaceae	<i>Austrostipa compressa</i>		5
Poaceae	<i>Bromus diandrus</i>	Great Brome	5
Orchidaceae	<i>Elythranthera brunonis</i>	Purple Enamel Orchid	5
Orchidaceae	<i>Eriochilus dilatatus</i> subsp. <i>dilatatus</i>	White Bunny Orchid	5
Cyperaceae	<i>Isolepis cernua</i>	Nodding Club Rush	5
Cyperaceae	<i>Lepidosperma</i>	Swordsedges	5
Asparagaceae	<i>Lomandra suaveolens</i>		5
Haemodoraceae	<i>Phlebocarya ciliata</i>		5
Orchidaceae	<i>Prasophyllum elatum</i>	Tall Leek-orchid	5
Orchidaceae	<i>Prasophyllum giganteum</i>	Bronze Leek Orchid	5
Orchidaceae	<i>Prasophyllum macrostachyum</i>	Laughing Leek Orchid	5
Poaceae	<i>Rostraria cristata</i>	Annual Cats-tail	5
Cyperaceae	<i>Schoenus efoliatus</i>		5
Cyperaceae	<i>Schoenus grandiflorus</i>	Large Flowered Bog-rush	5
Asparagaceae	<i>Thysanotus arenarius</i>	Sand-dune Fringed Lily	5
Anarthriaceae	<i>Anarthria prolifera</i>		4
Poaceae	<i>Briza maxima</i>	Large Quaking-grass	4
Colchicaceae	<i>Burchardia umbellata</i>	Milkmaids	4

Cyperaceae	<i>Carex thecata</i>		4
Orchidaceae	<i>Corybas recurvus</i>	Helmet Orchid	4
Orchidaceae	<i>Disa bracteata</i>	South African Orchid	4
Orchidaceae	<i>Diuris micrantha</i>	Dwarf Bee Orchid	4
Orchidaceae	<i>Diuris porphyrochila</i>	Yalgorup Donkey Orchid	4
Orchidaceae	<i>Eriochilus dilatatus</i>	White Bunny Orchid	4
Restionaceae	<i>Hypolaena pubescens</i>		4
Restionaceae	<i>Leptocarpus canus</i>	Hoary Twine-rush	4
Restionaceae	<i>Leptocarpus coangustatus</i>		4
Poaceae	<i>Lolium rigidum</i>	Wimmera Ryegrass	4
Asparagaceae	<i>Lomandra hermaphrodita</i>		4
Poaceae	<i>Poa poiformis</i>	Coast Tussock-grass	4
Orchidaceae	<i>Pterostylis karri</i>	Karri Snail Orchid	4
Cyperaceae	<i>Schoenus asperocarpus</i>	Poison Sedge	4
Orchidaceae	<i>Thelymitra fuscolutea</i>	Chestnut Sun Orchid	4
Juncaginaceae	<i>Triglochin</i>	Lilaea	4
Poaceae	<i>Avellinia festucoides</i>	Avellinia	3
Poaceae	<i>Bromus arenarius</i>	Sand Brome	3
Poaceae	<i>Bromus hordeaceus</i>	Soft Brome	3
Hemerocallidaceae	<i>Caesia micrantha</i>	Pale Grass Lily	3
Orchidaceae	<i>Caladenia arenicola</i>	Carousel Spider Orchid	3
Orchidaceae	<i>Caladenia attingens</i>	Forest Mantis Orchid	3
Orchidaceae	<i>Caladenia cairnsiana</i>	Zebra Orchid	3
Orchidaceae	<i>Caladenia discoidea</i>	Dancing Spider Orchid	3
Orchidaceae	<i>Caladenia longicauda</i> subsp. <i>longicauda</i>	White Spider Orchid	3
Orchidaceae	<i>Caladenia paludosa</i>	Swamp Spider Orchid	3
Orchidaceae	<i>Caladenia speciosa</i>	Sandplain White Spider Orchid	3
Asparagaceae	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	Blue Stars	3
Asparagaceae	<i>Chamaescilla corymbosa</i>	Blue Stars	3
Orchidaceae	<i>Diuris tinctoria</i>	Sandplain Donkey Orchid	3
Restionaceae	<i>Leptocarpus decipiens</i>		3
Restionaceae	<i>Leptocarpus roycei</i>		3
Orchidaceae	<i>Microtis</i>	Onion Orchids	3
Poaceae	<i>Poa annua</i>	Annual Meadow-grass	3
Poaceae	<i>Poa porphyroclados</i>		3
Orchidaceae	<i>Prasophyllum parvifolium</i>	Autumn Leek Orchid	3
Orchidaceae	<i>Pterostylis aspera</i>	Brown-veined Shell Orchid	3
Orchidaceae	<i>Pterostylis brevisepala</i>	Short-eared Snail Orchid	3
Poaceae	<i>Rytidosperma occidentale</i>	Western Wallaby Grass	3
Poaceae	<i>Sporobolus virginicus</i>	Marine Couch	3
Poaceae	<i>Stenotaphrum secundatum</i>	Buffalo Grass	3
Orchidaceae	<i>Thelymitra benthamiana</i>	Leopard Sun-orchid	3
Asparagaceae	<i>Thysanotus</i>	Fringed Lily	3
Juncaginaceae	<i>Triglochin isingiana</i>	Spurred Arrowgrass	3
Juncaginaceae	<i>Triglochin mucronata</i>	Prickly Arrowgrass	3
Poaceae	<i>Amphipogon laguroides</i>		2
Poaceae	<i>Amphipogon turbinatus</i>		2
Haemodoraceae	<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Catspaw	2
Haemodoraceae	<i>Anigozanthos humilis</i>	Common Catspaw	2
Poaceae	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	2
Poaceae	<i>Austrostipa</i>	Spear-grasses	2
Colchicaceae	<i>Burchardia multiflora</i>	Lesser Burchardia	2
Hemerocallidaceae	<i>Caesia occidentalis</i>	Pale Grass Lily	2
Orchidaceae	<i>Caladenia chapmanii</i>	Chapman's Spider Orchid	2
Orchidaceae	<i>Caladenia hirta</i> subsp. <i>hirta</i>	Sugar Candy Orchid	2
Orchidaceae	<i>Caladenia huegelii</i>	Grand Spider Orchid	2

Orchidaceae	<i>Caladenia nana</i> subsp. <i>nana</i>	Little Pink Fan Orchid	2
Orchidaceae	<i>Caladenia swartziorum</i>	Island Point Spider Orchid	2
Centrolepidaceae	<i>Centrolepis aristata</i>	Pointed Centrolepis	2
Haemodoraceae	<i>Conostylis candicans</i> subsp. <i>calicicola</i>		2
Haemodoraceae	<i>Conostylis pauciflora</i>		2
Orchidaceae	<i>Corybas</i>	Spurred Helmet Orchid	2
Orchidaceae	<i>Cyanicula gemmata</i>	Blue China Orchid	2
Restionaceae	<i>Desmocladus asper</i>		2
Hemerocallidaceae	<i>Dianella brevicaulis</i>	Small-flower Flax-lily	2
Orchidaceae	<i>Diuris corymbosa</i>	Common Donkey Orchid	2
Orchidaceae	<i>Diuris cruenta</i>	Kermerton [sic; Kemerton] Donkey Orchid	2
Orchidaceae	<i>Diuris longifolia</i>	Common Donkey Orchid	2
Orchidaceae	<i>Diuris magnifica</i>	Pansy Orchid	2
Orchidaceae	<i>Diuris</i>	Donkey Orchids	2
Poaceae	<i>Ehrharta calycina</i>	Perennial Veldt-grass	2
Poaceae	<i>Ehrharta longiflora</i>	Annual Veldt-grass	2
Orchidaceae	<i>Elythranthera emarginata</i>	Pink Enamel Orchid	2
Iridaceae	<i>Freesia</i>	Freesia	2
Juncaceae	<i>Juncus bufonius</i>	Toad Rush	2
Poaceae	<i>Lagurus ovatus</i>	Hare's Tail Grass	2
Cyperaceae	<i>Lepidosperma calicicola</i>		2
Cyperaceae	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	2
Restionaceae	<i>Leptocarpus scariosus</i>		2
Restionaceae	<i>Leptocarpus tephrinus</i>		2
Restionaceae	<i>Lepyrodia muirii</i>		2
Poaceae	<i>Lolium perenne</i>	Perennial Rye-grass	2
Asparagaceae	<i>Lomandra preissii</i>	Preiss' Mat Rush	2
Anarthriaceae	<i>Lyginia imberbis</i>		2
Cyperaceae	<i>Machaerina arthropphylla</i>	Baumea	2
Cyperaceae	<i>Machaerina juncea</i>	Bare Twig-rush	2
Orchidaceae	<i>Microtis media</i>	Common Mignonette Orchid	2
Iridaceae	<i>Moraea flaccida</i>	One-leaf Cape Tulip	2
Orchidaceae	Orchidaceae	Orchids	2
Orchidaceae	<i>Prasophyllum calicicola</i>	Limestone Leek-orchid	2
Orchidaceae	<i>Prasophyllum fimbria</i>	Fringed Leek Orchid	2
Orchidaceae	<i>Pterostylis barbata</i>	Bird Orchid	2
Orchidaceae	<i>Pterostylis concava</i>	Cupped Banded Greenhood	2
Orchidaceae	<i>Pterostylis sanguinea</i>	Blood Greenhood	2
Orchidaceae	<i>Pterostylis scabrella</i>	Rough-lipped Snail Orchid	2
Cyperaceae	<i>Schoenus cruentus</i>		2
Cyperaceae	<i>Schoenus nanus</i>	Little Bog-rush	2
Cyperaceae	<i>Schoenus nitens</i>	Shiny Bogrush	2
Cyperaceae	<i>Schoenus plumosus</i>		2
Cyperaceae	<i>Schoenus</i>		2
Orchidaceae	<i>Thelymitra crinita</i>	Blue Lady Orchid	2
Orchidaceae	<i>Thelymitra flexuosa</i>	Twisted Sun-orchid	2
Juncaginaceae	<i>Triglochin calcitrapa</i>	Spurred Arrowgrass	2
Juncaginaceae	<i>Triglochin muelleri</i>		2
Poaceae	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	2
Poaceae	<i>Vulpia</i>	Fescue	2
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i>		2
Asparagaceae	<i>Acanthocarpus preissii</i>		1
Poaceae	<i>Aira cupaniana</i>	Quicksilver Grass	1
Alliaceae	<i>Allium ampeloprasum</i>	Great-head Garlic	1
Anarthriaceae	<i>Anarthria scabra</i>		1
Haemodoraceae	<i>Anigozanthos flavidus</i>	Tall Kangaroo Paw	1

Haemodoraceae	<i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>	Mangles' Kangaroo Paw	1
Haemodoraceae	<i>Anigozanthos manglesii</i>	Red And Green Kangaroo Paw	1
Asparagaceae	<i>Arthropodium</i>	Vanilla Lilies	1
Poaceae	<i>Austrostipa flavescens</i>	Coast Spear-grass	1
Poaceae	<i>Avena barbata</i>	Bearded Oats	1
Poaceae	<i>Avena fatua</i>	Wild Oats	1
Boryaceae	<i>Borya sphaerocephala</i>	Pincushions	1
Orchidaceae	<i>Caladenia denticulata</i>	Wispy Spider Orchid	1
Orchidaceae	<i>Caladenia hirta</i> subsp. <i>rosea</i>	Pink Candy Orchid	1
Orchidaceae	<i>Caladenia hirta</i>	Sugar Candy Orchid	1
Orchidaceae	<i>Caladenia longicauda</i>	White Spider Orchid	1
Orchidaceae	<i>Caladenia macrostylis</i>	Leaping Spider Orchid	1
Orchidaceae	<i>Caladenia marginata</i>	White Fairy Orchid	1
Orchidaceae	<i>Caladenia nana</i>	Pink Fan Orchid	1
Orchidaceae	<i>Caladenia occidentalis</i>	Ruby Spider Orchid	1
Orchidaceae	<i>Caladenia reptans</i> subsp. <i>reptans</i>	Little Pink Fairies	1
Dasypogonaceae	<i>Calectasia narragara</i>	Star Of Bethlehem	1
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>aculeata</i>		1
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>gracilis</i>		1
Haemodoraceae	<i>Conostylis pauciflora</i> subsp. <i>pauciflora</i>		1
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>	Bristly Cottonhead	1
Haemodoraceae	<i>Conostylis setigera</i>	Bristly Cottonhead	1
Hemerocallidaceae	<i>Corynotheca micrantha</i> var. <i>micrantha</i>	Sand Lily	1
Hemerocallidaceae	<i>Corynotheca micrantha</i>	Sand Lily	1
Orchidaceae	<i>Cryptostylis ovata</i>	Tongue Orchid	1
Orchidaceae	<i>Cyanicula gertrudae</i>	Pale China Orchid	1
Poaceae	<i>Cynosurus echinatus</i>	Rough Dog's Tail	1
Orchidaceae	<i>Cyrtostylis reniformis</i>	Small Gnat-orchid	1
Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>divaricata</i>	Broad-leaf Flax-lily	1
Hemerocallidaceae	<i>Dianella revoluta</i>	Blueberry Lily	1
Poaceae	<i>Dichelachne crinita</i>	Long-hair Plume-grass	1
Orchidaceae	<i>Diuris jonesii</i>	Dunsborough Donkey Orchid	1
Orchidaceae	<i>Drakaea glyptodon</i>	King-in-his-carriage	1
Orchidaceae	<i>Drakaea micrantha</i>	Dwarf Hammer Orchid	1
Orchidaceae	<i>Eriochilus dilatatus</i> subsp. <i>multiflorus</i>	Common Bunny Orchid	1
Iridaceae	<i>Ferraria crispa</i>	Black Flag	1
Cyperaceae	<i>Ficinia nodosa</i>	Knobby Club-rush	1
Cyperaceae	<i>Gahnia</i>	Saw-sedges	1
Haemodoraceae	<i>Haemodorum simplex</i>		1
Hydrocharitaceae	<i>Halophila ovalis</i>	Halophila	1
Poaceae	<i>Hemarthria uncinata</i>	Matgrass	1
Poaceae	<i>Holcus setiger</i>	Annual Fog	1
Cyperaceae	<i>Isolepis fluitans</i>	Floating Club-rush	1
Juncaceae	<i>Juncus kraussii</i> subsp. <i>australiensis</i>	Juncus	1
Juncaceae	<i>Juncus oxycarpus</i>	Spiny-fruit Rush	1
Poaceae	<i>Lachnagrostis filiformis</i>	Common Blown-grass	1
Poaceae	<i>Lachnagrostis</i>	Blowngrasses	1
Asparagaceae	<i>Laxmannia ramosa</i> subsp. <i>ramosa</i>	Branching Lily	1
Asparagaceae	<i>Laxmannia ramosa</i>		1
Cyperaceae	<i>Lepidosperma effusum</i>	Spreading Sword-sedge	1
Orchidaceae	<i>Leporella fimbriata</i>	Fringed Hare-orchid	1
Restionaceae	<i>Leptocarpus laxus</i>		1
Liliaceae	Liliaceae		1
Poaceae	<i>Lolium arundinaceum</i> subsp. <i>arundinaceum</i>		1
Poaceae	<i>Lolium x hybridum</i>	Hybrid Ryegrass	1
Asparagaceae	<i>Lomandra</i>	Mat Rushes	1

Cyperaceae	<i>Machaerina articulata</i>	Jointed Twig-rush	1
Cyperaceae	<i>Machaerina vaginalis</i>		1
Orchidaceae	<i>Microtis albovidis</i>	Scented Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i> subsp. <i>densiflora</i>	Dense Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i> subsp. <i>media</i>	Common Mignonette Orchid	1
Orchidaceae	<i>Microtis unifolia</i>	Common Onion Orchid	1
Poaceae	<i>Molineriella minuta</i>	Small Hair-grass	1
Hydrocharitaceae	<i>Ottelia ovalifolia</i>	Swamp Lily	1
Poaceae	<i>Parapholis incurva</i>	Curly Ryegrass	1
Iridaceae	<i>Patersonia babianoides</i>		1
Iridaceae	<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Long Purple-flag	1
Hypoxidaceae	<i>Pauridia glabella</i>		1
Orchidaceae	<i>Pheladenia deformis</i>	Bluebeard Orchid	1
Orchidaceae	<i>Prasophyllum cyphochilum</i>	Pouched Leek Orchid	1
Orchidaceae	<i>Prasophyllum gibbosum</i>	Hooded Leek Orchid	1
Orchidaceae	<i>Prasophyllum ovale</i>	Little Leek Orchid	1
Orchidaceae	<i>Prasophyllum</i> sp. early (G.Brockman GBB 1626)		1
Orchidaceae	<i>Pterostylis actites</i>	Coastal Short-eared Snail Orchid	1
Orchidaceae	<i>Pterostylis erubescens</i>	Red-sepaled Snail Orchid	1
Orchidaceae	<i>Pterostylis glebosa</i>	Clubbed Snail Orchid	1
Orchidaceae	<i>Pterostylis longicornis</i>	Muir's Highway Bird Orchid	1
Restionaceae	Restionaceae	Rush	1
Iridaceae	<i>Romulea rosea</i>	Onion Grass	1
Cyperaceae	<i>Schoenus breviculmis</i>	Matted Bog-rush	1
Cyperaceae	<i>Schoenus elegans</i>		1
Poaceae	<i>Spinifex</i>		1
Orchidaceae	<i>Thelymitra graminea</i>	Shy Sun Orchid	1
Orchidaceae	<i>Thelymitra macrophylla</i>	Scented Sun Orchid	1
Orchidaceae	<i>Thelymitra mucida</i>	Plum Orchid	1
Orchidaceae	<i>Thelymitra paludosa</i>	Plain Sun Orchid	1
Orchidaceae	<i>Thelymitra pauciflora</i>	Slender Sun Orchid	1
Asparagaceae	<i>Thysanotus gracilis</i>		1
Asparagaceae	<i>Thysanotus sparteus</i>	Leafless Fringed Lily	1
Asparagaceae	<i>Thysanotus tenellus</i>	Grassy Fringe-lily	1
Haemodoraceae	<i>Tribonanthes australis</i>	Southern Tiurndin	1
Juncaginaceae	<i>Triglochin nana</i>	Dwarf Arrowgrass	1
Juncaginaceae	<i>Triglochin striata</i>	Streaked Arrowgrass	1
Colchicaceae	<i>Wurmbea dioica</i> subsp. <i>alba</i>		1
Colchicaceae	<i>Wurmbea</i>		1
Araceae	<i>Zantedeschia aethiopica</i>	White Arum Lily	1

Lifeform - Plants

Number of Plants 851

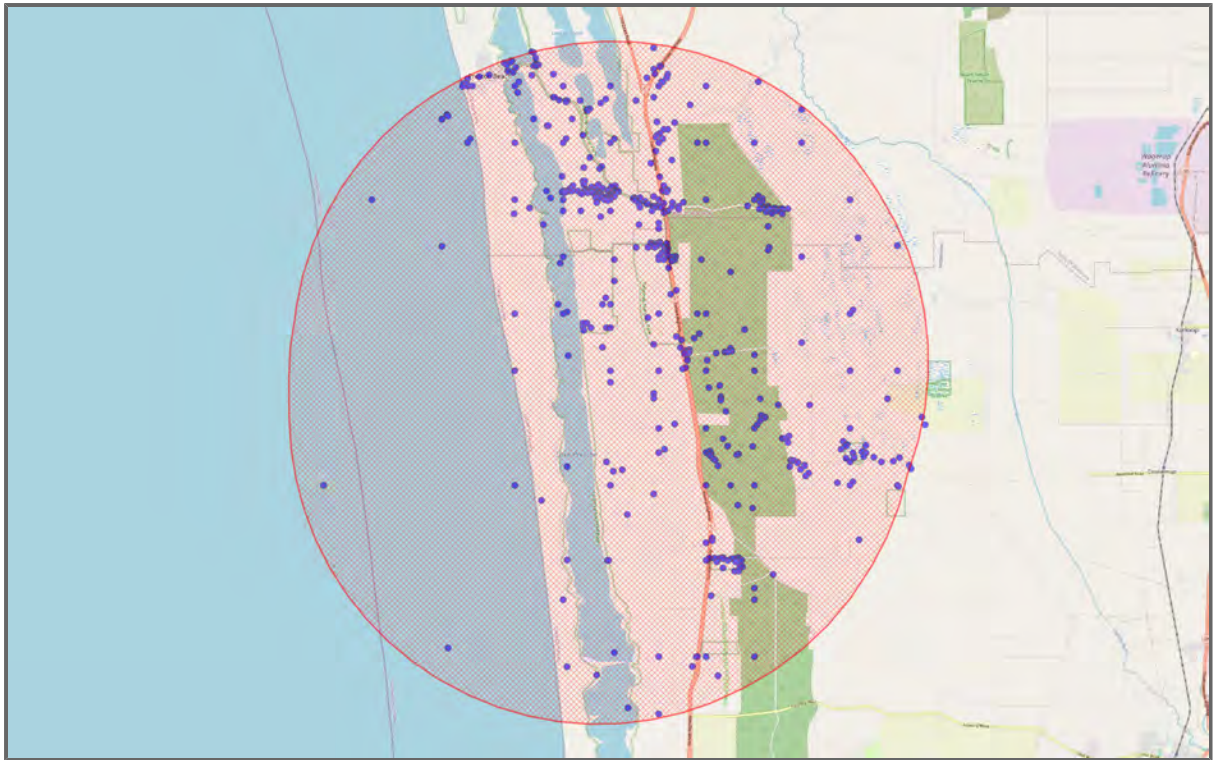


Figure 15 : Map of Lifeform - Plants

Table 15: Lifeform - Plants ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Zamiaceae	<i>Macrozamia riedlei</i>	Zamia Palm	33
Orchidaceae	<i>Pterostylis vittata</i>	Banded Greenhood	31
Orchidaceae	<i>Caladenia latifolia</i>	Pink Fairies	29
Dilleniaceae	<i>Hibbertia hypericoides</i>	Yellow Buttercups	28
Dilleniaceae	<i>Hibbertia racemosa</i>	Stalked Guinea Flower	28
Apiaceae	<i>Daucus glochidiatus</i>	Native Carrot	27
Orchidaceae	<i>Cyrtostylis huegelii</i>	Midge Orchid	24
Orchidaceae	<i>Pterostylis ectypha</i>	Thick-sepaled Snail Orchid	24
Asteraceae	<i>Hypochaeris glabra</i>	Smooth Cat's Ear	22
Fabaceae	<i>Acacia truncata</i>		21
Araliaceae	<i>Trachymene pilosa</i>	Dwarf Trachymene	21
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>	Grasstree	21
Proteaceae	<i>Banksia attenuata</i>	Coast Banksia	20
Restionaceae	<i>Desmocladus flexuosus</i>		20
Santalaceae	<i>Leptomeria ellytes</i>		19
Ericaceae	<i>Astroloma microcalyx</i>	Native Cranberry	18
Proteaceae	<i>Banksia grandis</i>	Giant Banksia	18
Orchidaceae	<i>Caladenia flava</i>	Cowslip Orchid	18
Fabaceae	<i>Hardenbergia comptoniana</i>	Western Australian Coral-pea	18
Ericaceae	<i>Leucopogon parviflorus</i>	Coast Beard-heath	18
Phyllanthaceae	<i>Phyllanthus calycinus</i>	Snowdrop Spurge	18
Orchidaceae	<i>Pterostylis pyramidalis</i>	Tall Snail Orchid	18
Asparagaceae	<i>Sowerbaea laxiflora</i>	Vanilla Lily	18
Droseraceae	<i>Drosera stolonifera</i>	Leafy Sundew	17

Cyperaceae	Lepidosperma squamatum		17
Apiaceae	Xanthosia huegelii	Hairy Xanthosia	17
Myrtaceae	Eucalyptus petrensis	Limestone Mallee	16
Myrtaceae	Melaleuca systena	Coastal Honeymyrtle	16
Fabaceae	Acacia pulchella	Prickly Moses	15
Orchidaceae	Caladenia flava subsp. flava	Cowslip Orchid	15
Lauraceae	Cassytha glabella	Slender Dodder-laurel	15
Asparagaceae	Lomandra caespitosa	Tufted Mat-rush	15
Asparagaceae	Lomandra maritima	Maritime Mat Rush	15
Asparagaceae	Thysanotus manglesianus	Fringed Lily	15
Orchidaceae	Caladenia georgei	Tuart Spider Orchid	14
Haemodoraceae	Conostylis aculeata	Prickly Conostylis	14
Myrtaceae	Eucalyptus gomphocephala	Tuart	14
Araliaceae	Hydrocotyle diantha	Kangaroo Island Pennywort	14
Rutaceae	Philotheca spicata	Pepper And Salt	14
Fabaceae	Templetonia retusa	Cockies Tongue	14
Poaceae	Aira caryophyllea	Silvery Hairgrass	13
Droseraceae	Drosera erythrorhiza	Red Ink Sundew	13
Lamiaceae	Hemiandra pungens	Snakebush	13
Cyperaceae	Lepidosperma angustatum		13
Santalaceae	Leptomeria cunninghamii		13
Ericaceae	Leucopogon propinquus		13
Scrophulariaceae	Myoporum caprarioides	Slender Myoporum	13
Orchidaceae	Pterostylis angulata	Helena River Snail Orchid	13
Orchidaceae	Pterostylis crispula	Slender Snail Orchid	13
Fabaceae	Sphaerolobium calcicola		13
Poaceae	Briza minor	Lesser Quaking-grass	12
Myrtaceae	Melaleuca teretifolia	Banbar	12
Orchidaceae	Pterostylis frenchii	Tuart Rufous Greenhood	12
Orchidaceae	Pterostylis nana	Dwarf Greenhood	12
Asteraceae	Rhodanthe citrina	Pale Immortelle	12
Colchicaceae	Wurmbea monantha		12
Orobanchaceae	Bellardia trixago	Bellardia	11
Orchidaceae	Caladenia nobilis	Noble Spider Orchid	11
Droseraceae	Drosera porrecta	Leafy Sundew	11
Cyperaceae	Gahnia trifida	Cutting Grass	11
Proteaceae	Hakea oligoneura		11
Proteaceae	Hakea ruscifolia	Candle Hakea	11
Proteaceae	Hakea varia	Variable-leaved Hakea	11
Cyperaceae	Isolepis marginata	Little Club-rush	11
Primulaceae	Lysimachia arvensis	Pimpernel	11
Ericaceae	Lysinema ciliatum	Curry Flower	11
Poaceae	Poa drummondiana	Knotted Poa	11
Orchidaceae	Pterostylis	Greenhoods	11
Hemerocallidaceae	Tricoryne elatior	Yellow Rush Lily	11
Fabaceae	Acacia saligna	Golden Wreath Wattle	10
Myrtaceae	Agonis flexuosa	Willow Myrtle	10
Orobanchaceae	Bellardia viscosa	Yellow Bartsia	10
Fabaceae	Bossiaea eriocarpa	Common Brown Pea	10
Polygalaceae	Comesperma confertum		10
Myrtaceae	Eucalyptus decipiens	Redheart	10
Fabaceae	Gompholobium tomentosum	Hairy Yellow Pea	10
Proteaceae	Grevillea preissii	Spider Net Grevillea	10
Proteaceae	Hakea prostrata	Harsh Hakea	10
Proteaceae	Hakea trifurcata	Two-leaf Hakea	10
Myrtaceae	Hypocalymma robustum	Swan River Myrtle	10

Asteraceae	Lagenophora huegelii	Coarse Bottle-daisy	10
Loganiaceae	Logania vaginalis	White Spray	10
Myrtaceae	Melaleuca incana subsp. incana	Grey Honey-myrtle	10
Fabaceae	Melilotus indicus	Sweet Melilot	10
Asteraceae	Olearia axillaris	Coast Daisy-bush	10
Orchidaceae	Pterostylis recurva	Recurved Shell Orchid	10
Asteraceae	Sonchus oleraceus	Common Sow-thistle	10
Araliaceae	Trachymene coerulea	Rottneest Island Daisy	10
Poaceae	Vulpia myuros	Fescue	10
Asteraceae	Angianthus preissianus	Salt Angianthus	9
Proteaceae	Banksia ilicifolia	Holly Leaved Banksia	9
Centrolepidaceae	Centrolepis drummondiana	Drummond's Centrolepis	9
Myrtaceae	Eucalyptus foecunda	Narrow-leaved Red Mallee	9
Santalaceae	Exocarpos sparteus	Broombush	9
Violaceae	Hybanthus calycinus	Wild Violet	9
Asteraceae	Ixiolaena viscosa	Sticky Ixiolaena	9
Campanulaceae	Lobelia tenuior	Slender Lobelia	9
Anarthriaceae	Lyginia barbata		9
Iridaceae	Patersonia occidentalis	Long Purple-flag	9
Loganiaceae	Phyllangium paradoxum	Wiry Mitrewort	9
Orchidaceae	Pyrorchis nigricans	Black Fire-orchid	9
Ranunculaceae	Ranunculus pumilio	Ferny Buttercup	9
Cyperaceae	Schoenus lanatus	Woolly Bog-rush	9
Asparagaceae	Thysanotus multiflorus	Many-flowered Fringe	9
Fabaceae	Trifolium dubium	Suckling Clover	9
Asteraceae	Ursinia anthemoides	Ursinia	9
Proteaceae	Xylomelum occidentale	Woody Pear	9
Casuarinaceae	Allocasuarina humilis	Dwarf Sheoak	8
Asteraceae	Asteridea pulverulenta	Common Bristle Daisy	8
Proteaceae	Banksia littoralis	Swamp Banksia	8
Myrtaceae	Calothamnus quadrifidus	Common Net Bush	8
Ranunculaceae	Clematis pubescens	Common Clematis	8
Haemodoraceae	Conostylis juncea		8
Myrtaceae	Corymbia haematoxylon	Mountain Marri	8
Goodeniaceae	Dampiera linearis	Wedge-leaved Dampiera	8
Dasyopogonaceae	Dasyopogon bromeliifolius	Pineapple Bush	8
Cyperaceae	Evandra pauciflora		8
Geraniaceae	Geranium molle	Soft Geranium	8
Apiaceae	Homalosciadium homalocarpum		8
Fabaceae	Hovea trisperma	Common Hovea	8
Restionaceae	Hypolaena exsulca		8
Cyperaceae	Lepidosperma longitudinale	Pithy Sword-sedge	8
Asparagaceae	Lomandra micrantha subsp. micrantha	Small-flower Mat-rush	8
Asparagaceae	Lomandra micrantha	Small-flower Mat-rush	8
Asparagaceae	Lomandra sericea	Silky Mat Rush	8
Myrtaceae	Melaleuca raphiophylla	Swamp Paperbark	8
Myrtaceae	Melaleuca thymoides		8
Poaceae	Microlaena stipoides	Weeping Grass	8
Rubiaceae	Opercularia vaginata	Dog Weed	8
Proteaceae	Petrophile linearis	Pixie Mops	8
Orchidaceae	Pterostylis sp. crinkled leaf (G.J.Keighery 13426)		8
Asteraceae	Quinetia urvillei	Quinetia	8
Goodeniaceae	Scaevola anchusifolia	Silky Scaevola	8
Rhamnaceae	Spyridium globulosum	Basket Bush	8
Cyperaceae	Tetraria octandra		8
Fabaceae	Acacia semitrullata		7

Solanaceae	<i>Anthocercis ilicifolia</i>	Holly-leaf Tailflower	7
Orchidaceae	<i>Caladenia</i>	Fairy Orchids	7
Portulacaceae	<i>Calandrinia brevipedata</i>	Short-stalked Purslane	7
Portulacaceae	<i>Calandrinia liniflora</i>	Parakeelya	7
Caryophyllaceae	<i>Cerastium glomeratum</i>	Common Mouse-ear Chickweed	7
Restionaceae	<i>Chaetanthus aristatus</i>	Bearded Twinerush	7
Asparagaceae	<i>Dichopogon capillipes</i>		7
Sapindaceae	<i>Diplopeltis huegelii</i> subsp. <i>huegelii</i>		7
Fabaceae	<i>Gastrolobium linearifolium</i>		7
Proteaceae	<i>Grevillea preissii</i> subsp. <i>preissii</i>		7
Brassicaceae	<i>Heliophila pusilla</i>	Fine Sunflax	7
Araliaceae	<i>Hydrocotyle callicarpa</i>	Tiny Pennywort	7
Araliaceae	<i>Hydrocotyle hispidula</i>		7
Asparagaceae	<i>Lomandra nigricans</i>		7
Myrtaceae	<i>Melaleuca cuticularis</i>	Western Swamp-paperbark	7
Caryophyllaceae	<i>Petrorhagia dubia</i>	Velvet Pink	7
Celastraceae	<i>Stackhousia monogyna</i>	Creamy Candles	7
Stylidiaceae	<i>Stylidium paludicola</i>	Swamp Reed Triggerplant	7
Asparagaceae	<i>Thysanotus patersonii</i>	Twining Fringe-lily	7
Fabaceae	<i>Acacia willdenowiana</i>	Grass Wattle	6
Proteaceae	<i>Adenanthos obovatus</i>	Basket Flower	6
Proteaceae	<i>Banksia dallanneyi</i>		6
Proteaceae	<i>Banksia nivea</i>		6
Asteraceae	<i>Brachyscome iberidifolia</i>	Brachyscome	6
Colchicaceae	<i>Burchardia congesta</i>	Milkmaids	6
Orchidaceae	<i>Caladenia vulgata</i>	Spider Orchid	6
Lauraceae	<i>Cassytha flava</i>	Dodder Laurel	6
Fabaceae	<i>Daviesia physodes</i>		6
Droseraceae	<i>Drosera macrantha</i> subsp. <i>macrantha</i>		6
Droseraceae	<i>Drosera macrantha</i>	Bridal Rainbow	6
Fabaceae	<i>Gompholobium confertum</i>		6
Araliaceae	<i>Hydrocotyle scutellifera</i>	Western Shield Pennywort	6
Campanulaceae	<i>Isotoma hypocrateriformis</i>	Woodbridge Poison	6
Orchidaceae	<i>Leptoceras menziesii</i>	Hare Orchid	6
Santalaceae	<i>Leptomeria empetrifolius</i>		6
Juncaceae	<i>Luzula meridionalis</i>	Common Wood-rush	6
Asteraceae	<i>Millotia myosotidifolia</i>	Broad-leaf Millotia	6
Proteaceae	<i>Petrophile serruriae</i>		6
Poaceae	<i>Polypogon tenellus</i>		6
Cyperaceae	<i>Schoenus curvifolius</i>		6
Caryophyllaceae	<i>Stellaria media</i>	Chickweed	6
Stylidiaceae	<i>Stylidium junceum</i>	Reed Triggerplant	6
Stylidiaceae	<i>Stylidium repens</i>	Matted Triggerplant	6
Stylidiaceae	<i>Stylidium schoenoides</i>	Cow Kicks	6
Asphodelaceae	<i>Trachyandra divaricata</i>	Dune Onion Weed	6
Juncaginaceae	<i>Triglochin trichophora</i>	Torpedo Arrowgrass	6
Rhamnaceae	<i>Trymalium ledifolium</i> var. <i>ledifolium</i>		6
Asphodelaceae	<i>Asphodelus fistulosus</i>	Onion Weed	5
Poaceae	<i>Austrostipa compressa</i>		5
Proteaceae	<i>Banksia</i>	Banksia	5
Pittosporaceae	<i>Billardiera variifolia</i>		5
Poaceae	<i>Bromus diandrus</i>	Great Brome	5
Lauraceae	<i>Cassytha racemosa</i>	Dodder Laurel	5
Crassulaceae	<i>Crassula colorata</i>	Dense Stonecrop	5
Rhamnaceae	<i>Cryptandra mutila</i>		5
Sapindaceae	<i>Diplopeltis huegelii</i>		5

Droseraceae	<i>Drosera pallida</i>	Pale Rainbow	5
Droseraceae	<i>Drosera squamosa</i>		5
Orchidaceae	<i>Elythranthera brunonis</i>	Purple Enamel Orchid	5
Orchidaceae	<i>Eriochilus dilatatus</i> subsp. <i>dilatatus</i>	White Bunny Orchid	5
Myrtaceae	<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	Jarrah	5
Myrtaceae	<i>Eucalyptus marginata</i>	Jarrah	5
Euphorbiaceae	<i>Euphorbia paralias</i>	Sea Spurge	5
Araliaceae	<i>Hydrocotyle alata</i>		5
Cyperaceae	<i>Isolepis cernua</i>	Nodding Club Rush	5
Fabaceae	<i>Jacksonia furcellata</i>	Grey Stinkwood	5
Fabaceae	<i>Jacksonia sternbergiana</i>	Stinkwood	5
Cyperaceae	<i>Lepidosperma</i>	Swordsedges	5
Ericaceae	<i>Leucopogon racemosus</i>		5
Linaceae	<i>Linum marginale</i>	Native Flax	5
Asparagaceae	<i>Lomandra suaveolens</i>		5
Myrtaceae	<i>Melaleuca lanceolata</i>	Dryland Tea-tree	5
Myrtaceae	<i>Melaleuca pauciflora</i>		5
Myrtaceae	<i>Melaleuca</i>	Tea-tree	5
Menyanthaceae	<i>Ornithopus albiflora</i>		5
Fabaceae	<i>Ornithopus compressus</i>	Neat Bird's-foot	5
Urticaceae	<i>Parietaria debilis</i>	Shade Pellitory	5
Geraniaceae	<i>Pelargonium capitatum</i>	Rose-scented Pelargonium	5
Haemodoraceae	<i>Phlebocarya ciliata</i>		5
Thymelaeaceae	<i>Pimelea rosea</i>	Rose Banjine	5
Asteraceae	<i>Podotheca angustifolia</i>	Sticky Long-heads	5
Orchidaceae	<i>Prasophyllum elatum</i>	Tall Leek-orchid	5
Orchidaceae	<i>Prasophyllum giganteum</i>	Bronze Leek Orchid	5
Orchidaceae	<i>Prasophyllum macrostachyum</i>	Laughing Leek Orchid	5
Poaceae	<i>Rostraria cristata</i>	Annual Cats-tail	5
Primulaceae	<i>Samolus junceus</i>		5
Cyperaceae	<i>Schoenus efoliatus</i>		5
Cyperaceae	<i>Schoenus grandiflorus</i>	Large Flowered Bog-rush	5
Proteaceae	<i>Stirlingia latifolia</i>	Blueboy	5
Stylidiaceae	<i>Stylidium brunonianum</i>	Pink Fountain Triggerplant	5
Gyrostemonaceae	<i>Tersonia cyathiflora</i>	Button Creeper	5
Malvaceae	<i>Thomasia triphylla</i>		5
Asparagaceae	<i>Thysanotus arenarius</i>	Sand-dune Fringed Lily	5
Fabaceae	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	5
Myrtaceae	<i>Verticordia nitens</i>	Yellow Morrison	5
Fabaceae	<i>Acacia pulchella</i> var. <i>pulchella</i>	Prickly Moses	4
Euphorbiaceae	<i>Adriana quadripartita</i>	Rare Bitter-bush	4
Malvaceae	<i>Alyogyne</i> sp. Rockingham (G.J.Keighery 14463)		4
Anarthriaceae	<i>Anarthria prolifera</i>		4
Solanaceae	<i>Anthocercis</i>		4
Rutaceae	<i>Boronia capitata</i> subsp. <i>gracilis</i>		4
Poaceae	<i>Briza maxima</i>	Large Quaking-grass	4
Colchicaceae	<i>Burchardia umbellata</i>	Milkmaids	4
Myrtaceae	<i>Calothamnus lateralis</i>		4
Cyperaceae	<i>Carex thecata</i>		4
Myrtaceae	<i>Chamelaucium uncinatum</i>	Geraldton Wax	4
Orchidaceae	<i>Corybas recurvus</i>	Helmet Orchid	4
Myrtaceae	<i>Corymbia calophylla</i>	Marri	4
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>	Dense Crassula	4
Convolvulaceae	<i>Cuscuta epithymum</i>	Common Dodder	4
Orchidaceae	<i>Disa bracteata</i>	South African Orchid	4
Orchidaceae	<i>Diuris micrantha</i>	Dwarf Bee Orchid	4

Orchidaceae	<i>Diuris porphyrochila</i>	Yalgorup Donkey Orchid	4
Orchidaceae	<i>Eriochilus dilatatus</i>	White Bunny Orchid	4
Funariaceae	<i>Funaria hygrometrica</i>	Common Cord-moss	4
Proteaceae	<i>Hakea</i>	Needle Bushes	4
Haloragaceae	<i>Haloragis scoparia</i>		4
Lamiaceae	<i>Hemiandra glabra</i>		4
Lamiaceae	<i>Hemigenia microphylla</i>		4
Dilleniaceae	<i>Hibbertia stellaris</i>	Guinea Flower	4
Fabaceae	<i>Hovea trisperma</i> var. <i>trisperma</i>	Common Hovea	4
Asteraceae	<i>Hyalosperma cotula</i>		4
Araliaceae	<i>Hydrocotyle medicaginoidea</i>	Medic Pennywort	4
Myrtaceae	<i>Hypocalymma ericifolium</i>		4
Restionaceae	<i>Hypolaena pubescens</i>		4
Fabaceae	<i>Kennedia coccinea</i>	Coral Vine	4
Fabaceae	<i>Kennedia prostrata</i>	Scarlet Runner	4
Restionaceae	<i>Leptocarpus canus</i>	Hoary Twine-rush	4
Restionaceae	<i>Leptocarpus coangustus</i>		4
Poaceae	<i>Lolium rigidum</i>	Wimmera Ryegrass	4
Asparagaceae	<i>Lomandra hermaphrodita</i>		4
Myrtaceae	<i>Melaleuca viminea</i> subsp. <i>viminea</i>	Weeping Honey-myrtle	4
Asteraceae	<i>Millotia tenuifolia</i> var. <i>tenuifolia</i>	Soft Millotia	4
Asteraceae	<i>Millotia tenuifolia</i>	Soft Millotia	4
Loranthaceae	<i>Nuytsia floribunda</i>	Western Australian Christmas Tree	4
Loganiaceae	<i>Orianthera serpyllifolia</i>		4
Orobanchaceae	<i>Orobanche minor</i>	Lesser Broomrape	4
Proteaceae	<i>Persoonia saccata</i>	Snottygobble	4
Poaceae	<i>Poa poiformis</i>	Coast Tussock-grass	4
Orchidaceae	<i>Pterostylis karri</i>	Karri Snail Orchid	4
Ranunculaceae	<i>Ranunculus colonorum</i>	Common Buttercup	4
Chenopodiaceae	<i>Rhagodia baccata</i> subsp. <i>baccata</i>	Berry Saltbush	4
Primulaceae	<i>Samolus repens</i>	Creeping Brookweed	4
Goodeniaceae	<i>Scaevola crassifolia</i>	Cushion Fanflower	4
Goodeniaceae	<i>Scaevola thesioides</i> subsp. <i>thesioides</i>		4
Cyperaceae	<i>Schoenus asperocarpus</i>	Poison Sedge	4
Asteraceae	<i>Senecio pinnatifolius</i> var. <i>latilobus</i>	Variable Groundsel	4
Asteraceae	<i>Sonchus hydrophilus</i>	Native Sow-thistle	4
Stylidiaceae	<i>Stylidium carnosum</i>	Fleshy-leaved Triggerplant	4
Orchidaceae	<i>Thelymitra fuscolutea</i>	Chestnut Sun Orchid	4
Chenopodiaceae	<i>Threlkeldia diffusa</i>	Coast Bonefruit	4
Fabaceae	<i>Trifolium campestre</i>	Hop Clover	4
Juncaginaceae	<i>Triglochin</i>	Lilaea	4
Fabaceae	<i>Acacia cyclops</i>	Western Coastal Wattle	3
Fabaceae	<i>Acacia lasiocalyx</i>	Shaggy Wattle	3
Fabaceae	<i>Acacia lasiocarpa</i>		3
Malvaceae	<i>Alyogyne huegelii</i>	Lilac Hibiscus	3
Apocynaceae	<i>Alyxia buxifolia</i>	Sea Box	3
Solanaceae	<i>Anthocercis littorea</i>	Yellow Tailflower	3
Brassicaceae	<i>Arabidopsis thaliana</i>	Thale Cress	3
Asteraceae	<i>Arctotheca calendula</i>	Cape Weed	3
Poaceae	<i>Avellinia festucoides</i>	Avellinia	3
Poaceae	<i>Bromus arenarius</i>	Sand Brome	3
Poaceae	<i>Bromus hordeaceus</i>	Soft Brome	3
Hemerocallidaceae	<i>Caesia micrantha</i>	Pale Grass Lily	3
Orchidaceae	<i>Caladenia arenicola</i>	Carousel Spider Orchid	3
Orchidaceae	<i>Caladenia attingens</i>	Forest Mantis Orchid	3
Orchidaceae	<i>Caladenia cairnsiana</i>	Zebra Orchid	3

Orchidaceae	<i>Caladenia discoidea</i>	Dancing Spider Orchid	3
Orchidaceae	<i>Caladenia longicauda</i> subsp. <i>longicauda</i>	White Spider Orchid	3
Orchidaceae	<i>Caladenia paludosa</i>	Swamp Spider Orchid	3
Orchidaceae	<i>Caladenia speciosa</i>	Sandplain White Spider Orchid	3
Cupressaceae	<i>Callitris pyramidalis</i>	Swamp Cypress	3
Aizoaceae	<i>Carpobrotus virescens</i>	Pigface	3
Lauraceae	<i>Cassytha micrantha</i>		3
Caprifoliaceae	<i>Centranthus macrosiphon</i>	Pretty Betsy	3
Asparagaceae	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	Blue Stars	3
Asparagaceae	<i>Chamaescilla corymbosa</i>	Blue Stars	3
Ericaceae	<i>Conostephium pendulum</i>	Pearl Flower	3
Rutaceae	<i>Diplolaena dampieri</i>	Southern Diplolaena	3
Orchidaceae	<i>Diuris tinctoria</i>	Sandplain Donkey Orchid	3
Geraniaceae	<i>Erodium cicutarium</i>	Common Herons-bill	3
Myrtaceae	<i>Eucalyptus</i>	Studley Park Gum	3
Fabaceae	<i>Euchilopsis linearis</i>	Swamp Pea	3
Rubiaceae	<i>Galium murale</i>	Small Bedstraw	3
Geraniaceae	<i>Geranium retrorsum</i>	Grassland Crane's-bill	3
Haloragaceae	<i>Haloragis aculeolata</i>		3
Fabaceae	<i>Hovea pungens</i>	Devils Pins	3
Araliaceae	<i>Hydrocotyle tetragonocarpa</i>	Limestone Pennywort	3
Myrtaceae	<i>Hypocalymma angustifolium</i>	White Myrtle	3
Fabaceae	<i>Isotropis cuneifolia</i>	Granny Bonnets	3
Malvaceae	<i>Lasiopetalum membranaceum</i>		3
Malvaceae	<i>Lawrencia glomerata</i>	Clustered Lawrencia	3
Restionaceae	<i>Leptocarpus decipiens</i>		3
Restionaceae	<i>Leptocarpus roycei</i>		3
Plumbaginaceae	<i>Limonium companyonis</i>	Sea-lavender	3
Fabaceae	<i>Lotus angustissimus</i>	Slender Bird's-foot Trefoil	3
Fabaceae	<i>Lotus subbiflorus</i>	Hairy Bird's-foot Trefoil	3
Myrtaceae	<i>Melaleuca huegelii</i> subsp. <i>huegelii</i>	Chenille Honeymyrtle	3
Myrtaceae	<i>Melaleuca huegelii</i>	Chenille Honeymyrtle	3
Myrtaceae	<i>Melaleuca viminea</i>	Mohan	3
Orchidaceae	<i>Microtis</i>	Onion Orchids	3
Scrophulariaceae	<i>Myoporum insulare</i>	Common Boobialla	3
Loganiaceae	<i>Orianthera serpyllifolia</i> subsp. <i>angustifolia</i>		3
Menyanthaceae	<i>Ornduffia parnassifolia</i>		3
Fabaceae	<i>Ornithopus pinnatus</i>	Slender Serradella	3
Thymelaeaceae	<i>Pimelea calcicola</i>	Coastal Banjine	3
Thymelaeaceae	<i>Pimelea rosea</i> subsp. <i>rosea</i>	Rose Banjine	3
Pinaceae	<i>Pinus pinaster</i>	Maritime Pine	3
	<i>Plantae</i>		3
Poaceae	<i>Poa annua</i>	Annual Meadow-grass	3
Poaceae	<i>Poa porphyroclados</i>		3
Asteraceae	<i>Podolepis gracilis</i>	Slender Podolepis	3
Phyllanthaceae	<i>Poranthera microphylla</i>	Small Poranthera	3
Orchidaceae	<i>Prasophyllum parvifolium</i>	Autumn Leek Orchid	3
Orchidaceae	<i>Pterostylis aspera</i>	Brown-veined Shell Orchid	3
Orchidaceae	<i>Pterostylis brevisepala</i>	Short-eared Snail Orchid	3
Fabaceae	<i>Pultenaea ochreatea</i>		3
Chenopodiaceae	<i>Rhagodia baccata</i>	Berry Saltbush	3
Poaceae	<i>Rytidosperma occidentale</i>	Western Wallaby Grass	3
Caryophyllaceae	<i>Silene gallica</i>	French Catchfly	3
Solanaceae	<i>Solanum symonii</i>	Symon's Kangaroo-apple	3
Fabaceae	<i>Sphaerolobium medium</i>		3
Fabaceae	<i>Sphaerolobium vimineum</i>	Leafless Globe-pea	3

Poaceae	<i>Sporobolus virginicus</i>	Marine Couch	3
Brassicaceae	<i>Stenopetalum gracile</i>		3
Brassicaceae	<i>Stenopetalum robustum</i>		3
Poaceae	<i>Stenotaphrum secundatum</i>	Buffalo Grass	3
Elaeocarpaceae	<i>Tetratheca hirsuta</i>	Black-eyed Susan	3
Orchidaceae	<i>Thelymitra benthamiana</i>	Leopard Sun-orchid	3
Asparagaceae	<i>Thysanotus</i>	Fringed Lily	3
	Tracheophyta		3
Fabaceae	<i>Trifolium scabrum</i>	Rough Clover	3
Juncaginaceae	<i>Triglochin isingiana</i>	Spurred Arrowgrass	3
Juncaginaceae	<i>Triglochin mucronata</i>	Prickly Arrowgrass	3
Convolvulaceae	<i>Wilsonia backhousei</i>	Narrow-leaf Wilsonia	3
Fabaceae	<i>Acacia cochlearis</i>	Rigid Wattle	2
Fabaceae	<i>Acacia huegelii</i>	Huegel's Wattle	2
Fabaceae	<i>Acacia</i>	Wattle	2
Ericaceae	<i>Acrotriche cordata</i>	Blunt-leaf Ground-berry	2
Apiaceae	<i>Actinotus glomeratus</i>		2
Proteaceae	<i>Adenanthos meisneri</i>		2
Poaceae	<i>Amphipogon laguroides</i>		2
Poaceae	<i>Amphipogon turbinatus</i>		2
Ericaceae	<i>Andersonia involucrata</i>		2
Haemodoraceae	<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Catspaw	2
Haemodoraceae	<i>Anigozanthos humilis</i>	Common Catspaw	2
Solanaceae	<i>Anthocercis ilicifolia</i> subsp. <i>ilicifolia</i>		2
Poaceae	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	2
Fabaceae	<i>Aotus gracillima</i>		2
Asteraceae	Asteraceae	Daisy	2
Ericaceae	<i>Astroloma ciliatum</i>	Candle Cranberry	2
Ericaceae	<i>Astroloma pallidum</i>	Kick Bush	2
Poaceae	<i>Austrostipa</i>	Spear-grasses	2
Rutaceae	<i>Boronia crenulata</i> subsp. <i>viminea</i>		2
Rutaceae	<i>Boronia dichotoma</i>		2
Ericaceae	<i>Brachyloma preissii</i>	Globe Heath	2
Asteraceae	<i>Brachyscome bellidioides</i>		2
Colchicaceae	<i>Burchardia multiflora</i>	Lesser Burchardia	2
Hemerocallidaceae	<i>Caesia occidentalis</i>	Pale Grass Lily	2
Orchidaceae	<i>Caladenia chapmanii</i>	Chapman's Spider Orchid	2
Orchidaceae	<i>Caladenia hirta</i> subsp. <i>hirta</i>	Sugar Candy Orchid	2
Orchidaceae	<i>Caladenia huegelii</i>	Grand Spider Orchid	2
Orchidaceae	<i>Caladenia nana</i> subsp. <i>nana</i>	Little Pink Fan Orchid	2
Orchidaceae	<i>Caladenia swartziorum</i>	Island Point Spider Orchid	2
Myrtaceae	<i>Calytrix fraseri</i>	Pink Summer Calytrix	2
Aizoaceae	<i>Carpobrotus</i>	Pigface	2
Asteraceae	<i>Centaurea melitensis</i>	Maltese Cockspur	2
Gentianaceae	<i>Centaurium</i>	Centaury	2
Centrolepidaceae	<i>Centrolepis aristata</i>	Pointed Centrolepis	2
Proteaceae	<i>Conospermum triplinervium</i>	Tree Smokebush	2
Haemodoraceae	<i>Conostylis candicans</i> subsp. <i>calpicola</i>		2
Haemodoraceae	<i>Conostylis pauciflora</i>		2
Orchidaceae	<i>Corybas</i>	Spurred Helmet Orchid	2
Asteraceae	<i>Cotula cotuloides</i>	Smooth Cotula	2
Asteraceae	<i>Craspedia</i> sp. Yalgorup National Park (G.J.Keighery 14449)		2
Asteraceae	<i>Craspedia variabilis</i>	Common Billy-buttons	2
Crassulaceae	<i>Crassula glomerata</i>	Clustered Crassula	2
Crassulaceae	<i>Crassula thunbergiana</i>		2
Orchidaceae	<i>Cyanicula gemmata</i>	Blue China Orchid	2

Goodeniaceae	<i>Dampiera trigona</i>	Angled-stem Dampiera	2
Fabaceae	<i>Daviesia divaricata</i>	Marno	2
Restionaceae	<i>Desmocladus asper</i>		2
Hemerocallidaceae	<i>Dianella brevicaulis</i>	Small-flower Flax-lily	2
Orchidaceae	<i>Diuris corymbosa</i>	Common Donkey Orchid	2
Orchidaceae	<i>Diuris cruenta</i>	Kermerton [sic; Kemerton] Donkey Orchid	2
Orchidaceae	<i>Diuris longifolia</i>	Common Donkey Orchid	2
Orchidaceae	<i>Diuris magnifica</i>	Pansy Orchid	2
Orchidaceae	<i>Diuris</i>	Donkey Orchids	2
Droseraceae	<i>Drosera gigantea</i>	Giant Sundew	2
Droseraceae	<i>Drosera paleacea</i>	Dwarf Sundew	2
Poaceae	<i>Ehrharta calycina</i>	Perennial Veldt-grass	2
Poaceae	<i>Ehrharta longiflora</i>	Annual Veldt-grass	2
Orchidaceae	<i>Elythranthera emarginata</i>	Pink Enamel Orchid	2
Ericaceae	Ericaceae	Austral Heaths	2
Geraniaceae	<i>Erodium botrys</i>	Big Herons-bill	2
Euphorbiaceae	<i>Euphorbia helioscopia</i>	Sun Spurge	2
Fabaceae	Fabaceae		2
Iridaceae	Freesia	Freesia	2
Bryaceae	<i>Gemmabryum pachytheca</i>	Acorn-fruited Thread-moss	2
Geraniaceae	<i>Geranium solanderi</i>	Austral Geranium	2
Fabaceae	<i>Gompholobium polymorphum</i>		2
Proteaceae	<i>Grevillea crithmifolia</i>		2
Proteaceae	<i>Hakea amplexicaulis</i>	Prickly Hakea	2
Dilleniaceae	<i>Hibbertia spicata</i> subsp. <i>leptotheca</i>		2
Violaceae	<i>Hybanthus debilissimus</i>		2
Araliaceae	<i>Hydrocotyle perplexa</i>	Intricate Pennywort	2
Fabaceae	<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	Granny Bonnets	2
Juncaceae	<i>Juncus bufonius</i>	Toad Rush	2
Poaceae	<i>Lagurus ovatus</i>	Hare's Tail Grass	2
Goodeniaceae	<i>Lechenaultia expansa</i>		2
Cyperaceae	<i>Lepidosperma calcicola</i>		2
Cyperaceae	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	2
Restionaceae	<i>Leptocarpus scariosus</i>		2
Restionaceae	<i>Leptocarpus tephrinus</i>		2
Santalaceae	<i>Leptomeria lehmannii</i>		2
Restionaceae	<i>Lepyrodia muirii</i>		2
Ericaceae	<i>Leucopogon australis</i>	Spike Beard-heath	2
Ericaceae	<i>Leucopogon glabellus</i>		2
Ericaceae	<i>Leucopogon polymorphus</i>		2
Stylidiaceae	<i>Levenhookia stipitata</i>	Common Stylewort	2
Campanulaceae	<i>Lobelia anceps</i>	Angled Lobelia	2
Campanulaceae	<i>Lobelia rarifolia</i>		2
Poaceae	<i>Lolium perenne</i>	Perennial Rye-grass	2
Asparagaceae	<i>Lomandra preissii</i>	Preiss' Mat Rush	2
Anarthriaceae	<i>Lyginia imberbis</i>		2
Primulaceae	<i>Lysimachia loeflingii</i>		2
Ericaceae	<i>Lysinema pentapetalum</i>	Curry Flower	2
Cyperaceae	<i>Machaerina arthropphylla</i>	Baumea	2
Cyperaceae	<i>Machaerina juncea</i>	Bare Twig-rush	2
Fabaceae	<i>Medicago sativa</i>	Lucerne	2
Myrtaceae	<i>Melaleuca incana</i>	Grey Honeymyrtle	2
Myrtaceae	<i>Melaleuca lateritia</i>	Robin Redbreast Bush	2
Orchidaceae	<i>Microtis media</i>	Common Mignonette Orchid	2
Iridaceae	<i>Moraea flaccida</i>	One-leaf Cape Tulip	2

Onagraceae	Oenothera affinis	Long-flowered Evening Primrose	2
Asteraceae	Olearia paucidentata	Autumn Scrub Daisy	2
Rubiaceae	Opercularia hispidula	Hispid Stinkweed	2
Orchidaceae	Orchidaceae	Orchids	2
Oxalidaceae	Oxalis perennans	Native Sorrel	2
Myrtaceae	Pericalymma ellipticum var. ellipticum		2
Myrtaceae	Pericalymma ellipticum	Swamp Teatree	2
Proteaceae	Persoonia elliptica	Snottygobble	2
Proteaceae	Petrophile axillaris		2
Loganiaceae	Phyllangium divergens	Wiry Mitrewort	2
Thymelaeaceae	Pimelea ferruginea	Pink Rice-flower	2
Thymelaeaceae	Pimelea lanata		2
Thymelaeaceae	Pimelea preissii		2
Thymelaeaceae	Pimelea	Rice Flowers	2
Plantaginaceae	Plantago major	Greater Plantain	2
Apiaceae	Platysace compressa	Tapeworm Plant	2
Apiaceae	Platysace filiformis		2
Phyllanthaceae	Poranthera huegelii	Heath Poranthera	2
Orchidaceae	Prasophyllum calcicola	Limestone Leek-orchid	2
Orchidaceae	Prasophyllum fimbria	Fringed Leek Orchid	2
Pterocladaceae	Pterocladia lucida		2
Orchidaceae	Pterostylis barbata	Bird Orchid	2
Orchidaceae	Pterostylis concava	Cupped Banded Greenhood	2
Orchidaceae	Pterostylis sanguinea	Blood Greenhood	2
Orchidaceae	Pterostylis scabrella	Rough-lipped Snail Orchid	2
Ranunculaceae	Ranunculus sessiliflorus var. sessiliflorus	Annual Buttercup	2
Caryophyllaceae	Sagina apetala	Common Pearlwort	2
Goodeniaceae	Scaevola thesioides	Gibbous-fruited Scaevola	2
Cyperaceae	Schoenus cruentus		2
Cyperaceae	Schoenus nanus	Little Bog-rush	2
Cyperaceae	Schoenus nitens	Shiny Bogrush	2
Cyperaceae	Schoenus plumosus		2
Cyperaceae	Schoenus		2
Asteraceae	Senecio depressicola	Senecio	2
Asteraceae	Senecio lautus	Variable Groundsel	2
Asteraceae	Senecio multicaulis subsp. multicaulis		2
Malvaceae	Sida hookeriana		2
Solanaceae	Solanum nigrum	Black Nightshade	2
Celastraceae	Stackhousia huegelii		2
Stylidiaceae	Stylidium hesperium	Western Reed Triggerplant	2
Stylidiaceae	Stylidium longitubum	Jumping Jacks	2
Stylidiaceae	Stylidium maritimum	Coastal Triggerplant	2
Stylidiaceae	Stylidium	Trigger-plants	2
Orchidaceae	Thelymitra crinita	Blue Lady Orchid	2
Orchidaceae	Thelymitra flexuosa	Twisted Sun-orchid	2
Fabaceae	Trifolium resupinatum var. resupinatum	Shaftal Clover	2
Juncaginaceae	Triglochin calcitrapa	Spurred Arrowgrass	2
Juncaginaceae	Triglochin muelleri		2
Poaceae	Vulpia bromoides	Squirrel-tail Fescue	2
Poaceae	Vulpia	Fescue	2
Campanulaceae	Wahlenbergia preissii		2
Xanthorrhoeaceae	Xanthorrhoea brunonis		2
Proteaceae	Xylomelum angustifolium	Sandplain Woody Pear	2
Fabaceae	Acacia horridula		1
Fabaceae	Acacia rostelifera	Summer-scented Wattle	1
Fabaceae	Acacia saligna subsp. Southern forest (B.R.Maslin & J.E.Reid BRM 9952)		1

Fabaceae	<i>Acacia saligna</i> subsp. <i>Wheatbelt</i> (B.R.Maslin 8602)		1
Asparagaceae	<i>Acanthocarpus preissii</i>		1
Pteridaceae	<i>Adiantum aethiopicum</i>	Common Maidenhair	1
Poaceae	<i>Aira cupaniana</i>	Quicksilver Grass	1
Alliaceae	<i>Allium ampeloprasum</i>	Great-head Garlic	1
Amaranthaceae	<i>Alternanthera denticulata</i> var. <i>denticulata</i>	Lesser Joyweed	1
Euphorbiaceae	<i>Amperea ericoides</i>		1
Euphorbiaceae	<i>Amperea simulans</i>		1
Euphorbiaceae	<i>Amperea volubilis</i>		1
Anarthriaceae	<i>Anarthria scabra</i>		1
Haemodoraceae	<i>Anigozanthos flavidus</i>	Tall Kangaroo Paw	1
Haemodoraceae	<i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>	Mangles' Kangaroo Paw	1
Haemodoraceae	<i>Anigozanthos manglesii</i>	Red And Green Kangaroo Paw	1
Asteraceae	<i>Arctotheca populifolia</i>	Beach Daisy	1
Asparagaceae	<i>Arthropodium</i>	Vanilla Lilies	1
Myrtaceae	<i>Astartea fascicularis</i>	Recherche Astartea	1
Myrtaceae	<i>Astartea scoparia</i>	Common Astartea	1
Myrtaceae	<i>Astartea</i>		1
	Asterales		1
Ericaceae	<i>Astroloma drummondii</i>		1
Ericaceae	<i>Astroloma stomarrhena</i>	Red Swamp Cranberry	1
Poaceae	<i>Austrostipa flavescens</i>	Coast Spear-grass	1
Poaceae	<i>Avena barbata</i>	Bearded Oats	1
Poaceae	<i>Avena fatua</i>	Wild Oats	1
Proteaceae	<i>Banksia sessilis</i>		1
Pottiaceae	<i>Barbula calycina</i>	Common Beard-moss	1
Myrtaceae	<i>Beaufortia macrostemon</i>	Darling Range Beaufortia	1
Myrtaceae	<i>Beaufortia squarrosa</i>	Sand Bottlebrush	1
Pittosporaceae	<i>Billardiera floribunda</i>	White Flowered Billardiera	1
Pittosporaceae	<i>Billardiera fusiformis</i>	Bluebell Creeper	1
Asteraceae	<i>Blennozona</i>		1
Rutaceae	<i>Boronia juncea</i> subsp. <i>juncea</i>		1
Boryaceae	<i>Borya sphaerocephala</i>	Pincushions	1
Fabaceae	<i>Bossiaea linophylla</i>	Narrow-leaved Bossiaea	1
	Bryophyta		1
Bryaceae	<i>Bryum</i>		1
Byblidaceae	<i>Byblis gigantea</i>	Rainbow Plant	1
Orchidaceae	<i>Caladenia denticulata</i>	Wispy Spider Orchid	1
Orchidaceae	<i>Caladenia hirta</i> subsp. <i>rosea</i>	Pink Candy Orchid	1
Orchidaceae	<i>Caladenia hirta</i>	Sugar Candy Orchid	1
Orchidaceae	<i>Caladenia longicauda</i>	White Spider Orchid	1
Orchidaceae	<i>Caladenia macrostylis</i>	Leaping Spider Orchid	1
Orchidaceae	<i>Caladenia marginata</i>	White Fairy Orchid	1
Orchidaceae	<i>Caladenia nana</i>	Pink Fan Orchid	1
Orchidaceae	<i>Caladenia occidentalis</i>	Ruby Spider Orchid	1
Orchidaceae	<i>Caladenia reptans</i> subsp. <i>reptans</i>	Little Pink Fairies	1
Portulacaceae	<i>Calandrinia calyptata</i>	Pink Purslane	1
Portulacaceae	<i>Calandrinia corrigioloides</i>	Strap Purslane	1
Dasyopogonaceae	<i>Calectasia narragara</i>	Star Of Bethlehem	1
Cupressaceae	<i>Callitris acuminata</i>		1
Myrtaceae	<i>Calothamnus hirsutus</i>		1
Myrtaceae	<i>Calytrix aurea</i>		1
Leucobryaceae	<i>Campylopus introflexus</i>	Swan-neck Moss	1
Asteraceae	<i>Carduus pycnocephalus</i>	Slender Thistle	1
Lauraceae	<i>Cassytha</i>	Dodder-laurel	1
Gentianaceae	<i>Centaurium erythraea</i>	Common Centaury	1

Asteraceae	<i>Centipeda cunninghamii</i>	Common Sneezeweed	1
Rutaceae	<i>Chorilaena</i>		1
Fabaceae	<i>Chorizema cordatum</i>	Flame Pea	1
Fabaceae	<i>Chorizema dicksonii</i>	Yellow-eyed Flame Pea	1
Fabaceae	<i>Chorizema diversifolium</i>		1
Cucurbitaceae	<i>Citrullus amarus</i>	Paddy Melon	1
Ranunculaceae	<i>Clematis aristata</i>	Mountain Old Man's Beard	1
Polygalaceae	<i>Comesperma flavum</i>		1
Polygalaceae	<i>Comesperma virgatum</i>	Milkwort	1
Proteaceae	<i>Conospermum capitatum</i> subsp. <i>glabratum</i>		1
Proteaceae	<i>Conospermum crassinervium</i>	Summer Smoke-bush	1
Ericaceae	<i>Conostephium preissii</i>		1
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>aculeata</i>		1
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>gracilis</i>		1
Haemodoraceae	<i>Conostylis pauciflora</i> subsp. <i>pauciflora</i>		1
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>	Bristly Cottonhead	1
Haemodoraceae	<i>Conostylis setigera</i>	Bristly Cottonhead	1
Corallinaceae	<i>Corallina</i>		1
Hemerocallidaceae	<i>Corynotheca micrantha</i> var. <i>micrantha</i>	Sand Lily	1
Hemerocallidaceae	<i>Corynotheca micrantha</i>	Sand Lily	1
Crassulaceae	<i>Crassula alata</i> var. <i>alata</i>	Three-part Crassula	1
Crassulaceae	<i>Crassula</i>		1
Asteraceae	<i>Crepis foetida</i>	Foetid Hawk's-beard	1
Rhamnaceae	<i>Cryptandra arbutiflora</i> var. <i>arbutiflora</i>		1
Rhamnaceae	<i>Cryptandra arbutiflora</i> var. <i>tubulosa</i>	Waxy Cryptandra	1
Rhamnaceae	<i>Cryptandra arbutiflora</i>	Waxy Cryptandra	1
Orchidaceae	<i>Cryptostylis ovata</i>	Tongue Orchid	1
Convolvulaceae	<i>Cuscuta planiflora</i>	Small-seed Alfalfa-dodder	1
Orchidaceae	<i>Cyanicula gertrudae</i>	Pale China Orchid	1
Poaceae	<i>Cynosurus echinatus</i>	Rough Dog's Tail	1
Orchidaceae	<i>Cyrtostylis reniformis</i>	Small Gnat-orchid	1
Goodeniaceae	<i>Dampiera</i>		1
Myrtaceae	<i>Darwinia citriodora</i>	Lemon-scented Darwinia	1
Fabaceae	<i>Daviesia brachyphylla</i>		1
Fabaceae	<i>Daviesia divaricata</i> subsp. <i>divaricata</i>		1
Fabaceae	<i>Daviesia preissii</i>		1
Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>divaricata</i>	Broad-leaf Flax-lily	1
Hemerocallidaceae	<i>Dianella revoluta</i>	Blueberry Lily	1
Poaceae	<i>Dichelachne crinita</i>	Long-hair Plume-grass	1
Fabaceae	<i>Dillwynia dillwynioides</i>		1
Fabaceae	<i>Dillwynia</i>	Egg And Bacon Peas	1
Rutaceae	<i>Diplolaena</i>		1
Sapindaceae	<i>Diplopeltis</i>		1
Brassicaceae	<i>Diploaxis muralis</i>	Wall Rocket	1
Scrophulariaceae	<i>Dischisma arenarium</i>	Sand Dichisma	1
Orchidaceae	<i>Diuris jonesii</i>	Dunsborough Donkey Orchid	1
Sapindaceae	<i>Dodonaea aptera</i>	Coast Hopbush	1
Sapindaceae	<i>Dodonaea viscosa</i>	Sticky Hop-bush	1
Orchidaceae	<i>Drakaea glyptodon</i>	King-in-his-carriage	1
Orchidaceae	<i>Drakaea micrantha</i>	Dwarf Hammer Orchid	1
Droseraceae	<i>Drosera geniculata</i>		1
Droseraceae	<i>Drosera micrantha</i>		1
Droseraceae	<i>Drosera nitidula</i>	Shining Sundew	1
Droseraceae	<i>Drosera pulchella</i>	Pretty Sundew	1
Droseraceae	<i>Drosera</i>	Sundews	1
Chenopodiaceae	<i>Dysphania glomulifera</i> subsp. <i>glomulifera</i>	Globular Pigweed	1

Funariaceae	Entosthodon		1
Asteraceae	Erigeron bonariensis	Flaxleaf Fleabane	1
Asteraceae	Erigeron sumatrensis	Tall Fleabane	1
Orchidaceae	Eriochilus dilatatus subsp. multiflorus	Common Bunny Orchid	1
Asteraceae	Euchiton sphaericus	Common Cudweed	1
Euphorbiaceae	Euphorbiaceae	Spurge	1
Euphorbiaceae	Euphorbia	Spurge	1
Scrophulariaceae	Euphrasia scabra	Rough Eyebright	1
Iridaceae	Ferraria crispa	Black Flag	1
Cyperaceae	Ficinia nodosa	Knobby Club-rush	1
Papaveraceae	Fumaria muralis	Fumitory	1
Funariaceae	Funariaceae		1
Funariaceae	Funaria		1
Cyperaceae	Gahnia	Saw-sedges	1
Rubiaceae	Galium aparine	Cleavers	1
Rubiaceae	Galium leptogonium	Reflexed Bedstraw	1
Fabaceae	Gastrolobium ebracteolatum		1
Fabaceae	Gastrolobium praemorsum		1
Fabaceae	Gastrolobium		1
Lamiaceae	Genus		1
Geraniaceae	Geranium purpureum	Little-robin	1
Haloragaceae	Glischrocaryon angustifolium	Golden Pennants	1
Fabaceae	Gompholobium capitatum	Yellow Pea	1
Fabaceae	Gompholobium marginatum		1
Fabaceae	Gompholobium	Wedge Peas	1
Goodeniaceae	Goodenia coerulea		1
Goodeniaceae	Goodenia eatoniana		1
Goodeniaceae	Goodeniaceae	Fan Flower	1
Proteaceae	Grevillea bipinnatifida	Fuchsia Grevillea	1
Proteaceae	Grevillea candolleana	Toodyay Grevillea	1
Proteaceae	Grevillea vestita subsp. vestita		1
Proteaceae	Grevillea wilsonii	Wilson's Grevillea	1
Haemodoraceae	Haemodorum simplex		1
Proteaceae	Hakea candolleana		1
Proteaceae	Hakea lissocarpha	Honey Bush	1
Proteaceae	Hakea lorea	Corkbark Tree	1
Hydrocharitaceae	Halophila ovalis	Halophila	1
Brassicaceae	Heliophila		1
Poaceae	Hemarthria uncinata	Matgrass	1
Lamiaceae	Hemiandra linearis	Speckled Snakebush	1
Dilleniaceae	Hibbertia hypericoides subsp. hypericoides	Yellow Buttercups	1
Poaceae	Holcus setiger	Annual Fog	1
Asteraceae	Hyalosperma pusillum		1
Araliaceae	Hydrocotyle intertexta	Buttercup Pennywort	1
Myrtaceae	Hypocalymma angustifolium subsp. Swan Coastal Plain (G.J.Keighery 16777)		1
Myrtaceae	Hypocalymma angustifolium subsp. angustifolium		1
Cyperaceae	Isolepis fluitans	Floating Club-rush	1
Proteaceae	Isopogon asper		1
Fabaceae	Jacksonia horrida		1
Juncaceae	Juncus kraussii subsp. australiensis	Juncus	1
Juncaceae	Juncus oxycarpus	Spiny-fruit Rush	1
Myrtaceae	Kunzea ericifolia subsp. ericifolia		1
Myrtaceae	Kunzea ericifolia	Spearwood	1
Myrtaceae	Kunzea glabrescens	Spearwood	1
Myrtaceae	Kunzea micrantha subsp. micrantha		1

Myrtaceae	<i>Kunzea recurva</i>		1
Poaceae	<i>Lachnagrostis filiformis</i>	Common Blown-grass	1
Poaceae	<i>Lachnagrostis</i>	Blowngrasses	1
Asteraceae	<i>Lagenophora gracilis</i>	Slender Lagenophora	1
Asteraceae	<i>Lagenophora platysperma</i>		1
Verbenaceae	<i>Lantana camara</i>	Lantana	1
Malvaceae	<i>Lasiopetalum floribundum</i>	Free Flowering Lasiopetalum	1
Asparagaceae	<i>Laxmannia ramosa</i> subsp. <i>ramosa</i>	Branching Lily	1
Asparagaceae	<i>Laxmannia ramosa</i>		1
Asteraceae	<i>Leontodon rhagadioloides</i>	Hedypnois	1
Asteraceae	<i>Leontodon saxatilis</i>	Lesser Hawkbit	1
Brassicaceae	<i>Lepidium</i>	Swine's Cress	1
Cyperaceae	<i>Lepidosperma effusum</i>	Spreading Sword-sedge	1
Orchidaceae	<i>Leporella fimbriata</i>	Fringed Hare-orchid	1
Restionaceae	<i>Leptocarpus laxus</i>		1
Asteraceae	<i>Leptorhynchus scaber</i>	Annual Buttons	1
Ericaceae	<i>Leucopogon</i> sp. <i>Busselton</i> (D.Cooper 243)		1
Ericaceae	<i>Leucopogon squarrosus</i>		1
Ericaceae	<i>Leucopogon</i>		1
Stylidiaceae	<i>Levenhookia pusilla</i>	Tiny Stylewort	1
Liliaceae	Liliaceae		1
Lindsaeaceae	<i>Lindsaea linearis</i>	Screw Fern	1
Linaceae	<i>Linum trigynum</i>	French Flax	1
Menyanthaceae	<i>Liparophyllum capitatum</i>		1
Poaceae	<i>Lolium arundinaceum</i> subsp. <i>arundinaceum</i>		1
Poaceae	<i>Lolium x hybridum</i>	Hybrid Ryegrass	1
Asparagaceae	<i>Lomandra</i>	Mat Rushes	1
Cyperaceae	<i>Machaerina articulata</i>	Jointed Twig-rush	1
Cyperaceae	<i>Machaerina vaginalis</i>		1
Zamiaceae	<i>Macrozamia</i>	Cycad	1
	Magnoliopsida		1
Malvaceae	Malvaceae	Mallow Family	1
Fabaceae	<i>Medicago littoralis</i>	Strand Medic	1
Fabaceae	<i>Medicago truncatula</i>	Barrel Medic	1
Haloragaceae	<i>Meionectes brownii</i>	Swamp Raspwort	1
Haloragaceae	<i>Meionectes tenuifolia</i>		1
Myrtaceae	<i>Melaleuca preissiana</i>	Moonah	1
Myrtaceae	<i>Melaleuca scabra</i>	Rough Honey-myrtle	1
Melianthaceae	<i>Melianthus major</i>	Cape Honey-flower	1
Orchidaceae	<i>Microtis alboviridis</i>	Scented Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i> subsp. <i>densiflora</i>	Dense Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i> subsp. <i>media</i>	Common Mignonette Orchid	1
Orchidaceae	<i>Microtis unifolia</i>	Common Onion Orchid	1
Caryophyllaceae	<i>Minuartia mediterranea</i>	Slender Sandwort	1
Fabaceae	<i>Mirbelia dilatata</i>	Holly-leaved Mirbelia	1
Poaceae	<i>Molineriella minuta</i>	Small Hair-grass	1
Polygonaceae	<i>Muehlenbeckia adpressa</i>	Climbing Lignum	1
Polygonaceae	<i>Muehlenbeckia polybotrya</i>		1
Haloragaceae	<i>Myriophyllum crispatum</i>	Upright Milfoil	1
Onagraceae	<i>Oenothera drummondii</i>	Beach Evening Primrose	1
Onagraceae	<i>Oenothera mollissima</i>		1
Asteraceae	<i>Olearia rudis</i>	Azure Daisy-bush	1
Hydrocharitaceae	<i>Ottelia ovalifolia</i>	Swamp Lily	1
Oxalidaceae	<i>Oxalis corniculata</i>	Creeping Wood-sorrel	1
Oxalidaceae	<i>Oxalis purpurea</i>	One-o'clock	1
Myrtaceae	<i>Paragonis grandiflora</i>		1

Poaceae	<i>Parapholis incurva</i>	Curly Ryegrass	1
Orobanchaceae	<i>Parentucellia latifolia</i>	Red Bartsia	1
Iridaceae	<i>Patersonia babianoides</i>		1
Iridaceae	<i>Patersonia occidentalis</i> var. <i>occidentalis</i>	Long Purple-flag	1
Hypoxidaceae	<i>Pauridia glabella</i>		1
Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>floridum</i>		1
Polygonaceae	<i>Persicaria hydropiper</i>	Water Pepper	1
Petalophyllaceae	<i>Petalophyllum preissii</i>	Petalwort	1
Proteaceae	<i>Petrophile striata</i>		1
Orchidaceae	<i>Pheladenia deformis</i>	Bluebeard Orchid	1
Loganiaceae	<i>Phyllangium</i>		1
Solanaceae	<i>Physalis peruviana</i>	Cape Gooseberry	1
Asteraceae	<i>Picris angustifolia</i> subsp. <i>angustifolia</i>	Coast Picris	1
Plantaginaceae	<i>Plantago drummondii</i>	Dark Plantain	1
Plantaginaceae	<i>Plantago lanceolata</i>	Ribwort	1
Elaeocarpaceae	<i>Platytheca galioides</i>		1
Asteraceae	<i>Pogonolepis stricta</i>		1
Phyllanthaceae	<i>Poranthera drummondii</i>		1
Pottiaceae	Pottiaceae		1
Orchidaceae	<i>Prasophyllum cyphochilum</i>	Pouched Leek Orchid	1
Orchidaceae	<i>Prasophyllum gibbosum</i>	Hooded Leek Orchid	1
Orchidaceae	<i>Prasophyllum ovale</i>	Little Leek Orchid	1
Orchidaceae	<i>Prasophyllum</i> sp. early (G.Brockman GBB 1626)		1
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Austral Bracken	1
Orchidaceae	<i>Pterostylis actites</i>	Coastal Short-eared Snail Orchid	1
Orchidaceae	<i>Pterostylis erubescens</i>	Red-sepaled Snail Orchid	1
Orchidaceae	<i>Pterostylis glebosa</i>	Clubbed Snail Orchid	1
Orchidaceae	<i>Pterostylis longicornis</i>	Muir's Highway Bird Orchid	1
Amaranthaceae	<i>Ptilotus drummondii</i> var. <i>drummondii</i>	Pussytail	1
Amaranthaceae	<i>Ptilotus drummondii</i> var. <i>minor</i>		1
Fabaceae	<i>Pultenaea reticulata</i>		1
Racopilaceae	<i>Racopilum cuspidigerum</i>	Carpet Moss	1
Restionaceae	Restionaceae	Rush	1
Asteraceae	<i>Rhodanthe manglesii</i>		1
Iridaceae	<i>Romulea rosea</i>	Onion Grass	1
Rosaceae	<i>Rosa rubiginosa</i>	Sweet Briar	1
Chenopodiaceae	<i>Salicornia blackiana</i>	Thick-head Samphire	1
Chenopodiaceae	<i>Salicornia quinqueflora</i>	Beaded Glasswort	1
Chenopodiaceae	<i>Salicornia</i>	Samphires	1
Primulaceae	<i>Samolus</i>	Brook Weed	1
Santalaceae	<i>Santalum acuminatum</i>	Sweet Quandong	1
Goodeniaceae	<i>Scaevola canescens</i>	Grey Scaevola	1
Goodeniaceae	<i>Scaevola lanceolata</i>	Long-leaved Scaevola	1
Goodeniaceae	<i>Scaevola repens</i> var. <i>repens</i>		1
Cyperaceae	<i>Schoenus breviculmis</i>	Matted Bog-rush	1
Cyperaceae	<i>Schoenus elegans</i>		1
Myrtaceae	<i>Scholtzia involucreta</i>	Spiked Scholtzia	1
Selaginellaceae	<i>Selaginella gracillima</i>	Tiny Clubmoss	1
Asteraceae	<i>Senecio leucoglossus</i>		1
Asteraceae	<i>Senecio pinnatifolius</i>	Variable Groundsel	1
Asteraceae	<i>Senecio ramosissimus</i>		1
Rubiaceae	<i>Sherardia arvensis</i>	Field Madder	1
Caryophyllaceae	<i>Silene gallica</i> var. <i>gallica</i>	French Catchfly	1
Caryophyllaceae	<i>Silene nocturna</i>	Mediterranean Catchfly	1
Asteraceae	<i>Siloxerus humifusus</i>	Procumbent Siloxerus	1
Asteraceae	<i>Siloxerus</i>		1

Solanaceae	<i>Solanum linnaeanum</i>	Apple Of Sodom	1
Solanaceae	<i>Solanum simile</i>	Kangaroo Apple	1
Poaceae	<i>Spinifex</i>		1
Picrodendraceae	<i>Stachystemon vermicularis</i>		1
Celastraceae	<i>Stackhousia</i>	Candles	1
Stylidiaceae	<i>Stylidium adnatum</i>	Common Beaked Triggerplant	1
Stylidiaceae	<i>Stylidium amoenum</i>	Lovely Triggerplant	1
Stylidiaceae	<i>Stylidium bulbiferum</i>	Circus Triggerplant	1
Stylidiaceae	<i>Stylidium calcaratum</i>	Spurred Trigger-plant	1
Stylidiaceae	<i>Stylidium divaricatum</i>	Daddy-long-legs	1
Stylidiaceae	<i>Stylidium guttatum</i>	Dotted Triggerplant	1
Ericaceae	<i>Styphelia tubiflora</i>	Red Five-corner	1
Ericaceae	<i>Styphelia</i>	Styphelia	1
Proteaceae	<i>Synaphea</i>		1
Aizoaceae	<i>Tetragonia decumbens</i>	Sea Spinach	1
Elaeocarpaceae	<i>Tetratheca hirsuta</i> subsp. <i>viminea</i>		1
Orchidaceae	<i>Thelymitra graminea</i>	Shy Sun Orchid	1
Orchidaceae	<i>Thelymitra macrophylla</i>	Scented Sun Orchid	1
Orchidaceae	<i>Thelymitra mucida</i>	Plum Orchid	1
Orchidaceae	<i>Thelymitra paludosa</i>	Plain Sun Orchid	1
Orchidaceae	<i>Thelymitra pauciflora</i>	Slender Sun Orchid	1
Malvaceae	<i>Thomasia cognata</i>		1
Thuidiaceae	<i>Thuidiopsis sparsa</i>	Weft Moss	1
Asparagaceae	<i>Thysanotus gracilis</i>		1
Asparagaceae	<i>Thysanotus sparteus</i>	Leafless Fringed Lily	1
Asparagaceae	<i>Thysanotus tenellus</i>	Grassy Fringe-lily	1
Araliaceae	<i>Trachymene coerulea</i> subsp. <i>coerulea</i>	Rottnest Island Daisy	1
Araliaceae	<i>Trachymene cyanopetala</i>	Purple Trachymene	1
Haemodoraceae	<i>Tribonanthes australis</i>	Southern Tiurdin	1
Asteraceae	<i>Trichocline spathulata</i>	Native Gerbera	1
Fabaceae	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	1
Fabaceae	<i>Trifolium arvense</i>	Haresfoot Clover	1
Fabaceae	<i>Trifolium hirtum</i>	Rose Clover	1
Fabaceae	<i>Trifolium incarnatum</i>	Crimson Clover	1
Juncaginaceae	<i>Triglochin nana</i>	Dwarf Arrowgrass	1
Juncaginaceae	<i>Triglochin striata</i>	Streaked Arrowgrass	1
Rhamnaceae	<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>		1
Rhamnaceae	<i>Trymalium ledifolium</i>		1
Asteraceae	<i>Vellereophyton dealbatum</i>	White Cudweed	1
Plantaginaceae	<i>Veronica</i>	Hebe	1
Myrtaceae	<i>Verticordia plumosa</i> var. <i>plumosa</i>		1
Campanulaceae	<i>Wahlenbergia gracilentata</i>	Hairy Annual-bluebell	1
Campanulaceae	<i>Wahlenbergia tumidifructa</i>	Swollen-fruit Bluebell	1
Asteraceae	<i>Waitzia nitida</i>		1
Asteraceae	<i>Waitzia suaveolens</i> var. <i>suaveolens</i>		1
Asteraceae	<i>Waitzia suaveolens</i>	Fragrant Waitzia	1
Colchicaceae	<i>Wurmbea dioica</i> subsp. <i>alba</i>		1
Colchicaceae	<i>Wurmbea</i>		1
Araceae	<i>Zantedeschia aethiopica</i>	White Arum Lily	1

Further Links

Geoscience Australia: <http://www.ga.gov.au/>

Global Biodiversity Information Facility: <https://www.gbif.org/>

Threatened Species & Ecological Communities: <https://www.environment.gov.au/topics/threatened-species-ecological-communities>

WWF Ecoregions: <https://worldwildlife.org/biomes>

Environmental Resources Information Network (ERIN): <https://www.environment.gov.au/topics/science-and-research/databases-and-maps/erin>

Australian National Fish Expert Distributions: <https://collections.ala.org.au/public/show/dr803>

Lists of Australian endemic species: <http://Intreasures.com/australia.html>

Federal

Department of the Environment: <https://www.environment.gov.au/>

State/Territory

Australian Capital Territory

Environment and Sustainable Development Directorate: <https://www.environment.act.gov.au/>

New South Wales

Office of Environment and Heritage: <http://www.environment.nsw.gov.au/>

Northern Territory

Department of Land Resource Management: <https://www.lrm.nt.gov.au/>

Queensland

Department of Environment and Heritage Protection: <https://www.ehp.qld.gov.au/>

South Australia

Department of Environment, Water and Natural Resources: <https://www.environment.sa.gov.au/Home>

Tasmania

Department of Primary Industries, Parks, Water and Environment: <http://www.dpiw.tas.gov.au/>

Western Australia

Department of Parks and Wildlife: <https://www.dpaw.wa.gov.au/>

Victoria

Department of Environment and Primary Industries: <http://www.depi.vic.gov.au/>

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Australian Government

Department of Climate Change, Energy,
the Environment and Water

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. Please see the caveat for interpretation of information provided here.

Report created: 04-Sep-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment 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 (Ramsar)	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	69
Listed Migratory Species:	67

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 <https://www.dcceew.gov.au/parks-heritage/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 Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	93
Whales and Other Cetaceans:	13
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	6
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	14
Key Ecological Features (Marine):	1
Biologically Important Areas:	7
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)

[\[Resource Information \]](#)

Ramsar Site Name

[Peel-yalgorup system](#)

Proximity

Within Ramsar site

Commonwealth Marine Area

[\[Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name

Commonwealth Marine Areas (EPBC Act)

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.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name

[Banksia Woodlands of the Swan Coastal Plain ecological community](#)

Threatened Category

Endangered

Presence Text

Community likely to occur within area

[Empodisma peatlands of southwestern Australia](#)

Endangered

Community may occur within area

[Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion](#)

Critically 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

[Thrombolite \(microbialite\) Community of a Coastal Brackish Lake \(Lake Clifton\)](#)

Critically 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

[\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name

BIRD

Threatened Category

Presence Text

Scientific Name	Threatened Category	Presence Text
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may 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	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat likely to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting 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	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat may occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may 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 carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat 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	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Species or species habitat known to occur within area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
FISH		
Galaxiella nigrostriata Blackstriped Dwarf Galaxias, Black-stripe Minnow [88677]	Endangered	Species or species habitat may occur within area
MAMMAL		
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 within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat known to occur within area
OTHER		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area

PLANT

Scientific Name	Threatened Category	Presence Text
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Banksia mimica Summer Honeypot [82765]	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
Chamelaucium lullfitzii listed as Chamelaucium sp. Gingin (N.G.Marchant 6) Gingin Wax [92777]	Endangered (listed as Chamelaucium sp. Gingin)	Species or species habitat likely to occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat likely to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat known to occur within area
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leafed 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
Eucalyptus argutifolia Yanchep Mallee, Wabbling Hill Mallee [24263]	Vulnerable	Species or species habitat may occur within area
Morelotia australiensis listed as Tetraria australiensis Southern Tetraria [92784]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Synaphea sp. Fairbridge Farm (D.Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
Synaphea sp. Pinjarra Plain (A.S.George 17182) [86878]	Endangered	Species or species habitat may occur within area
Synaphea sp. Serpentine (G.R.Brand 103) [86879]	Critically Endangered	Species or species habitat may occur within area

REPTILE

Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat 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	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

SHARK

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
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area

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

Scientific Name	Threatened Category	Presence Text
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, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may 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	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may 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	Foraging, feeding or related behaviour likely to occur within area
Onychoprion anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
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	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
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	Species or species habitat 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	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely 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
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	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

Migratory Wetlands Species

Scientific Name	Threatened Category	Presence Text
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area

Other Matters Protected by the EPBC Act

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

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.

Commonwealth Land Name	State
Unknown	
Commonwealth Land - [50405]	WA

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

Scientific Name	Threatened Category	Presence Text
Bird		
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 overfly marine area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Roosting known to occur within area overfly marine area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine 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	Species or species habitat may 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	Species or species habitat may occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine 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	Foraging, feeding or related behaviour likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat 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	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area overfly marine area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area overfly marine 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 [66234]		Species or species 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

Scientific Name	Threatened Category	Presence Text
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

Scientific Name	Threatened Category	Presence Text
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 area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Longsnout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammal		
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]	Endangered	Species or species habitat may occur within area
Reptile		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat 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	Species or species habitat known to occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Whales and Other Cetaceans [[Resource Information](#)]

Current Scientific Name	Status	Type of Presence
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Mammal

Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
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Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
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Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
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Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
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Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
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Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
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Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
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Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
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Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area
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Current Scientific Name	Status	Type of Presence
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		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]
Protected Area Name	Reserve Type	State	
Crampton	Nature Reserve	WA	
Harvey Flats	Nature Reserve	WA	
Riverdale	Nature Reserve	WA	
Unnamed WA01086	5(1)(h) Reserve	WA	
Unnamed WA49730	Nature Reserve	WA	
Yalgorup	National Park	WA	

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	
Yalgorup Lakes System	WA	

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	
WA Offshore Windfarm	2021/8961		Completed	

Controlled action			
Bagieau Road Limestone Quarry	2019/8533	Controlled Action	Further Information Request

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Construction of New Perth Bunbury Highway project	2005/2193	Controlled Action	Post-Approval
Extension of Lots 4 & 5 Ludlow Road Limestone Extraction, Myalup, WA	2019/8388	Controlled Action	Post-Approval
Natural Gas Pipeline Expansion	2006/2813	Controlled Action	Post-Approval
Yarragadee Water Supply Development	2005/2073	Controlled Action	Completed
Not controlled action			
Development of 5ha limestone quarry at Lot 2 Ludlow Rd	2006/2568	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed
Limestone quarry expansion	2005/2268	Not Controlled Action	Completed
Limestone Quarry Expansion, Lots 3618 and 1794, Finn Road	2005/2332	Not Controlled Action	Completed
Not controlled action (particular manner)			
Development of Limestone and Sand Extraction Sites on Lots 1498 and 1504, and Upgrade of Finn and Ha	2009/5200	Not Controlled Action (Particular Manner)	Post-Approval
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval
Limestone Excavation - Ludlow Road, Myalup	2008/3956	Not Controlled Action (Particular Manner)	Post-Approval

Key Ecological Features

[\[Resource Information \]](#)

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Western rock lobster	South-west

Biologically Important Areas

[\[Resource Information \]](#)

Scientific Name	Behaviour	Presence
Seabirds		
Ardena pacifica Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur
Eudyptula minor Little Penguin [1085]	Foraging (provisioning young)	Known to occur
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur
Puffinus assimilis tunneyi Little Shearwater [59363]	Foraging (in high numbers)	Known to occur
Sternula nereis Fairy Tern [82949]	Foraging (in high numbers)	Known to occur
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and 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

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

Where little information is available for a 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 detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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

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

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Appendix 11. Threatened and Priority flora pre and post survey likelihood of occurrence table.

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
1	<i>Caladenia huegelii</i>	T	CR		X	X	Sep-Oct	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green, cream, red. Grey or brown sand, clay loam. (Jarrah <i>Banksia</i> woodland usually associated with the Bassendean sand-dune system, rarely in the Spearwood system).	17.9	Possibly	Unlikely	U3
2	<i>Calectasia cyanea</i>	T	CR	X			June-Oct	Rhizomatous, clump forming, woody perennial, herb, 0.1-0.6 m high, to 0.3 m wide. Fl. blue/purple. White, grey or yellow sand, gravel	n/a	Unlikely	Unlikely	U1
3	<i>Drakaea elastica</i>	T	CR	X	X	X	Oct-Nov	Tuberous, perennial, herb, 0.12-0.3 m high. Fl. red, green, yellow. White or grey sand. Low-lying situations adjoining winter-wet swamps.	11.6	Unlikely	Unlikely	U1
4	<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	T	CR		X		Oct	Dense, clumped shrub, to 0.3 m high, to 0.4 m wide. Fl. Yellow. Sandy with lateritic pebbles. Near	n/.a	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
								winter-wet flats, in low woodland with weedy grasses.				
5	<i>Synaphea</i> sp. Serpentine (G.R. Brand 103)	T	CR		X	X	Sep-Oct	Perennial, Plants clumped 0.6 m high to 0.5 m wide. Leaves 2-4 x tripartite, terminal lobes linear. Spikes long, undulating, infused with red. Fl. Yellow. Predominantly on flat terrain on grey-brown sandy loams to clay in seasonally wet areas.	23.5	Unlikely	Unlikely	U1
6	<i>Austrostipa bronwenae</i>	T	EN			X	Sep-Oct	Perennial grass, 0.6 m high x 0.3 m wide. Flowers green. Grows in calcareous, winter-wet grey-brown sandy-loam or dark brown loam over clay.	21	Unlikely	Unlikely	U1
7	<i>Banksia mimica</i>	T	EN		X		Dec-Feb	Prostrate, lignotuberous shrub, 0.15–0.4 m high. Fl. yellow, brown. White or grey sand over laterite, sandy loam.	n/a	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
8	<i>Chamelaucium lullfitzii</i>	T	EN		X		Sep-Dec	Open straggly shrub 1-2 m tall. Fl. pale pinkish-white, buds tinged a deeper pink. White, grey, or yellow sands, in low open <i>Banksia</i> woodland.	n/a	Unlikely	Unlikely	U2
9	<i>Diuris purdiei</i>	T	EN	X	X	X	Sep-Oct	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. yellow. Grey-black sand, moist. Winter-wet swamps. Found between Perth and Yarloop.	10	Unlikely	Unlikely	U1
10	<i>Synaphea</i> sp. Pinjarra Plain (A.S. George 17182)	T	EN		X		Sep-Nov	Erect, clumped shrub (sub-shrub), to 0.8 m high. Fl. yellow, Sep to Nov. Grey sandy loam or clay, grey-brown clayey sand, brown clayey loam, laterite. Flats, seasonally wet areas, railroad reserves often with wet depressions or drains.	n/a	Unlikely	Unlikely	U1
11	<i>Synaphea stenoloba</i>	T	EN			X	Aug-Oct	Caespitose shrub, 0.3–0.45 m high. Fl. Yellow. Sandy or sandy clay soils. Winter-wet flats, granite. Shrublands and woodlands on loamy soils.	23.1	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
12	<i>Andersonia gracilis</i>	T	VU		X		Sep-Nov	Slender erect or open straggly shrub, 0.1-0.5(-1) m high. Fl. white-pink-purple. White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps.	n/a	Unlikely	Unlikely	U1
13	<i>Diuris drummondii</i>	T	VU		X	X	Nov-Jan	Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow. Low-lying depressions, swamps.	13.8	Unlikely	Unlikely	U1
14	<i>Diuris micrantha</i>	T	VU	X	X	X	Sep-Oct	Tuberous, perennial, herb, 0.3–0.6 m high. Fl. yellow, brown. Brown loamy clay. Winter-wet swamps, in shallow water.	4.7	Unlikely	Unlikely	U1
15	<i>Drakaea micrantha</i>	T	VU		X	X	Sep-Oct	Tuberous, perennial, dwarf hammer orchid, 0.15–0.3 m high. Fl. red, yellow. Small heart shaped leaf with green veins. White-grey infertile sand in <i>Eucalyptus marginata</i> , <i>Allocasuarina fraseriana</i> woodland or forest. Often under <i>Kunzea ericifolia</i> , <i>K. glabrescens</i> with <i>Paracaleana nigrita</i> and other <i>Drakaea</i> species.	21.8	Unlikely	Unlikely	U3

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
16	<i>Eucalyptus argutifolia</i>	T	VU		X	X	Mar-Apr	(Mallee), 1.5-4 m high, bark smooth. Fl. white. Shallow soils over limestone. Slopes or gullies of limestone ridges, outcrops.	20.1	Likely	Possible	U2
17	<i>Morelotia australiensis</i>	T	VU		X		Nov-Dec	Rhizomatous, tufted perennial, grass-like or herb (sedge), to 1 m high. Fl. brown. Sandy soils associated with heavy soils on the Pinjarra Plain.	n/a	Unlikely	Unlikely	U1
18	<i>Acacia</i> sp. Binningup (G. Cockerton <i>et al.</i> WB 37784)	P1				X	Aug-Oct (Nov)	Upright shrub 1 to 2.1 m, pinnate glaucous, glabrous foliage, non-spiny. Plant propagates from root suckers. Sandy soils, Tuart-Peppy woodland.	16.2	Likely	Possible	U2
19	<i>Boronia juncea</i> subsp. <i>juncea</i>	P1				X	Apr	Slender or straggly shrub, pedicels and sepals glabrous. Fl. pink. Sand. Low scrub. Winter wet areas	14.4	Unlikely	Unlikely	U1
20	<i>Grevillea bipinnatifida</i> subsp. <i>pagna</i>	P1				X	Aug or Oct-Nov	Prostrate, lignotuberous shrub, 0.2-0.7 m high. Fl. red & orange & yellow. Grey sandy clay and loam, ironstone. Seasonal	22.7	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
								wetlands, swamps, roadsides.				
21	<i>Haloragis scoparia</i>	P1		X		X	likely spring	Perennial, herb, 0.3-0.6 m high. Grey calcareous clay loam soils. Seasonal wetlands.	4.6	Unlikely	Unlikely	U1
22	<i>Synaphea odoicoileops</i>	P1				X	Aug-Oct	Tufted, compact shrub, 0.2–0.5 m high. Fl. yellow. Brown-orange loam & sandy clay, granite. Swamps, winter-wet areas.	21.4	Unlikely	Unlikely	U1
23	<i>Alyogyne</i> sp. Rockingham (G.J. Keighery 14463)	P2		X		X	Dec	Found within Yalgorup National Park and Kemerton Nature Reserve. Sandy calcareous soils, Tuart-Jarraah-Peppy woodland.	1.9	Likely	Likely	U2
24	<i>Cardamine paucijuga</i>	P2				X	Sep-Oct	Slender erect annual, herb, to 0.4 m high. Fl. white. In moist to dry habitats.	24.5	Unlikely	Unlikely	U1
25	<i>Diuris brevis</i>	P2				X	Aug-Sept	Erect herb to 30 cm. Flowers pale yellow with brown spots. Flat coastal plain; grey sand, usually associated with winter-wet swamps.	17.5	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
26	<i>Euphrasia scabra</i>	P2				X	Oct	Erect annual, herb, (0.085-0.15-0.35(-0.5) m high. Fl. yellow. Margins of swamp areas, often in wet, peaty soil.	21.8	Unlikely	Unlikely	U1
27	<i>Hakea oligoneura</i>	P2		X		X	Sept	Shrubs to 2 m high x 2 m wide. Bark smooth or finely fissured, branchlets glabrous. Leaves alternate, 30-60 mm long, 5-7 mm wide, glabrous; lamina flat, widest around the middle, once divided, pinnately divided, shallowly divided. Inflorescences white; pedicels 2-2.5 mm long. White-brown sand on limestone ridges in open Mallee (<i>Eucalyptus decipiens</i> and <i>E. patrensis</i>) over <i>Melaleuca acerosa</i> , <i>Xanthorrhoea</i> and <i>Hibbertia</i> .	6.1	Likely	Possible	U2
28	<i>Haloragis aculeolata</i>	P2		X		X	Sep or Dec	Slender, erect perennial, herb, to 0.4 m high. Fl. green. Black sand or clay over limestone. Winter-wet areas.	5.9	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
29	<i>Leucopogon</i> sp. Busselton (D. Cooper 243)	P2				X	Aug-Sep	Slender, erect shrub to 70 cm; flowers white. <i>Pericalymma ellipticum</i> wet shrubland, Marri-Jarrah woodland. Seasonal wetlands.	11.6	Unlikely	Unlikely	U1
30	<i>Pterostylis frenchii</i>	P2		X		X	Nov-Dec	Tuberous, herb, to 0.35 m high, with rosette leaves. Fl. white. Calcareous sand with limestone, laterite. Flatlands and gentle slopes.	3.9	Likely	Likely	U2
31	<i>Acacia horridula</i>	P3				X	May-Aug	Harsh, slender, single-stemmed shrub, 0.3-0.6(-1) m high. Fl. yellow. Gravelly soils over granite, sand. Rocky hillsides.	12.2	Unlikely	Unlikely	U1
32	<i>Angianthus drummondii</i>	P3				X	Oct-Dec	Erect annual, herb, to 0.1 m high. Fl. yellow. Grey or brown clay soils, ironstone. Seasonally wet flats.	17.5	Unlikely	Unlikely	U1
33	<i>Blennospora doliiformis</i>	P3		X		X	Oct-Nov	Erect annual, herb, to 0.15 m high. Fl. yellow. Grey or red clay soils over ironstone. Seasonally-wet flats.	4.8	Unlikely	Unlikely	U1
34	<i>Boronia capitata</i> subsp. <i>gracilis</i>	P3		X		X	Jun-Nov	Slender shrub, 0.3-0.6(-3) m high, branches pilose. Fl.	10.2	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
								pink. White/grey or black sand. Winter-wet swamps,				
35	<i>Carex tereticaulis</i>	P3				X	Sep-Oct	Monoecious, rhizomatous, tufted perennial, grass-like or herb (sedge), 0.7 m high. Fl. brown. Black peaty sand.	17.9	Unlikely	Unlikely	U1
36	<i>Cyathochaeta teretifolia</i>	P3				X	Oct-Jan	Rhizomatous, clumped, robust perennial, grass-like or herb (sedge), to 2 m high, to 1.0 m wide. Fl. brown. Grey sand, sandy clay. Swamps, creek edges.	20.8	Unlikely	Unlikely	U1
37	<i>Dillwynia dillwynioides</i>	P3		X		X	Aug-Dec	Decumbent or erect, slender shrub, 0.3–1.2 m high. Fl. red, yellow, orange,. Sandy soils. Winter-wet depressions, inundated flats generally alongside rivers or deeper swamps.	10	Unlikely	Unlikely	U1
38	<i>Galium leptogonium</i>	P3		X		X	Spring - Autumn	Herb, fl. corolla 1.5–2.5 mm diam., with lobes 0.7–1.2 mm long, not apiculate, cream or greenish-cream, sometimes tinged purple-red abaxially, rarely hairy.	6.3	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
								Clay soils, flat wetland sites.				
39	<i>Hemigenia microphylla</i>	P3				X	Sep-Dec	Slender shrub, 0.4-1.8 m high. Fl. blue-purple. Sandy clay, peaty clay, granite. Winter-wet depressions.	13.9	Unlikely	Unlikely	U1
40	<i>Hibbertia leptotheca</i>	P3				X	Aug-Oct	Small, spreading shrubs to 0.3 m high, Inflorescences comprising 2–5-flowered cincinni, Fl. Yellow. Sand over limestone in coastal heaths and thickets usually dominated by species of <i>Melaleuca</i> and <i>Acacia</i> . Occurs in coastal and near-coastal sites from west of Cataby south to Lake Preston.	1.8	Likely	Likely	U2
41	<i>Lasiopetalum membranaceum</i>	P3		X		X	Sep-Dec	Multi-stemmed shrub, 0.2-1 m high. Fl. pink, blue, purple. Sand over limestone.	3.3	Likely	Possible	U2

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
42	<i>Meionectes tenuifolia</i>	P3				X	Nov	Suckering spreading decumbent shrub with cream-green flowers - red style. Height to ca 25 cm. Broadly distributed across the Swan Coastal Plain, northern and southern Jarrah forests associated with ephemeral wetlands.	15.8	Unlikely	Unlikely	U1
43	<i>Myriophyllum echinatum</i>	P3				X	Nov	Erect annual, herb, 0.02-0.03 m high. Fl. red. Clay. Winter-wet flats.	15.9	Unlikely	Unlikely	U1
44	<i>Olearia strigosa</i>	P3				X	Dec or Jan-May	Erect shrub, 0.5-1.5 m high. Fl. blue-purple, Dec or Jan to May. Sandy loam. Open forest.	22.6	Possibly	Unlikely	U2
45	<i>Pimelea calcicola</i>	P3		X		X	Sep-Nov	Erect to spreading shrub, 0.2-1 m high. Fl. pink. Sand. Coastal limestone ridges.	1.9	Likely	Possible	U2
46	<i>Platysace ramosissima</i>	P3		X		X	Oct-Nov	Perennial, herb, to 0.3 m high. Fl. white, cream. Sandy soils.	9.1	Possibly	Possible	U3
47	<i>Schoenus</i> sp. Waroona (G.J. Keighery 12235)	P3				X	Oct-Nov	Tufted annual, grass-like or herb (sedge), 0.02-0.06 m high. Fl. brown-red-green. Clay or sandy clay. Winter-wet flats.	14.7	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
48	<i>Sphaerolobium calcicola</i>	P3		X		X	Jun or Sep or Nov	Slender, multi-stemmed, scandent or erect shrub, to 1.5 m high. Fl. orange-red. White-grey-brown sand, sandy clay over limestone, black peaty sandy clay. Tall dunes, winter-wet flats, interdunal swamps, low-lying areas.	4.7	Unlikely	Unlikely	U1
49	<i>Stylidium aceratum</i>	P3				X	Oct-Nov	Fibrous rooted annual, herb, 0.05-0.09 m high, leaves spatulate. Fl. pink/white. Sandy soils. Swamp heathland.	23.7	Unlikely	Unlikely	U1
50	<i>Stylidium maritimum</i>	P3		X		X	Sep-Nov	Caespitose perennial, herb, 0.3-0.7 m high, Leaves tufted, linear to narrowly oblanceolate, 10-40 cm long, 1-5.5 mm wide. Inflorescence paniculate. Fl. white/purple. Sand over limestone. Dune slopes and flats. Coastal heath and shrubland, open Banksia woodland.	1.9	Possibly	Possible	U3

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
51	<i>Stylidium paludicola</i>	P3		X		X	Oct-Dec	Reed-like perennial, herb, 0.35-1 m high, Leaves tufted, linear or subulate or narrowly oblanceolate, 0.5-4 cm long, 0.5-1.5 mm wide, apex acute, margin entire, glabrous. Scape mostly glabrous, inflorescence axis glandular. Inflorescence racemose. Fl. pink. Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland.	9.8	Unlikely	Unlikely	U1
52	<i>Stylidium trudgenii</i>	P3				X	Oct-Nov	Caespitose perennial, herb, 0.05-0.5 m high. Grey sand, dark grey to black sandy peat. Margins of winter-wet swamps, depressions.	12.8	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
53	<i>Styphelia filifolia</i>	P3				X	Mar - May	Erect shrubs to 0.9 m high, 0.7 m wide, Fl white - Occurs sporadically from north of Eneabba to the Harvey area. Geraldton Sandplains and Swan Coastal Plain bioregions. 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.	18.1	Unlikely	Unlikely	U1
54	<i>Acacia flagelliformis</i>	P4				X	May-Sep	Rush-like, erect or sprawling shrub, 0.3-0.75(-1.6) m high. Fl. yellow. Sandy soils. Winter-wet areas.	18.9	Unlikely	Unlikely	U1
55	<i>Acacia oncinophylla</i> subsp. <i>patulifolia</i>	P4				X	Aug-Nov or Nov-Dec	Shrub, 0.5-2.5(-3) m high, 'minni-ritchi' bark, phyllodes 4-9 cm long, 3-6 mm wide. Fl. yellow. Granitic soils, occasionally on laterite.	23.3	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
56	<i>Acacia semitrullata</i>	P4		X		X	May-Oct	Slender, erect, pungent shrub, (0.1-)0.2-0.7(-1.5) m high. Fl. cream, white. White/grey sand, sometimes over laterite, clay. Sandplains, swampy areas.	8.7	Possibly	Possible	U2
57	<i>Caladenia speciosa</i>	P4		X		X	Sep-Oct	Tuberous, perennial, herb, 0.35-0.6 m high. Fl. white, pink. White, grey or black sand.	8	Likely	Possible	U3
58	<i>Conostylis pauciflora</i> subsp. <i>pauciflora</i>	P4		X		X	Aug-Oct	Rhizomatous, stoloniferous perennial, grass-like or herb, 0.1-0.35 m high. Fl. yellow. Grey sand, limestone. Hillslopes, consolidated dunes.	1.9	Likely	Likely	U2
59	<i>Eucalyptus foecunda</i> subsp. <i>foecunda</i>	P4				X	Aug or Jan-Feb	Mallee to 8 m. Rough bark on lower part of the stem, F. White. Coastal sands overlying limestone	1.8	Likely	Likely	Recorded
60	<i>Schoenus natans</i>	P4				X	Oct	Aquatic annual, grass-like or herb (sedge), 0.3 m high. Fl. brown. Winter-wet depressions.	13.9	Unlikely	Unlikely	U1
61	<i>Senecio leucoglossus</i>	P4				X	Aug-Nov	Erect annual, herb, to 1.3 m high. Fl. white. Gravelly	21.8	Unlikely	Unlikely	U1

	Taxon Name	Conservation Status		Source			Flowering period	Description	Distance to Nearest Record (km)	Habitat occurring in Survey Area	Pre-Survey Likelihood of Occurrence	Post-Survey Likelihood of Occurrence
		DBCA	EPBC	NM	PM ST	D B C A						
								lateritic or granitic soils. Granite outcrops, slopes.				
62	<i>Stylidium longitubum</i>	P4		X		X	Oct-Dec	Erect annual (ephemeral), herb, 0.05-0.12 m high. Fl. Pink. Sandy clay, clay. Seasonal wetlands.	4.6	Unlikely	Unlikely	U1
63	<i>Tripterococcus</i> sp. Brachylobus (A.S. George 14234)	P4				X	Nov-Dec or Feb	Perennial, herb, to 1 m high. Fl. yellow/yellow-green. Grey sand, red clay, laterite, often moist. Low-lying flats.	12.8	Unlikely	Unlikely	U1

Appendix 12. Taxa recorded during survey.

#	Family	Taxon Name	Comment
1	Apocynaceae	* <i>Gomphocarpus fruticosus</i>	DP
2	Asphodelaceae	* <i>Trachyandra divaricata</i>	
3	Asteraceae	* <i>Arctotheca calendula</i>	
4	Asteraceae	* <i>Carduus pycnocephalus</i>	
5	Asteraceae	* <i>Sonchus oleraceus</i>	
6	Euphorbiaceae	* <i>Euphorbia paralias</i>	
7	Fabaceae	* <i>Lupinus angustifolius</i>	
8	Fabaceae	* <i>Lupinus cosentinii</i>	
9	Fabaceae	* <i>Trifolium campestre</i> var. <i>campestre</i>	
10	Fabaceae	* <i>Trifolium glomeratum</i>	
11	Fabaceae	* <i>Trifolium subterraneum</i>	
12	Iridaceae	* <i>Romulea rosea</i>	
13	Phytolaccaceae	* <i>Phytolacca octandra</i>	
14	Poaceae	* <i>Avena barbata</i>	
15	Poaceae	* <i>Bromus diandrus</i>	
16	Poaceae	* <i>Bromus hordeaceus</i>	
17	Poaceae	* <i>Ehrharta longiflora</i>	
18	Poaceae	* <i>Hordeum leporinum</i>	
19	Poaceae	* <i>Lagurus ovatus</i>	
20	Poaceae	* <i>Lolium perenne</i>	
21	Primulaceae	* <i>Lysimachia arvensis</i>	
22	Solanaceae	* <i>Solanum linnaeanum</i>	DP
23	Solanaceae	* <i>Solanum nigrum</i>	
1	Fabaceae	<i>Acacia pulchella</i>	
2	Myrtaceae	<i>Agonis flexuosa</i> var. <i>flexuosa</i>	
3	Proteaceae	<i>Banksia attenuata</i>	
4	Apiaceae	<i>Daucus glochidiatus</i>	
5	Myrtaceae	<i>Eucalyptus decipiens</i>	
6	Myrtaceae	<i>Eucalyptus foecunda</i>	P4
7	Myrtaceae	<i>Eucalyptus gomphocephala</i>	
8	Myrtaceae	<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	
9	Myrtaceae	<i>Eucalyptus petrensis</i>	
10	Proteaceae	<i>Hakea prostrata</i>	
11	Dilleniaceae	<i>Hibbertia cuneiformis</i>	
12	Dilleniaceae	<i>Hibbertia racemosa</i>	
13	Fabaceae	<i>Templetonia retusa</i>	
14	Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>	

* introduced taxa

Appendix 13. Location of the *Eucalyptus foecunda* recorded within the survey area.

ID	Longitude	Latitude
1	378331.1	6351203
2	378336.6	6351199
3	378349.7	6351198
4	378331.9	6351210
5	378336.4	6351205
6	378342.5	6351201
7	378354.2	6351203
8	378342.7	6351207
9	378338.8	6351211
10	378351.6	6351206
11	378332	6351215
12	378360.1	6351203
13	378357.1	6351206
14	378352.6	6351210
15	378350	6351208
16	378344.4	6351214
17	378349.4	6351215
18	378346.8	6351216
19	378347.7	6351220
20	378351.1	6351217
21	378361.4	6351218
22	378345.9	6351226
23	378354.2	6351229
24	378358.3	6351234
25	378346.5	6351233
26	378340.9	6351227
27	378336.5	6351236
28	378340.6	6351243
29	378354.7	6351239
30	378371	6351239
31	378381.2	6351247
32	378381.7	6351259
33	378389.5	6351243
34	378392	6351220
35	378377.7	6351210
36	378395.2	6351234
37	378352.3	6351249
38	378368.3	6351226
39	378391.3	6351261
40	378406	6351248
41	378381.6	6351237

Appendix 14. Location of the Declared pest plants recorded within the survey area.

Latitude	Longitude	TaxonName	Abundance	Date	WAConsStat
-					
32.9712	115.6979	<i>Gomphocarpus fruticosus</i>	7	13/09/2024	Declared pest plant
-					
32.9704	115.6987	<i>Gomphocarpus fruticosus</i>	5	13/09/2024	Declared pest plant
-					
32.9709	115.6985	<i>Gomphocarpus fruticosus</i>	100	13/09/2024	Declared pest plant
-					
32.9698	115.6997	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9723	115.6972	<i>Gomphocarpus fruticosus</i>	4	13/09/2024	Declared pest plant
-					
32.9719	115.6972	<i>Gomphocarpus fruticosus</i>	3	13/09/2024	Declared pest plant
-					
32.9716	115.6973	<i>Gomphocarpus fruticosus</i>	3	13/09/2024	Declared pest plant
-					
32.9709	115.6978	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9707	115.6976	<i>Gomphocarpus fruticosus</i>	10	13/09/2024	Declared pest plant
-					
32.9687	115.6973	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9688	115.697	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9691	115.6971	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9701	115.697	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9713	115.6969	<i>Gomphocarpus fruticosus</i>	20	13/09/2024	Declared pest plant
-					
32.9714	115.6969	<i>Gomphocarpus fruticosus</i>	20	13/09/2024	Declared pest plant
-					
32.9717	115.6968	<i>Gomphocarpus fruticosus</i>	10	13/09/2024	Declared pest plant
-					
32.9724	115.6963	<i>Gomphocarpus fruticosus</i>	15	13/09/2024	Declared pest plant
-					
32.9723	115.6963	<i>Gomphocarpus fruticosus</i>	4	13/09/2024	Declared pest plant
-					
32.9716	115.6965	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9689	115.6965	<i>Gomphocarpus fruticosus</i>	6	13/09/2024	Declared pest plant
-					
32.9686	115.6964	<i>Gomphocarpus fruticosus</i>	7	13/09/2024	Declared pest plant
-					
32.9686	115.6962	<i>Gomphocarpus fruticosus</i>	10	13/09/2024	Declared pest plant
-					
32.9686	115.6961	<i>Gomphocarpus fruticosus</i>	6	13/09/2024	Declared pest plant
-					
32.9695	115.6961	<i>Gomphocarpus fruticosus</i>	8	13/09/2024	Declared pest plant
-					
32.9696	115.6961	<i>Gomphocarpus fruticosus</i>	5	13/09/2024	Declared pest plant

Latitude	Longitude	TaxonName	Abundance	Date	WAConsStat	
-	32.9697	115.696	<i>Gomphocarpus fruticosus</i>	10	13/09/2024	Declared pest plant
-	32.9703	115.696	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-	32.9709	115.6959	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-	32.9711	115.6958	<i>Gomphocarpus fruticosus</i>	2	13/09/2024	Declared pest plant
-	32.9713	115.6959	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-	32.9718	115.6959	<i>Gomphocarpus fruticosus</i>	2	13/09/2024	Declared pest plant
-	-32.972	115.6958	<i>Gomphocarpus fruticosus</i>	10	13/09/2024	Declared pest plant
-	32.9722	115.6958	<i>Gomphocarpus fruticosus</i>	2	13/09/2024	Declared pest plant
-	32.9724	115.6953	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-	32.9722	115.6954	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-	32.9721	115.6955	<i>Gomphocarpus fruticosus</i>	6	13/09/2024	Declared pest plant
-	32.9719	115.6954	<i>Gomphocarpus fruticosus</i>	20	13/09/2024	Declared pest plant
-	32.9718	115.6955	<i>Gomphocarpus fruticosus</i>	20	13/09/2024	Declared pest plant
-	32.9717	115.6955	<i>Gomphocarpus fruticosus</i>	10	13/09/2024	Declared pest plant
-	32.9716	115.6955	<i>Gomphocarpus fruticosus</i>	2	13/09/2024	Declared pest plant
-	32.9713	115.6956	<i>Gomphocarpus fruticosus</i>	8	13/09/2024	Declared pest plant
-	32.9711	115.6955	<i>Gomphocarpus fruticosus</i>	20	13/09/2024	Declared pest plant
-	32.9709	115.6956	<i>Gomphocarpus fruticosus</i>	15	13/09/2024	Declared pest plant
-	32.9704	115.6955	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-	32.9701	115.6955	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-	32.9698	115.6955	<i>Gomphocarpus fruticosus</i>	6	13/09/2024	Declared pest plant
-	32.9696	115.6955	<i>Gomphocarpus fruticosus</i>	3	13/09/2024	Declared pest plant
-	32.9694	115.6954	<i>Gomphocarpus fruticosus</i>	12	13/09/2024	Declared pest plant
-	32.9688	115.6955	<i>Gomphocarpus fruticosus</i>	2	13/09/2024	Declared pest plant
-	32.9687	115.695	<i>Gomphocarpus fruticosus</i>	8	13/09/2024	Declared pest plant
-	32.9688	115.695	<i>Gomphocarpus fruticosus</i>	10	13/09/2024	Declared pest plant
-	32.9689	115.6951	<i>Gomphocarpus fruticosus</i>	6	13/09/2024	Declared pest plant

Latitude	Longitude	TaxonName	Abundance	Date	WAConsStat
-					
32.9692	115.6951	<i>Gomphocarpus fruticosus</i>	30	13/09/2024	Declared pest plant
-					
32.9693	115.695	<i>Gomphocarpus fruticosus</i>	30	13/09/2024	Declared pest plant
-					
32.9694	115.6951	<i>Gomphocarpus fruticosus</i>	8	13/09/2024	Declared pest plant
-					
32.9695	115.6951	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9697	115.6951	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9698	115.6951	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9701	115.6951	<i>Gomphocarpus fruticosus</i>	2	13/09/2024	Declared pest plant
-					
32.9702	115.6951	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9703	115.6951	<i>Gomphocarpus fruticosus</i>	3	13/09/2024	Declared pest plant
-					
32.9704	115.6951	<i>Gomphocarpus fruticosus</i>	5	13/09/2024	Declared pest plant
-					
32.9715	115.6951	<i>Gomphocarpus fruticosus</i>	10	13/09/2024	Declared pest plant
-					
32.9718	115.6952	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9719	115.6952	<i>Gomphocarpus fruticosus</i>	8	13/09/2024	Declared pest plant
-					
32.9722	115.6951	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9727	115.695	<i>Gomphocarpus fruticosus</i>	5	13/09/2024	Declared pest plant
-					
32.9697	115.6976	<i>Gomphocarpus fruticosus</i>	1	13/09/2024	Declared pest plant
-					
32.9705	115.6977	<i>Gomphocarpus fruticosus</i>	1	1/11/2024	Declared pest plant
-					
32.9721	115.6979	<i>Gomphocarpus fruticosus</i>	5	1/11/2024	Declared pest plant
-					
32.9708	115.6993	<i>Gomphocarpus fruticosus</i>	5	1/11/2024	Declared pest plant
-32.97	115.6993	<i>Gomphocarpus fruticosus</i>	5	1/11/2024	Declared pest plant
-					
32.9703	115.6998	<i>Gomphocarpus fruticosus</i>	2	1/11/2024	Declared pest plant
-					
32.9718	115.6978	<i>Solanum linnaeanum</i>	3	13/09/2024	Declared pest plant
-					
32.9712	115.698	<i>Solanum linnaeanum</i>	2	13/09/2024	Declared pest plant
-					
32.9696	115.6982	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9697	115.6976	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9689	115.6976	<i>Solanum linnaeanum</i>	8	13/09/2024	Declared pest plant
-					
32.9687	115.6974	<i>Solanum linnaeanum</i>	5	13/09/2024	Declared pest plant

Latitude	Longitude	TaxonName	Abundance	Date	WAConsStat
-					
32.9686	115.697	<i>Solanum linnaeanum</i>	2	13/09/2024	Declared pest plant
-					
32.9724	115.6964	<i>Solanum linnaeanum</i>	6	13/09/2024	Declared pest plant
-					
32.9716	115.6964	<i>Solanum linnaeanum</i>	3	13/09/2024	Declared pest plant
-					
32.9712	115.6964	<i>Solanum linnaeanum</i>	8	13/09/2024	Declared pest plant
-32.971	115.6964	<i>Solanum linnaeanum</i>	6	13/09/2024	Declared pest plant
-					
32.9705	115.6964	<i>Solanum linnaeanum</i>	2	13/09/2024	Declared pest plant
-					
32.9699	115.6965	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9698	115.6965	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9691	115.6966	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9686	115.6961	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9691	115.6959	<i>Solanum linnaeanum</i>	2	13/09/2024	Declared pest plant
-					
32.9701	115.6961	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9704	115.6959	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9713	115.6959	<i>Solanum linnaeanum</i>	4	13/09/2024	Declared pest plant
-					
32.9719	115.6959	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9721	115.6958	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9728	115.6954	<i>Solanum linnaeanum</i>	2	13/09/2024	Declared pest plant
-					
32.9694	115.6954	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9697	115.6951	<i>Solanum linnaeanum</i>	1	13/09/2024	Declared pest plant
-					
32.9699	115.6951	<i>Solanum linnaeanum</i>	2	13/09/2024	Declared pest plant

Appendix 15. DBCA TEC PEC reporting form (Tuart TEC).



Threatened and Priority Ecological Community (TEC/PEC) Occurrence Report Form

COMMUNITY: <u>Tuart Woodlands and Forests of the SCP</u>		OBSERVATION DATE: <u>13/09/2024</u>	
New occurrence <input type="checkbox"/> Site ID: _____		CONS STATUS: <u>T</u>	
OBSERVER/S: <u>Ben Eckemann & Debbie Brace</u>		PHONE: <u>0484 771 825</u>	
ROLE: <u>Botanists</u>		ORGANISATION: <u>Ecoedge</u>	
EMAIL: <u>debbie@ecoedge.com.au</u>			

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place): <u>Lot 5 and Lot 18 Ludlow Road, Myalup, Western Australia</u>			
GDA 2020		Reserve No: _____	
DISTRICT: _____		LGA: <u>SoHarvey</u> Land manager present: <input type="checkbox"/>	
DATUM: GDA94 / MGA94 <input type="checkbox"/> AGD84 / AMG84 <input type="checkbox"/> WGS84 <input type="checkbox"/> Unknown <input type="checkbox"/>		COORDINATES: (If UTM coords provided, Zone is also required) DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input checked="" type="checkbox"/> Lat / Northing: <u>-32,97201</u> Long / Easting: <u>115,69678</u> Zone: <u>50</u>	
METHOD USED: GPS <input checked="" type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/> No. satellites: _____ Map used: _____ Boundary polygon captured: <input checked="" type="checkbox"/> Map used: _____			
LAND TENURE: Nature reserve <input type="checkbox"/> Timber reserve <input type="checkbox"/> Private property <input checked="" type="checkbox"/> Rail reserve <input type="checkbox"/> Shire road reserve <input type="checkbox"/> National park <input type="checkbox"/> State forest <input type="checkbox"/> Pastoral lease <input type="checkbox"/> MRWA road reserve <input type="checkbox"/> Other Crown reserve <input type="checkbox"/> Conservation park <input type="checkbox"/> Water reserve <input type="checkbox"/> UCL <input type="checkbox"/> SLK/Pole _____ to _____ Specify other: _____			

AREA ASSESSMENT: Edge survey <input type="checkbox"/> Partial survey <input type="checkbox"/> Full survey <input checked="" type="checkbox"/> Area observed (m ²): <u>28.3 ha</u>	
EFFORT: Time spent surveying (minutes): <u>1,200 mins</u> No. of minutes spent / 100 m ² : _____	

THREATS - type, and supporting information: e.g. clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents.	Cause/Agent: e.g. weed type, grazing species, recreation type	Area affected	Current impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Grazing, weed infestation	Cattle, cotton bush	%			
•		%			
•		%			
•		%			
•		%			
•		%			
•		%			
•		%			
•		%			

*Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme

*Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)

CONDITION OF OCCURRENCE: (Bush Forever Scale) (estimate % of area in each)		
Pristine <input type="checkbox"/> _____%	Very Good <input type="checkbox"/> _____%	Degraded <input checked="" type="checkbox"/> <u>5%</u>
Excellent <input type="checkbox"/> _____%	Good <input type="checkbox"/> _____%	Completely Degraded <input checked="" type="checkbox"/> <u>95%</u>

Please return form to:

communities.data@dpaw.wa.gov.au

or Species and Communities Branch, Department of Parks and Wildlife, Locked Bag 104, Bentley Delivery Centre WA 6983

Record entered by: _____ Date entered: _____ Database no: _____



Threatened and Priority Ecological Community (TEC/PEC) Occurrence Report Form

RECOMMENDED MANAGEMENT ACTIONS: e.g. roadside markers, weed control, etc.

Weed control

ACTIONS IMPLEMENTED (include date):

HABITAT INFORMATION: (Check more than one box for combinations or where necessary)

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
Crest <input type="checkbox"/> Hill <input type="checkbox"/> Ridge <input type="checkbox"/> Outcrop <input type="checkbox"/> Slope <input type="checkbox"/> Flat <input checked="" type="checkbox"/> Open depression <input type="checkbox"/> Drainage line <input type="checkbox"/> Closed depression <input type="checkbox"/> Wetland <input type="checkbox"/>	Granite <input type="checkbox"/> Dolerite <input type="checkbox"/> Laterite <input type="checkbox"/> Ironstone <input type="checkbox"/> Limestone <input checked="" type="checkbox"/> Quartz <input type="checkbox"/> Specify other:	(on soil surface; e.g. gravel, quartz fields) 0-10% <input type="checkbox"/> 10-30% <input checked="" type="checkbox"/> 30-50% <input type="checkbox"/> 50-100% <input type="checkbox"/>	Sand <input checked="" type="checkbox"/> Sandy loam <input type="checkbox"/> Loam <input type="checkbox"/> Clay loam <input type="checkbox"/> Light clay <input type="checkbox"/> Peat <input type="checkbox"/> Specify other:	Red <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input type="checkbox"/> White <input type="checkbox"/> Grey <input checked="" type="checkbox"/> Black <input type="checkbox"/> Specify other:	Well drained <input checked="" type="checkbox"/> Seasonally inundated <input type="checkbox"/> Permanently inundated <input type="checkbox"/> Tidal <input type="checkbox"/> Specify other:

Specific Landform Element: (Refer to field manual for additional values)

CONDITION OF SOIL:

Dry Moist Waterlogged Inundated Cracked Saline Other:

VEGETATION CLASSIFICATION:

1. tall open woodland
2. open forbland
- 3.
- 4.

FIRE HISTORY:

Last Fire: Season/Month: Year: Fire Intensity: High Medium Low No evidence of fire

Actual Occurrence Landuse:

Please return form to:

communities.data@dpaw.wa.gov.au

or Species and Communities Branch, Department of Parks and Wildlife, Locked Bag 104, Bentley Delivery Centre WA 6983

Record entered by: _____ Date entered: _____ Database no: _____



Threatened and Priority Ecological Community (TEC/PEC) Occurrence Report Form

Adjacent Landuse:

Associated Flora Species:

Eucalyptus gomphocephala mid woodland to open forest over Agonis flexuosa var. flexuosa low open woodland to woodland over *Bromus diandrus, *Ehrharta longiflora, *Hordeum leporinum tussock grassland to closed tussock grassland with *Geranium molle, *Euphorbia peplus sparse to open herbland on sandy rises and slopes

Associated Fauna Species:

OTHER COMMENTS:

ATTACHED: Map Mudmap Photo GIS data Field notes

Other:

COPY SENT TO: Regional Office District Office Other:

Submitter of record: Ben Eckermann **Role:** Botanist
Signature: BE **Date submitted:** 16/5/2025

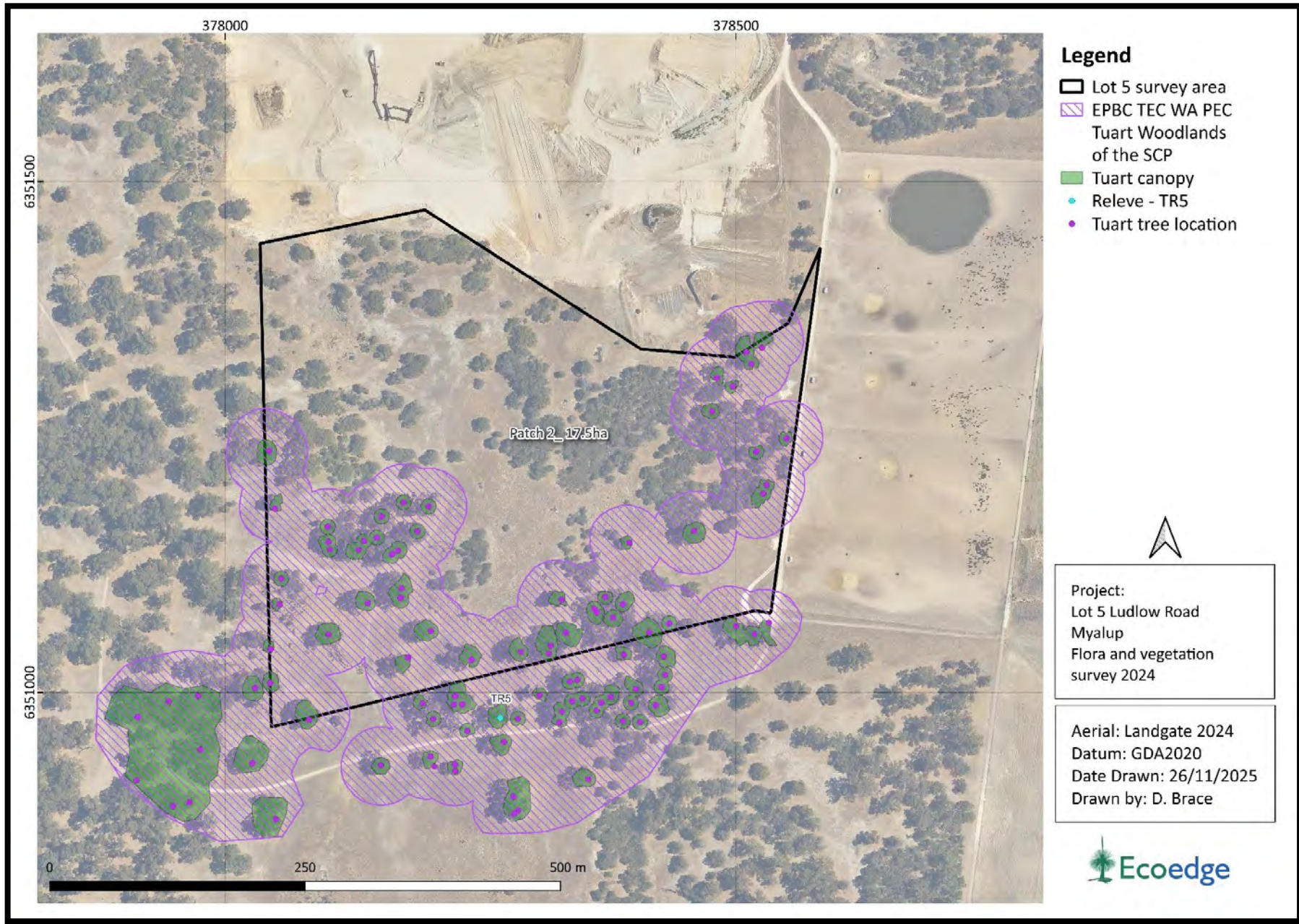
Please return form to:

communities.data@dpaw.wa.gov.au

or Species and Communities Branch, Department of Parks and Wildlife, Locked Bag 104, Bentley Delivery Centre WA 6983

Record entered by: _____ Date entered: _____ Database no: _____

Appendix 16. Tuart tree locations, tuart canopy, relevé and 60m canopy buffer.



Appendix 17. Tuart tree data collected on site.

#	latitude	longitude	Dead	Native	Photo	SCP	Recent fire	Historical	Woodland	DBH >15cm	Distance
1	- 32.97321876	115.6960721	FALSE	Poor - <4 (<50% native species)	8b5798cb-8da0-4644-8a2f-5afe6a040c75	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
2	- 32.97248054	115.6949241	FALSE	Poor - <4 (<50% native species)	efca222b-c676-4037-bf0d-044e32234815	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
3	- 32.97252384	115.6947647	FALSE	Poor - <4 (<50% native species)	1c784492-1b82-4a2f-bbd1-47087248da6d	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
4	-32.972182	115.6949353	FALSE	Poor - <4 (<50% native species)	faa94f26-5c5c-4339-9edf-b8cf7282d201	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
5	- 32.97178672	115.6950317	FALSE	Poor - <4 (<50% native species)	dfc7c0eb-e830-42a0-9812-ab8a78d96968	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
6	- 32.97156132	115.6950537	FALSE	Poor - <4 (<50% native species)	c2a9ae49-0099-4fec-af1d-cc7955bcf8c2	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
7	- 32.97094249	115.6949949	FALSE	Poor - <4 (<50% native species)	51629a51-f4ed-43c1-ba86-cdf11047b82f	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
8	-32.9704327	115.6949431	FALSE	Poor - <4 (<50% native species)	1643ac08-fc83-4d33-8805-033e18fdbb91	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
9	- 32.97110808	115.6955469	FALSE	Poor - <4 (<50% native species)	0aa01409-61a5-450e-bdbd-b3f52f27ad53	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
10	- 32.97124109	115.6955531	FALSE	Poor - <4 (<50% native species)	5e322073-0c38-4248-9578-6d4e3caec97b	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
11	- 32.97130918	115.6955668	FALSE	Poor - <4 (<50% native species)	4485c099-eee1-4a9e-82c1-2159ff36bbbe	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
12	- 32.97205894	115.6955435	FALSE	Poor - <4 (<50% native species)	97b5a354-05e4-4e81-8123-48a2cbe3d553	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
13	- 32.97280882	115.6953269	FALSE	Poor - <4 (<50% native species)	99c4c0d8-5bc0-407e-9709-e132de48d2d8	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
14	- 32.97178769	115.6959573	FALSE	Poor - <4 (<50% native species)	74e23737-84ab-495e-9fd9-25ae2c87f82b	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
15	-32.9712378	115.6959266	FALSE	Poor - <4 (<50% native species)	9f996a1b-2034-48ef-abf0-89eb015ec243	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
16	-32.9713163	115.695867	FALSE	Poor - <4 (<50% native species)	86ef4de4-1cd0-4ab0-8887-f72227eea60c	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
17	-32.9712082	115.6960606	FALSE	Poor - <4 (<50% native species)	05a4ee21-29d2-46ef-9781-0fc8cefb9b7c	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
18	-32.9710238	115.6961121	FALSE	Poor - <4 (<50% native species)	b23b70fc-9419-4358-89f5-1219f9add3d6	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
19	- 32.97093987	115.6966062	FALSE	Poor - <4 (<50% native species)	374dfa47-3a3c-4c13-b691-f5544ee41661	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
20	- 32.97090222	115.696346	FALSE	Poor - <4 (<50% native species)	0c021235-56ab-461e-b689-89ea5bca29d2	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
21	-32.9711583	115.6964861	FALSE	Poor - <4 (<50% native species)	1ad1edaf-8d6a-466f-a28a-d8e5469bb1a7	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
22	- 32.97132584	115.6962792	FALSE	Poor - <4 (<50% native species)	6b5af528-81cd-4e22-8f5f-74a307a0db4e	TRUE	FALSE	Grazing	Open woodland	Yes	<60m

#	latitude	longitude	Dead	Native	Photo	SCP	Recent fire	Historical	Woodland	DBH >15cm	Distance
23	-32.97135881	115.6962174	FALSE	Poor - <4 (<50% native species)	c0c54696-949e-4b37-ae94-c1279dfebdc2	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
24	-32.97165684	115.6963114	FALSE	Poor - <4 (<50% native species)	c7ad0738-090f-49d9-957d-3147b59909f2	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
25	-32.97174446	115.6963024	FALSE	Poor - <4 (<50% native species)	405cddca-1558-414b-a5bd-9c76d8a068f3	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
26	-32.97203986	115.6966135	FALSE	Poor - <4 (<50% native species)	85c92cee-b8cb-4657-a92e-e9a30c7c6931	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
27	-32.97227189	115.6963741	FALSE	Poor - <4 (<50% native species)	874ef5e3-86af-4bc3-86c7-a10d37b9c02e	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
28	-32.97267788	115.6965191	FALSE	Poor - <4 (<50% native species)	63a9a4eb-9b1a-4817-9c17-38669fa4b7ee	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
29	-32.9728171	115.6966275	FALSE	Poor - <4 (<50% native species)	13c413ef-398c-454a-a9dc-90aff5f0077b	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
30	-32.97314613	115.6965953	FALSE	Poor - <4 (<50% native species)	5b0b5fb4-41a1-4252-8596-43cf0a9b3708	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
31	-32.97321777	115.69685	FALSE	Poor - <4 (<50% native species)	518c8552-6b49-4aac-9b5a-acfa26055d7a	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
32	-32.97292538	115.6969827	TRUE	Poor - <4 (<50% native species)	94e26bb3-9b64-4457-8729-42d73ba87a3f	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
33	-32.97269176	115.6969318	FALSE	Poor - <4 (<50% native species)	45588366-1968-4ed9-959e-dc845896c72d	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
34	-32.97269174	115.6968422	FALSE	Poor - <4 (<50% native species)	e6a3a052-d93f-401e-bb50-a9441583affa	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
35	-32.97261717	115.6968585	FALSE	Poor - <4 (<50% native species)	b1f1d428-9ac2-4af6-a7fc-d3ae698b8ebb	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
36	-32.97229623	115.6970371	FALSE	Poor - <4 (<50% native species)	2658ba25-2c84-4e24-9af8-cf205aca401e	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
37	-32.97223373	115.6975525	FALSE	Poor - <4 (<50% native species)	0bbf3aae-f01a-42af-b813-155ecf109575	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
38	-32.97262037	115.6977437	FALSE	Poor - <4 (<50% native species)	35f3f6fb-b144-4fd6-9eac-4d3416f8d458	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
39	-32.9728256	115.6975139	FALSE	Poor - <4 (<50% native species)	6500dbb7-d730-40fd-9413-13d00f5fe01e	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
40	-32.97281338	115.6973289	FALSE	Poor - <4 (<50% native species)	f61bcf79-7799-4623-91fd-1c435f8b108b	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
41	-32.97302605	115.6973652	FALSE	Poor - <4 (<50% native species)	cbde5e9b-5ea8-46a6-9897-fa1881eb86f8	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
42	-32.97286301	115.6979463	FALSE	Poor - <4 (<50% native species)	0efd3e49-ed6b-4d9f-97cc-d7371b1009e6	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
43	-32.97276397	115.6979745	FALSE	Poor - <4 (<50% native species)	08eb5793-8af9-4f20-ac76-23e60ad1abff	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
44	-32.97267599	115.698084	FALSE	Poor - <4 (<50% native species)	81ef0ef8-74fa-4a89-9802-f752e32440ab	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
45	-32.972502	115.6980621	FALSE	Poor - <4 (<50% native species)	2fd3b278-3a36-4de4-b2be-87bf4996da72	TRUE	FALSE	Grazing	Open woodland	Yes	<60m

#	latitude	longitude	Dead	Native	Photo	SCP	Recent fire	Historical	Woodland	DBH >15cm	Distance
46	- 32.97248892	115.6981393	FALSE	Poor - <4 (<50% native species)	a947eecd-5982-4a66-a7d2-717e6d4b7d8a	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
47	- 32.97225311	115.6978464	FALSE	Poor - <4 (<50% native species)	76969f12-dcd4-4a54-a9af-5ce4651a1030	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
48	- 32.97218343	115.6978655	FALSE	Poor - <4 (<50% native species)	11db5c0b-ef9f-45bc-bd1a-3756b9d419e0	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
49	- 32.97206811	115.6980296	FALSE	Poor - <4 (<50% native species)	b3c4d888-121f-4ae7-92bd-9df773ee1a2d	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
50	- 32.97177674	115.6979856	FALSE	Poor - <4 (<50% native species)	8dcb224e-cb5a-452e-8188-ebb424883777	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
51	- 32.97189525	115.6983533	FALSE	Poor - <4 (<50% native species)	bcb90e4d-c49b-49ba-9ba7-c06e8168fc35	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
52	- 32.97186094	115.6983274	FALSE	Poor - <4 (<50% native species)	6dd9722d-d589-4c09-8a26-5ffa8a00b1b3	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
53	- 32.97175863	115.6984455	FALSE	Poor - <4 (<50% native species)	507ea8a0-aaea-46f5-9a86-38b36a58c7b6	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
54	-32.9718238	115.6986264	FALSE	Poor - <4 (<50% native species)	b3e97990-39c1-4931-8fa6-57d1f8d64ef4	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
55	- 32.97194036	115.6985236	FALSE	Poor - <4 (<50% native species)	edc82a3e-c46c-4a2f-9ecb-656948338156	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
56	- 32.97128225	115.6987036	FALSE	Poor - <4 (<50% native species)	9e805f6d-5169-4d1f-8524-904c4ed607c9	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
57	- 32.97207746	115.6989005	FALSE	Poor - <4 (<50% native species)	948abc87-71e7-44af-8828-cd96955bb136	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
58	- 32.97229126	115.69905	FALSE	Poor - <4 (<50% native species)	4eff7e37-cc78-42a6-a135-b91a2c545471	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
59	- 32.97227078	115.6986338	FALSE	Poor - <4 (<50% native species)	a598e79b-7665-46f6-964e-62f65eb3a8be	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
60	- 32.97257333	115.6987548	FALSE	Poor - <4 (<50% native species)	a5a89d6f-8237-4bc8-9804-1c6395731a99	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
61	- 32.97269558	115.6987007	FALSE	Poor - <4 (<50% native species)	c117c35e-6775-4fb7-a81d-07feca306333	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
62	- 32.97285601	115.6986116	FALSE	Poor - <4 (<50% native species)	144af54b-2be8-4452-bd02-8ffa60fa8c08	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
63	- 32.97264293	115.6984877	FALSE	Poor - <4 (<50% native species)	22294c74-b0f3-41e6-a7fb-b898e6d5047d	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
64	- 32.97269096	115.6983896	FALSE	Poor - <4 (<50% native species)	0fe41a13-335a-42be-9116-9e180b2e5ff8	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
65	- 32.97275981	115.6983376	FALSE	Poor - <4 (<50% native species)	d2920105-c2c9-4eb4-92d3-72ef3aa6df52	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
66	- 32.97265228	115.6981933	FALSE	Poor - <4 (<50% native species)	70593614-9409-4464-a2f7-d886f065e50f	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
67	- 32.97086389	115.7001116	FALSE	Poor - <4 (<50% native species)	ec118fe7-3e07-4ea0-abbf-a2cd0f28e8ad	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
68	- 32.97078503	115.7001495	FALSE	Poor - <4 (<50% native species)	788a85da-314e-484b-8ec1-cfa973e7c93e	TRUE	FALSE	Grazing	Open woodland	Yes	<60m

#	latitude	longitude	Dead	Native	Photo	SCP	Recent fire	Historical	Woodland	DBH >15cm	Distance	
69	-	32.97038044	115.7003637	FALSE	Poor - <4 (<50% native species)	5e066c2f-6cd2-4e50-9bd1-5c5004639251	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
70	-	32.96957501	115.7001178	FALSE	Poor - <4 (<50% native species)	3fd3dddf-74ef-4647-afb9-f8fa06750f69	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
71	-	32.96961309	115.6999545	FALSE	Poor - <4 (<50% native species)	6a65fc67-c68c-4f9f-9672-526c57814362	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
72	-	32.96971543	115.7000053	FALSE	Poor - <4 (<50% native species)	2ad56f3a-257b-470e-aed0-d59e4693b6b6	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
73	-	32.96991303	115.6998045	FALSE	Poor - <4 (<50% native species)	018ab4cc-6c10-4aab-ab2b-bf880abe6d47	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
74	-	32.96983877	115.699641	FALSE	Poor - <4 (<50% native species)	2246b4cc-447a-4a82-b952-3fb789e80597	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
75	-	32.97049113	115.7000453	FALSE	Poor - <4 (<50% native species)	d631a1b1-3b2f-4502-b1c8-c2a1d0c78e99	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
76	-	32.97336507	115.6982426	FALSE	Poor - <4 (<50% native species)	a515b6ab-1f1e-497e-8144-4f3ea7f62eb9	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
77	-	32.97363398	115.6975028	FALSE	Poor - <4 (<50% native species)	74037461-380c-4638-b1ab-54fec7b4be79	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
78	-	32.97286682	115.6987928	FALSE	Poor - <4 (<50% native species)	f315755d-8172-440e-9f2e-8d0b68aecad1	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
79	-	32.97271953	115.6989602	FALSE	Poor - <4 (<50% native species)	1661d3f8-dc1b-4038-8787-b34a08060abd	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
80	-	32.97256169	115.6990218	FALSE	Poor - <4 (<50% native species)	636a089d-a042-4fd7-bd1e-76f0eb52e1cb	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
81	-	32.97245129	115.6990607	FALSE	Poor - <4 (<50% native species)	4bb03c9e-bdc7-4bb7-b26d-18f650a72d16	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
82	-	32.97199769	115.6991111	FALSE	Poor - <4 (<50% native species)	e7b97bad-fc78-4629-a599-98d070781743	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
83	-	32.97118479	115.6993837	FALSE	Poor - <4 (<50% native species)	a34deaac-661a-49ec-a04a-69bb06c1afb5	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
84	-	32.97012954	115.6995856	FALSE	Poor - <4 (<50% native species)	f98ffd7e-75ff-4623-b0f9-402c3940f7cb	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
85	-	32.97202898	115.6998108	FALSE	Poor - <4 (<50% native species)	e9387b07-a00c-4731-9422-94c21d7a814a	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
86	-	32.97200375	115.7001547	FALSE	Poor - <4 (<50% native species)	722b2647-f4f8-45cb-8bbc-f1142d3fc4eb	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
87	-	32.97210204	115.7000019	FALSE	Poor - <4 (<50% native species)	5f3dc773-06ca-458a-b830-e34d4fa021e0	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
88	-	32.97323483	115.6966311	FALSE	Poor - <4 (<50% native species)	2563d2f1-13d6-4df5-a18a-59bd535f0a58	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
89	-	32.97327866	115.69685	FALSE	Poor - <4 (<50% native species)	19df5a77-711b-46c9-8166-6316e5f0ff42	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
90	-	-32.9736622	115.6974612	FALSE	Poor - <4 (<50% native species)	b6d7d549-4c39-4c5b-a789-c4e44e900df7	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
91	-	32.97350965	115.6974571	FALSE	Poor - <4 (<50% native species)	070d4c13-73c8-466d-8fa4-10cb5664ea3b	TRUE	FALSE	Grazing	Open woodland	Yes	<60m

#	latitude	longitude	Dead	Native	Photo	SCP	Recent fire	Historical	Woodland	DBH >15cm	Distance
92	- 32.97352397	115.6940638	FALSE	Poor - <4 (<50% native species)	984054e9-1023-4a4a-81eb-79fcca2a4c81	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
93	- 32.97355786	115.6938907	FALSE	Poor - <4 (<50% native species)	8dd6dc0c-a94f-4d0b-825e-999b5a0f6dfb	TRUE	FALSE	Grazing	Open woodland	Yes	<60m
94	- 32.97332577	115.6935134	FALSE	Poor - <4 (<50% native species)		TRUE	FALSE	Grazing	Open woodland	Yes	<60m
95	- 32.97368184	115.6949673	FALSE	Poor - <4 (<50% native species)		TRUE	FALSE	Grazing	Open woodland	Yes	<60m
96	- 32.97318698	115.6947263	FALSE	Poor - <4 (<50% native species)		TRUE	FALSE	Grazing	Open woodland	Yes	<60m
97	-32.9730591	115.6941858	FALSE	Poor - <4 (<50% native species)		TRUE	FALSE	Grazing	Open woodland	Yes	<60m
98	- 32.97258596	115.6941688	FALSE	Poor - <4 (<50% native species)		TRUE	FALSE	Grazing	Open woodland	Yes	<60m
99	- 32.97276817	115.6935331	FALSE	Poor - <4 (<50% native species)		TRUE	FALSE	Grazing	Open woodland	Yes	<60m
100	- 32.97263227	115.6938588	FALSE	Poor - <4 (<50% native species)		TRUE	FALSE	Grazing	Open woodland	Yes	<60m

Appendix 18. Tuart patch releve sites

Sample Site: TR5



Tuart Patch Assessment Sheet			
Ecologist	Debbie Brace	Patch No:	Patch 2
Date	1/11/2024	Relevé site:	TR 5
Picture No.	f61bcf79-7799-4623-91fd-1c435f8b108b		
Fulcrum ID	a77dab0f-aff1-4d10-b418-5160fb6d69b0		
Latitude	-32.97281338	Longitude	115.6973289
Dune system	Spearwood dune system	Soil Colour	Grey/brown
Rock Colour	White/grey	Rock Type	Limestone
Condition	Completely Degraded	Estimated size of patch	>5ha
Evidence of fire	NA	Fire age	Na
Gap to nearest tuart	<60m		
Total No. species	1 – Tuart	No. Understorey natives	Nil
Stag (dead)	No	Weed cover	>70%
Native understorey % cover	Poor - <4 (<50% native species)		
Dominant weeds	Grasses		
Evidence of Tuart Dieback	No	Level of impact	N/a
Less than 100 m from bushland GT 1 ha in at least good condition (GT50% native species.	No	≥2 very large trees per 0.5 ha	Yes

Tuart Patch Assessment Sheet

Natural regen of eucalypts - mean of more than 15 seedlings/sapling LT 15cm DBH per half ha.

No

Comments

Inside survey area and part of patch 2.

Native species

Eucalyptus gomphocephala

Appendix G

Basic Fauna and Targeted Black Cockatoo and Western
Ringtail Possum Survey



Basic Fauna and Targeted Black Cockatoo and Western Ringtail Possum Survey

Part Lot 5, Ludlow Road, Myalup

DECEMBER 2025



Version control

Project number:	SW777			
Project file path:	SW777 Ludlow Rd fauna survey			
Client:	BJ Catalano			
Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Rev 0	2/12/25	SP SW Environmental	GJ SW Environmental	SP SW Environmental
Rev 1	30/01/26	SP SW Environmental	GJ SW Environmental	SP SW Environmental

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Statement of limitations

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CONTENTS

EXECUTIVE SUMMARY 5

1 INTRODUCTION 7

1.1 PROJECT OVERVIEW..... 7

1.2 SCOPE OF WORK 7

1.3 REGULATORY CONTEXT 8

 1.3.1 Key Legislation..... 8

 1.3.2 Guidelines..... 8

 1.3.3 EPBC Act Considerations..... 9

2 METHODS 10

2.1 DESKTOP REVIEW 10

2.2 FIELD SURVEY..... 11

 2.2.1 Survey Area 11

 2.2.2 Site Reconnaissance 11

 2.2.3 Black Cockatoo Survey Methodology 12

 2.2.4 Western Ringtail Possum Survey Methodology..... 15

 2.2.5 Publications Referenced 15

 2.2.6 Animal Ethics..... 16

2.3 LIMITATIONS 16

3 DESKTOP REVIEW 18

3.1 SITE CONTEXT 18

 3.1.1 Current Land Use 18

 3.1.2 IBRA Region and Climate..... 18

 3.1.3 Local Habitat Remaining..... 19

 3.1.4 Habitat Connectivity..... 19

3.2 FAUNA RECORDS 20

 3.2.1 Fauna Recorded Locally..... 20

 3.2.2 Fauna of Conservation Significance..... 21

3.3 BLACK COCKATOOS 21

 3.3.1 Profiles..... 21

 3.3.2 Breeding Requirements and Records 23

 3.3.3 Foraging Context and Records..... 24

 3.3.4 Roosting Behaviour and Records 24

3.4 WESTERN RINGTAIL POSSUM..... 25

 3.4.1 Profile..... 25

3.4.2	Local Context and Records.....	25
4	RESULTS AND DISCUSSION.....	26
4.1	HABITAT CHARACTERISTICS.....	26
4.2	SUITABLE DBH TREES	30
4.3	FAUNA RECORDED.....	30
4.4	FAUNA OF CONSERVATION SIGNIFICANCE.....	31
4.4.1	Local Records.....	31
4.4.2	Species Profiles and Site Values	31
4.5	BLACK COCKATOO BREEDING	31
4.6	BLACK COCKATOO FORAGING.....	32
4.6.1	Black Cockatoo Foraging Field Results.....	32
4.6.2	Foraging Scoring Tool Assessment Results	33
4.7	ROOSTS.....	35
4.8	WRP RESULTS.....	35
5	CONCLUSIONS AND RECOMMENDATIONS	35
6	REFERENCES	36
APPENDIX A	FIGURES	A-40
APPENDIX B	CONSERVATION CODES	B-41
APPENDIX C	POTENTIAL FAUNA LIST AND FAUNA RECORDED	B-42
APPENDIX D	THREATENED FAUNA EVALUATION	54
APPENDIX E	BLACK COCKATOO FORAGING QUALITY SCORING TOOL.....	55
APPENDIX F	BLACK COCKATOO FORAGING PLANTS	61
APPENDIX G	TREE SURVEY RESULTS	G-64

Figures

Figure A.1	Survey area.....	A-40
Figure A.2	Desktop Study Area	A-40
Figure A.3	Fauna habitats.....	A-40
Figure A.4	Suitable DBH trees, observed roosts and black cockatoo foraging habitat quality.....	A-40
Figure A.5	Nocturnal survey results and drey locations.....	A-40

Tables

Table 1-1	Environmental legislation that may be relevant to the Project.....	8
Table 1-2	Referral thresholds for black cockatoos (DAWE, 2022).....	9
Table 2-1	Vegetation structure (Keighery, 1994).....	11
Table 2-2	Vegetation condition scale (EPA, 2016).....	11
Table 2-3	Fauna habitat quality categories and descriptions (SW Environmental, n.d.).....	12
Table 2-4	Suitable DBH tree and hollow classes and descriptions.....	13
Table 2-5	Assessment of survey limitations	16
Table 3-1	Areas of DBCA reserves and native vegetation remaining within a 10 km foraging distances from the Survey Area (Landgate, 2025).....	19
Table 3-2	Native vegetation within 10 km of the DSA (32,590 ha) that may or may not be utilised by black cockatoos... 24	
Table 4-1	Fauna habitat type summary occurring within the Survey Area	27

Table 4-2 Fauna recorded within the Survey Area.....	30
Table 4-3 Conservation significant fauna that may occur within the Survey Area, based on habitat suitability.....	31
Table 4-4 Black cockatoo foraging species across habitat types.....	32
Table 4-5 Black cockatoo Foraging Scoring Tool Assessment Results.....	34

Abbreviations and acronyms

Organisations	
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Federal Department of Climate Change, Energy, the Environment and Water
DWER	WA Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
Common Terms	
DSA	Desktop Survey Area – Survey Area plus a 10 km buffer
FRTBC	Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii</i> subsp. <i>naso</i>)
WRP	Western Ringtail Possum (<i>Pseudocheirus occidentalis</i>)
CBP	Common Brushtail Possum (<i>Trichosurus vulpecula</i>)
MNES	Matters of National Environmental Significance
Project	The proposed action
SW	Southwest
Survey Area	8.11 ha
WA	Western Australia
Legislation	
BC Act	<i>Biodiversity Conservation Act 2016 (WA)</i>
BC Regs	<i>Biodiversity Conservation Regulations 2018 (WA)</i>
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Federal)</i>
Measurements	
ha	Hectare
km	Kilometre
m	Metre

Executive Summary

B.J. Catalano proposes to extend an existing sand quarry within an ~8.11 ha portion of Lot 5, Ludlow Road, Myalup (Shire of Harvey). An extractive industry licence and clearing permit will be required. SW Environmental was engaged to undertake a Basic Fauna and Targeted Black Cockatoo and Western Ringtail Possum (WRP) Survey to inform environmental approvals under the EPBC Act, BC Act and EP Act.

The survey comprised a desktop assessment (10 km Desktop Study Area) and field surveys in accordance with EPA Technical Guidance (EPA, 2020) along with relevant Commonwealth black cockatoo and WRP guidelines. Fieldwork was completed on the 18th of November 2025. Fieldwork included a diurnal habitat assessment, black cockatoo habitat and hollow-tree assessment, WRP scat and habitat searches, and nocturnal spotlighting. Surveys were led by an experienced Certified Environmental Practitioner under appropriate scientific and animal ethics approvals.

The Survey Area lies on the Swan Coastal Plain within grazed pasture and supports patches of highly disturbed native vegetation and paddock trees. The Survey Area is located between Forrest Highway and the Peel–Yalgorup Ramsar wetlands. Four fauna habitat types were mapped:

- 1) Peppermint low open woodland and paddock trees;
- 2) coastal dune mallee with Peppermint;
- 3) Redheart and Peppermint woodland with a small Jarrah component; and
- 4) cleared pasture/track areas.

Overall, fauna habitat quality ranges from poor to moderate due to fragmentation, simplified understorey, low structural complexity and lack of hollows. Vegetation condition has been mapped as degraded to completely degraded.

Desktop searches identified 227 terrestrial vertebrate species with the potential to occur locally, including 26 conservation-significant terrestrial vertebrates (15 Threatened species, 8 Priority species and 2 Conservation Dependent/Specially Protected taxa). Within the Survey Area, 19 species were observed (16 birds and 3 mammals). No Threatened fauna or other target species were detected during the survey. Based on habitat suitability, only Carnaby's cockatoo, Forest Red-tailed Black Cockatoo (FRTBC) and Peregrine Falcon may occasionally use the site. If present, these species would primarily visit the site for foraging or hunting within a much larger home range.

Forty suitable DBH trees (>50 cm) were recorded, predominantly being Redheart (*Eucalyptus decipiens*) with a small number of Jarrah (*E. marginata*). No hollow-bearing trees suitable for black cockatoo breeding were identified. Given the species present, tree form (mostly low, mallee-form Redheart) and tree size, the site has negligible current breeding habitat value for black cockatoos and very limited potential for the development of suitable hollows in the foreseeable future. No evidence of black cockatoo roosting (feathers, whitewash, clipped branches or roost aggregations) was recorded on or immediately adjacent to the site, and no DBCA-recorded roosts occur within 5 km.

Black cockatoo foraging values were assessed using a foraging quality scoring tool consistent with EPBC offsets methodology. The Survey Area supports small areas of secondary foraging species (*Agonis flexuosa*, *E. marginata*, *E. decipiens*) in degraded condition, with no primary proteaceous foraging shrubland or high-quality eucalypt woodland present. No foraging residue or black cockatoos were observed during field survey. All mapped habitat types scored within the "Lower quality" foraging category (0–4 / 10), with up to 2.76 ha of lower-quality foraging habitat potentially available for each of Baudin's, Carnaby's and FRTBC. On this basis, the proposed clearing is well below EPBC referral

thresholds for loss of lower-quality native foraging habitat (≥ 10 ha) and does not involve loss of known or potential nesting trees or night roost habitat.

Targeted WRP surveys found no WRP individuals, dreys or scats within the Survey Area. One Common Brushtail Possum was recorded just outside of the Survey Area. The highly fragmented, degraded canopy, low midstorey complexity and absence of high-quality Peppermint–Tuart woodland indicates that the site is unlikely to be used by WRP, despite regional records within the broader 10 km area.

Overall, the proposed quarry extension is expected to result in the loss of a small area of general fauna habitat of poor–moderate quality and lower-quality black cockatoo foraging area, with no direct impacts on breeding or roosting habitat for black cockatoos and/or WRP. Based on the current footprint and available guidance, significant impacts on Matters of National Environmental Significance are unlikely; however, once final impact areas are confirmed, the foraging assessment and EPBC referral considerations should be briefly revisited to validate this conclusion.

1 Introduction

1.1 Project Overview

B.J. Catalano proposes to extend an existing sand quarry in an 8.11 ha portion of Lot 5, Ludlow Road, Myalup, within the Shire of Harvey (Figure 1, Attachment 1). An extractive industry licence and clearing permit application will be required. A Basic Fauna and Targeted Black Cockatoo¹ and Western Ringtail Possum (WRP) (*Pseudocheirus occidentalis*) (Critically Endangered) Survey was required to identify general fauna, black cockatoo and WRP site values and inform the environmental assessment process.

1.2 Scope of Work

SW Environmental was commissioned to carry out a Basic Fauna and Targeted¹ Black Cockatoo² and WRP Survey within the circa 8.11 ha Survey Area (Figure 2). The surveys were to include a desktop review and fieldwork components, in line with a Basic and Targeted Fauna Survey per the EPA Technical Guidance (EPA, 2020).

The Basic fauna survey component was to include a basic terrestrial fauna species inventory, habitat assessment, likelihood of occurrence assessment for conservation significant fauna, along with a Targeted Black Cockatoo and WRP surveys. The Targeted Black Cockatoo Survey component was required to identify black cockatoo habitat values, including potential and actual breeding habitat, foraging habitat and roost sites. The fauna survey is restricted to terrestrial vertebrate fauna. Threatened aquatic fauna and invertebrates were considered through desktop assessment only.

¹ Environmental Protection Authority 2020, Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment, EPA, Western Australia.

² Black cockatoos collectively refer to

- Forest Red-tailed Black Cockatoo (FRTBC) (*Calyptorhynchus banksii* subsp. *naso*) (Vulnerable)
- Baudin's cockatoo (*Zanda baudinii*) (Endangered)
- Carnaby's cockatoo (*Zanda latirostris*) (Endangered)

1.3 Regulatory Context

1.3.1 Key Legislation

Key environmental legislation relevant to the survey is outlined in Table 1-1.

Table 1-1 Environmental legislation that may be relevant to the Project

Legislation	Responsible Government Department	Aspect
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Federal Department of Climate Change, Energy, the Environment and Water (DCCEEW)	Matters of National Environmental Significance including threatened fauna and environmental offsets.
<i>Biodiversity Conservation Act 2016</i> (BC Act)	WA Department of Biodiversity, Conservation and Attractions (DBCA)	Threatened species habitats, threatening processes, environmental pests and weeds.
<i>Environmental Protection Act 1986</i> (EP Act)	Environmental Protection Authority or Department of Water and Environmental Regulation (DWER)	Environmental impact assessment and management and offsets.

Fauna in WA may be afforded protection under the WA BC Act and or federal EPBC Act. All three black cockatoo species and WRP targeted in this survey are listed under the BC and EPBC Acts as:

- CE: Critically Endangered species (WRP)
- EN: Endangered species (Baudin's cockatoo and Carnaby's cockatoo)
- VU: Vulnerable species (FRTBC)

Conservation codes are described in Appendix B.

1.3.2 Guidelines

Black cockatoo habitat is typically assessed by considering breeding, roosting and foraging habitat. The black cockatoo and WRP survey methodologies were developed with consideration of:

- Commonwealth Matters of National Environmental Significance – Significant impact guidelines 1.1 Environmental Protection and Biodiversity Conservation Act 1999, Department of the Environment, Water, Heritage and the Arts (2013).
- Commonwealth Referral guideline for 3 WA threatened black cockatoo species Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) Department of Agriculture, Water and the Environment (2022).
- Commonwealth EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered), *Zanda latirostris*, Baudin's cockatoo (vulnerable), *Zanda baudinii*, and Forest red-tailed black cockatoo (vulnerable), *Calyptorhynchus banksii naso* (SEWPaC, 2012).
- Department of Parks and Wildlife (2013). Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan. Department of Parks and Wildlife, Perth, Western Australia.

- Department of Environment and Conservation (2008) Forest Black Cockatoo (Baudin's Cockatoo *Calyptorhynchus baudinii* and Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*) Recovery Plan.
- Department of Parks and Wildlife (2017). Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth, WA.
- Environmental Protection Authority (2002). Terrestrial Biological Surveys as an Element of Biodiversity Protection. Position Statement No. 3.
- Environmental Protection Authority (2020). Technical Guidance – Terrestrial Guidance for Fauna Surveys for Environmental Impact Assessment. Perth, Western Australia.
- Main Roads Black Cockatoo Impact Assessment Factsheet (D19#1011841).

1.3.3 EPBC Act Considerations

The Commonwealth of Australia (DAWE, 2022) guideline apply to the three black cockatoo species listed as threatened under the EPBC Act. Table 1-2 outlines referral thresholds based on guidance regarding actions that are likely or unlikely to require referral to the Minister for the Environment, with regard to potential significant impacts on black cockatoos.

A preliminary assessment has been made using the current proposed impacts at the time of writing, against the Foraging quality scoring tool (derived from BCE (2020)) in Appendix E of this report. Once the final impact area (proposed action) is known, the proposal should be reassessed. The scoring tool includes consideration of the three components used in the EPBC Act Offsets Assessment Guide (SEWPaC, 2012) in the calculation of habitat quality (site condition, site context and species stocking rate) by considering contextual factors relating to habitat quality to give a final habitat quality score. The preliminary assessment is made in Section 4 of this report.

Proposed impacts to WRP should be assessed against the Commonwealth Matters of National Environmental Significance – *Significant impact guidelines 1.1* (DEWHA, 2013), if relevant.

Table 1-2 Referral thresholds for black cockatoos (DAWE, 2022)

Attribute	Referral threshold	Reasons
Breeding	Any loss of / impact upon known, suitable or potential nesting trees, and the habitat around these trees, is highly likely to require a referral to the minister. Loss of any potential nesting habitat is likely to require a referral to the minister.	As identified in the conservation planning documents, clearing of breeding habitat is a known threat to the 3 species as a lack of tree hollows is a limiting factor. Habitat loss, habitat degradation, lack of recruitment, fire and competition are causing the scarcity of nesting resource.
High-quality native foraging habitat	Loss of greater than or equal to 1 ha of foraging habitat scoring 5-10 using the foraging quality scoring tool is likely to require referral to the minister.	As identified in the conservation planning documents, clearing of foraging habitat is a known threat to the 3 species. Habitat loss, habitat modification, climate change and fire are increasingly causing the scarcity of foraging resources. These resources are critical at all stages of life for the species.

Attribute	Referral threshold	Reasons
Lower-quality native foraging habitat	Loss of greater than or equal to 10 ha of foraging habitat scoring 0-4 using the foraging quality scoring tool is likely to require referral to the minister.	As identified in the conservation planning documents, clearing of foraging habitat is a known threat to the 3 species. Habitat loss, habitat modification, climate change and fire are increasingly causing the scarcity of foraging resources. These resources are critical at all stages of life for the species.
Exotic foraging habitat	Loss of greater than or equal to 1 ha of predominantly exotic habitat (e.g. Cape Lilac trees and pine trees) known to be utilised by black cockatoos is likely to require a referral to the minister.	As identified in the conservation planning documents, clearing of exotic foraging habitat is a known threat to the 3 species, noting that its value in comparison to native habitat depends upon the context.
Night roosting habitat	Removal of any part of a known night roosting site is likely to require referral to the minister.	As identified in the conservation planning documents, clearing of night roosting habitat is a known threat to the 3 species.

2 Methods

2.1 Desktop Review

A desktop study of fauna within and near the Survey Area was undertaken to determine the likelihood of any species of conservation significance (target species) occurring within the Survey Area. This included consideration of breeding, foraging habitat and roosting requirements for all three black cockatoo species and WRP habitat requirements. A species list including common (non-target) species was prepared for the DSA (up to 10 km) (Appendix C) from:

- Atlas of Living Australia (ALA, 2025) (10 km),
- Birddata (BirdLife Australia, 2025) (10 km),
- Dandjoo (DBCA, 2025a) (10 km),
- Department of Biodiversity, Conservation and Attraction's Threatened and Priority Fauna Database and black cockatoo breeding and roosting records (DBCA, 2025b) (10 km),
- Protected Matters Search Tool (Appendix C.2) (10 km).

Data from the Government of WA's Shared Land Information Platform (SLIP) (Landgate, 2025) was queried, along with relevant management plans, recovery plans, books, scientific journals and other publications, relevant survey reports (Index of Biodiversity Surveys for Assessments (IBSA) (DWER, 2025)) and expert consultation.

A brief review of the ecology, habitat and range of target species were used in an evaluation matrix to determine the likelihood of occurrence of target fauna (Appendix D). Fauna of conservation significance that may occur locally are listed in Section 3.2.1.

2.2 Field Survey

2.2.1 Survey Area

The Survey Area included patchy native remnant vegetation and paddock trees, cleared and grazed areas.

2.2.2 Site Reconnaissance

Fieldwork consisted of diurnal surveys on the 18th of November 2025, and nocturnal (spotlighting) surveys later that night. Field personnel undertaking surveys included Shane Priddle (Principal Ecologist) Maddie Barrett (Ecologist).

Surveys validated the desktop review and ground truthed fauna habitat. Fauna habitat types were documented based on structural vegetation and soil mapping where significant changes occurred. Fauna habitat quality was based on the criteria in Table 2-1 to Table 2-3. Evidence of target fauna, e.g. feed residue, scat, breeding evidence, and sightings were noted. Survey methodology for the black cockatoos and WRP components are described below.

Table 2-1 Vegetation structure (Keighery, 1994).

Life Form/Height Class	Canopy cover			
	100% to 70%	70%to 30%	30%to 10%	10% to 2%
Trees over 30 m	Tall Closed Forest	Tall Open Forest	Tall Woodland Woodland	Tall Open Woodland
Trees 10-30 m	Closed Forest	Open Forest		Open Woodland
Trees under 10 m	Low erased Forest	Low Open Forest	Low Woodland	Low Open Woodland
Mallee over 8 m (Tree Mallee)	Closed Tree Mallee	Tree Mallee	Open Tree Mallee	Very Open Tree. Mallee
Mallee under 8 m (Shrub Mallee)	Closed Shrub Mallee	Shrub Mallee	Open Shrub Mallee	Very Open Shrub
Shrubs over 2 m	Closed Tall Scrub	Tall Open Scrub	Tall Shrubland Shrubland	Tall Open Shrubland
Shrubs 1-2 m	Closed Heath	Open Heath	Low Shrubland	Open Shrubland
Shrubs under 1 m	Closed Low Heath	Open Low Heath		Very Open Shrubland
Grasses	Closed Grassland	Grassland	Open Grassland	Very Open Grassland
Herbs	Closed Herbland	Herbland	Open Herbland	Very Open Herbland
Sedges	Closed Sedgeland	Sedgeland	Open Sedgeland.	Very Open Sedgeland

Table 2-2 Vegetation condition scale (EPA, 2016).

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks

Very Good	Vegetation structure altered, obvious signs of disturbance. 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 disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, 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. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, 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 areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

Table 2-3 Fauna habitat quality categories and descriptions (SW Environmental, n.d.).

Quality	Description
Good	<ul style="list-style-type: none"> Native vegetation with intact and diverse habitat structure. Different vegetation age classes present at most stratum levels (ground, understorey, midstory, canopy). Forest/woodland: abundant hollow-bearing trees, including those with or likely to develop large hollows. Mature trees offer more foraging resources (nectar/seed). Presence of shelter/refuges at ground level (dense understorey plants, tussock, rocky outcrop, hollow logs). High habitat complexity (ecotones between vegetation types or habitat mosaic). This increases the range of foraging and shelter opportunities within a habitat. Presence of key foraging and microhabitat components for target species. Little to no obvious weed invasion or evidence of grazing. May be large patch and/or connected to other areas of native vegetation.
Moderate	<ul style="list-style-type: none"> Native flora species dominant with moderate habitat structure complexity appropriate to vegetation type. Ground litter intact or slightly disturbed. More than one age class present. Forest/woodland: low to moderate abundance of hollow-bearing trees or trees likely to develop hollows. Some shelter and refuge present for ground dwelling fauna. Some habitat complexity (ecotones between vegetation types or areas forming a habitat mosaic). Marginal presence of key microhabitat components for target species. May be small or large in scale, and isolated or well connected.
Poor	<ul style="list-style-type: none"> Habitat highly disturbed and simplified with low structural complexity. Ground litter layer absent or highly modified. Complexity reduced by only one age class present. Little or no shelter and refuge for ground dwelling fauna. Forest/woodland: not likely to support hollow-bearing trees. Lack of key foraging and microhabitat components for target species. May have evidence of weed invasion or grazing. May be narrow or small area and substantially influenced by edge effects, isolated from other areas of native vegetation.

2.2.3 Black Cockatoo Survey Methodology

Black cockatoo surveys (habitat, roost, foraging assessment and tree surveys) were conducted during the diurnal surveys. The field survey methodology was based on the Main Roads factsheet (D19#1011841) which broadly nests under the Commonwealth referral guidelines for black cockatoos (DAWE, 2022) and black cockatoo species profiles in the desktop review (Section 3.2). The profiles are based on literature review and previous work and consultation with Tony Kirkby, a recognised black cockatoo expert. Twelve km is the maximum range that black cockatoos travel from a nesting site to forage (DAWE, 2022) - the closer the distance generally the more important the foraging habitat. This assessment is based on 10 km for site context and local vegetation and habitat values.

Suitable DBH tree and hollow survey

Black cockatoos' nest in hollows formed in large, native eucalypt trees, assessed as potential habitat or "Suitable DBH trees". Suitable DBH tree refers to a suitable Diameter at Breast Height measurement. In the SW, black cockatoos normally breed in Marri (*Corymbia calophylla*), Tuart (*Eucalyptus gomphocephala*) or Karri (*Eucalyptus diversicolor*). Sometimes Jarrah (*Eucalyptus marginata*), Flooded gum (*Eucalyptus rudis*) or other native trees are used, such Blackbutt (*Eucalyptus patens*).



Photo 1 Example of multi-stemmed *E. decipiens* tree, where the main trunk has split at ground level and the largest trunk was measured.

Notes on tree records: Trees with a suitable DBH include those with a measurement ≥ 50 cm for most trees in the SW, ≥ 30 cm DBH for most Wheatbelt species e.g. Wandoo (*Eucalyptus wandoo*) and Salmon gum (*Eucalyptus salmonopholia*), and ≥ 75 cm for fast growing trees, such as eastern states eucalypts or Karri.

Mallee form or multi-stemmed trees are measured by the largest stem. If the tree is multi-stemmed around head height or beyond several metres high and under sized DBH on the main stem, unless the branch is considered large enough to support or develop large hollows they are not recorded as they are not likely to develop large hollows for many years.

Planted non endemic eucalypts such as blue gums, e.g. *Eucalyptus saligna* or *Eucalyptus globulus*, are unlikely to develop hollows unless they are at an advanced age (S. Priddle, pers obs.). There are no known records of black cockatoos breeding in eastern states eucalypts in WA. As such, they are not recorded unless they were visibly senescing, over 75cm DBH or large hollows are observed. Trees laying over or considered to have no potential to develop hollows (burnt or close to falling) are not recorded.

Trees were mapped by a handheld Garmin Global Positioning System (GPS) (~2 m accuracy). Notes were made on tree species and DBH. Each tree was assessed using binoculars. The number of hollows limited to the most suitable hollows and breeding suitability (aperture size estimate (mm), angle, height estimate (m), estimated chamber size, evidence of use) was recorded along with any use by other animals. European honeybee (*Apis mellifera*) hives may render a hollow unsuitable for the short term, so bees were also noted. Hollows that were potentially suitable or likely to provide breeding habitat were further assessed by drone or pole camera, where possible. Records *confirmed* or *not confirmed* indicate whether pole cam or drone inspection was conducted. Pole camera and/or use of drones was conducted in line with animal ethics and license requirements. Assessment criteria are provided in Table 2-1.

Table 2-4 Suitable DBH tree and hollow classes and descriptions

Cat No.	Tree Category	Description
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1	Suitable DBH Tree with Known Nesting Hollows.	Hollow where breeding has been recorded (i.e. bird/s observed in hollow) or there is evidence of previous use (i.e. hollow contains Black Cockatoo feathers or eggs).
2	Suitable DBH Tree with a potential suitably hollow with signs of use (not confirmed).	Hollows that appear to have a suitably sized entry and display signs of use, however internal dimensions have not been assessed. Although signs of use may be present, the signs, such as chew marks, could be from prospecting Black Cockatoos or other birds such as Galahs, which leave very distinctive marks on hollow and trees (impacted potentially suitably sized hollows should be confirmed by competent observer). Where hollows cannot be avoided, the status of Category 2 hollows must be reassessed during the assessment process to determine whether it is a Category 1, 3, 4 or 6 hollow.
3	Suitable DBH Tree with a suitable hollow with no signs of use (confirmed).	Hollows that appear to have a suitably sized entry, with internal dimensions assessed. Category usually based on follow up hollow assessment with pole camera or drone. Although hollow appears to be suitable, there is no evidence of Black Cockatoo use. Where hollows cannot be avoided, status of Category 3 hollows should be reassessed within 48 hours of clearing.
4	Suitable DBH Tree with a marginally unsuitable hollow with no signs of use (confirmed)	Hollows that are not currently suitable but have the potential to become suitable within five years. Where hollows cannot be avoided and have not been checked within 5 years, the hollow status must be reassessed to determine whether it has become suitable (Category 3 hollows) or a Known Nesting Hollow (Category 1 hollows).
5	Suitable DBH Tree with a potential suitable hollow with no signs of use (not confirmed).	Hollows that appear to have a suitably sized entry, however internal dimensions have not been assessed. Category usually based on ground observation only. Where hollows cannot be avoided, status of Category 5 hollows must be reassessed during the assessment process to determine whether it is a Category 1, 3, 4 or 6 hollow.
6	Suitable DBH Tree with unsuitable hollows (confirmed).	Hollows that have a hollow entry greater than 50 mm that is not suitable due to the size of its entry, internal dimensions, angle and/or height off ground.
7	Suitable DBH Tree without hollows.	Trees with a 500 mm DBH (or 300 mm for Wandoo or Salmon Gum) that do not have visible hollows (hollows with an entry opening below 50 mm not considered a hollow). Note – multiple stemmed trees that branch above DBH may not be suitable.

Foraging habitat assessment

Black cockatoo foraging habitat quality potential was calculated to provide a score out of 10 aligning with the federal Offset Assessment Guide (offsets guide). The offset guide accompanies the EPBC Act environmental offsets policy and has been developed to align with the policy's requirements to enable DCCEEW to assess impact significance and offset requirements.

The foraging value score reflects the significance of vegetation as foraging habitat for black cockatoos. The foraging value of the vegetation depends upon the type, density and condition of vegetation in an area and can be influenced by the context such as the availability of foraging habitat nearby. This assessment uses methodology derived from the BCE (2020) scoring system. Refer to Appendix E for the foraging assessment methodology. In summary, calculating the habitat quality score out of 10 requires the following steps:

- **Site condition.** Determining a score out of six for the vegetation composition, condition and structure. *Site condition* was described using structural vegetation mapping, with

presence or absence of key feed species. Key feed species are defined in the species' profiles in Section 3 and from the plant list classified as primary or secondary foraging plants as assessed in Appendix C.

- **Site context.** Determining a score out of three for the context of the site, based on the proportion of site vegetation against the total native vegetation within the DSA.
- **Species stocking rate.** Determining a score out of one for species density/occurrence.
- **Score.** Determining the total score out of 10, which may require moderation for context and species density with respect to the site condition (vegetation) score. Moderation also includes consideration of pine plantations as a special case for foraging value. Foraging habitat scores should be used as a high-level guide and be used with consideration of site context, timing and other factors. For example,
 - lower quality foraging habitat may be important during breeding periods if it is located near breeding habitat (the closer the resource the more important it may be),
 - certain feed species may be used in some regions but not in others due to a preference for other plants that may be available – the same feed species in the Jarrah Forest may not be used as heavily on the Swan Coastal Plain,
 - as primary feed plants may flower or fruit at certain times, secondary plants may become as important as the primary plants when the primary plants resources are not available and may still provide high quality foraging habitat.

Feed residue was noted if observed during the surveys.

Roosting habitat survey

Direct and indirect evidence, such as moulted or preened feathers or down, clipped branches or whitewash of black cockatoo roosting within trees on site was noted if observed. Roost sites were searched for during the diurnal surveys (secondary evidence) and birds would have been seen during the nocturnal survey.

2.2.4 Western Ringtail Possum Survey Methodology

WRP targeted surveys included diurnal and nocturnal surveys. The diurnal surveys on the 18th of November 2025 included a general habitat assessment and WRP scat searches, occurring broadly across the survey area, including at the base of trees, on fallen timber and bare ground. The presence or absence of dreys and hollows was noted. Photos were taken within all habitat types.

A nocturnal spotlight survey was conducted on the same night to survey for the distribution and abundance of WRP within the Survey Area (survey effort shown in Appendix A, Figure 3). Animals observed just outside of the Survey Area were also recorded. Surveys were conducted by two experienced surveyors each night on foot using 1000 lumen LED head torches, following transects approximately 20-40 m apart depending on vegetation density. Weather conditions were conducive for spotlighting. If observed, Common brushtail possum (CBP) (*Trichosurus vulpecula*) and South-western Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *wambenger*) (Conservation Dependent) were also recorded.

2.2.5 Publications Referenced

Publications consulted for general distribution of fauna included, but were not limited to:

- A Complete Guide to Reptiles of Australia (Wilson & Swan, 2021)
- A Field Guide to the Mammals of Australia (Menkhorst & Knight, 2011)
- Field guide to frogs of Western Australia (Tyler & Doughty, 2009)
- Frogs of Western Australia (Johnstone & Storr, 1998)
- Handbook Western Australian Birds Vol I (Johnstone & Storr, 1998)
- Michael Morcombe’s Birds of Australia eGuide, (Morcombe, 2011)
- Reptiles and Frogs in the Bush: Southwestern Australia (Bush et al., 2007)
- Scats, Tracks and Other Traces: A field guide to Australian mammals (Triggs, 2004)
- The Field Guide to the Birds of Australia (Pizzey & Knight, 2012)
- Waterbirds of South-West Wetlands (Thomson-Dans & Halse, 2001)
- Numerous online publications, journal articles and other general species references (see References section).

2.2.6 Animal Ethics

The survey conformed to Section 4 of the *Australian code of practice for the care and use of animals for scientific purposes* (National Health and Medical Research Council, 2004). No animals were captured or collected during the survey. Surveys were also carried out under Scientific Use License *Animal Welfare Act 2002* Licence to use animals for scientific purposes: Licence No: U285 / 2025 – 2027 and Wildlife Animal Ethics Committee (WAEC) Permit: WAEC 22-08-88. No nesting black cockatoos were directly disturbed during this survey.

2.3 Limitations

In accordance with relevant *Technical Guidance* (EPA, 2020), survey limitations are shown below.

Table 2-5 Assessment of survey limitations

Aspect	Constraint	Comment
Competency / experience	No	Shane Priddle (Ba Science; Certified Environmental Practitioner No.310) led the surveys and has nearly 25 years’ experience surveying for fauna throughout NSW and WA.
Scope	No	The survey scope is adequate to inform environmental assessment in relation to fauna, including black cockatoos and WRP.
Adequacy of the survey intensity and proportion of survey achieved	No	The survey effort applied was adequate to identify fauna habitat values. A precautionary approach has been adopted.
The proportion of the task achieved and further work	No	The surveys were completed adequately, to a sufficient level with respect to the scope.
Timing/weather/season	No	The surveys were completed in suitable weather conditions in spring 2025.
Disturbances	No	There were no disturbances that affected the survey.
Intensity	No	The survey effort was adequate to meet the project scope.
Completeness	No	The entire Survey Area was assessed.
Resources	No	The surveys were completed adequately.
Access problems	No	The site was within public land and accessible.

Aspect	Constraint	Comment
Identification of hollows	Low	<p>Known limitations inherent in the survey of hollows include bias with surveyors, times, differing familiarity with tree types, levels of expertise, survey conditions such as weather and time of day, and survey technique (Gorrod & Keith, 2008; Rayner et al., 2011)</p> <p>Ground counts of hollows are subjective. Some hollows may be missed, obscured, particularly hollows in branches and vertical hollows. As well as providing inaccurate counts of hollow abundance, ground surveys provide incomplete or inaccurate information on hollow dimensions and use of hollows by fauna (Koch, 2008). Generally, ground-based surveys lead to overestimation of hollows (Rayner et al. 2011, S. Priddle pers obs.). This limitation was reduced by checking hollows with a pole camera or drone for suitability where possible.</p> <p>Hollow characteristics may change over time. There is some risk, although low, that black cockatoos may breed in a hollow where evidence of use is not visible or hollow characteristics are atypical. Not all active cockatoo hollows show signs of heavy chewing, and active or past breeding hollows may be missed. Also, other animals such as Little Corella (<i>Cacatua sanguinea</i>) or Galah (<i>Eolophus roseicapilla</i>) may use black cockatoo hollows at other times of the year or between years.</p> <p>The survey lead has extensive experience in the identification and assessment of hollows and is considered competent in relation to this skill. The results are provided based on experience and professional judgement though certainty of use cannot be guaranteed without hollow watching during the breeding season.</p>

3 Desktop Review

3.1 Site Context

3.1.1 Current Land Use

The Survey Area is located within grazed pasture with patches of native vegetation and paddock trees, between the Forrest Highway and Peel Yalgorup RAMSAR Wetland system. Adjacent land includes an active sand pit along the northern boundary and cleared and grazed paddocks with disturbed areas of native vegetation.

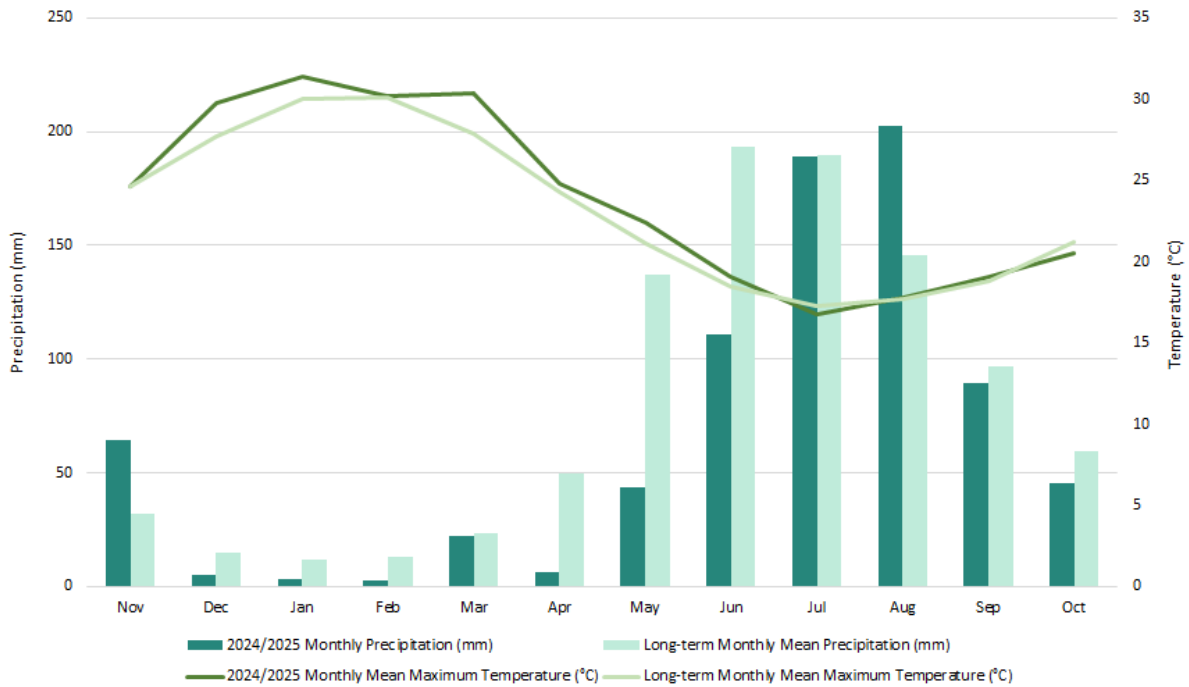
3.1.2 IBRA Region and Climate

The Survey Area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation for Australia (IBRA) bioregion, specifically within the Perth (SWA02) IBRA subregion (DCCEEW, 2022, 2023). The SWA02 IBRA subregion is typically of a warm, Mediterranean climate, experiencing an average annual rainfall of 600 to 1,000 millimeters (mm) (Mitchell et al., 2002).

Graph 3-1 presents climatic information for the 12 months preceding the survey (November 2024 to October 2025), along with long-term climate data at the most relevant Bureau of Meteorology climate stations. The most comprehensive temperature and rainfall data was gathered from the Bunbury station (number 9965) and Brunswick Junction station (number 9513), respectively (BoM, 2025). The Bunbury weather station is located approximately 29 km from Myalup town, and the Brunswick Junction station is ~19 km away (BoM, 2025).

Long-term mean maximum temperatures range from 30.1°C in the hottest month of February, to 17.3°C in the coolest month of July. Temperatures exceeded or were equal to the long-term average over ten of the all 12 months preceding the survey (Graph 3-1)(BoM, 2025).

The long-term average annual rainfall is 966.4 mm. Annual precipitation from the 12 months preceding the survey was recorded at 182 mm below average (BoM, 2025). Precipitation was below average over ten of the 12 months preceding the survey, with the greatest variation occurring in May 2025 where rainfall was 93.8 mm below average (Graph 3-1)(BoM, 2025). Recent winter precipitation was ~ 20 mm below average (Graph 3-1)(BoM, 2025).



Graph 3-1 Temperature and rainfall data from the Bunbury and Brunswick Junction weather stations, respectively (BoM, 2025)

3.1.3 Local Habitat Remaining

Native vegetation remaining (DPIRD, 2024), along with DBCA-managed reserve areas (DPIRD, 2025) within 10 km of the Survey Area, is presented in Table 3-1. Broadly, the Swan Coastal Plain Region has been subject to heavy, historical clearing pressures. The area of native vegetation remaining within 10 km of the Survey Area accounts 26 % of the total area with approximately 30 % of the DSA reserved and managed by DBCA. This is mostly associated with the Myalup State Forest and Yalgorup National Park (Landgate, 2025).

Table 3-1 Areas of DBCA reserves and native vegetation remaining within a 10 km foraging distances from the Survey Area (Landgate, 2025)

Foraging range	Total area (ha)*	Native vegetation (including regrowth) remaining % of total area, Area (ha)	Reserved (DBCA) %, Area (ha)*
10 km	32,590	8,495 (26 %)	9,809 (30 %)

* Marine areas have been excluded from the total

3.1.4 Habitat Connectivity

The South West Regional Ecological Linkages (SWREL) project (Molloy et al., 2009) identifies regional scale ecological linkages and aims to respond to the issues of fragmentation and climate change through land use planning policy and procedures. It also seeks to retain native vegetation and fauna habitat and reduce the loss of biodiversity and ecological function in the southwest. The SWREL axis lines can be summarised as a series of vegetation patches which, due to their proximity, act as habitat

stepping stones, thereby facilitating ecological processes and movement of organisms within and across the landscape (i.e. at the landscape scale).

The capacity for fauna to move is generally related to size; the larger the animal the greater the ability to cover a larger area (Molloy et al., 2009). Studies referred to in the SWREL Technical Report generally indicate (simplified) that:

- Small mammals may cross widths of up to 100 m while dispersing,
- small insectivorous passerines may cross gaps up to 20 m but not over 80 m,
- arthropods and small lizards are generally sedentary in nature and unlikely to move between patches,
- small invertebrates (as pollinators) will generally not disperse over 100 m, and
- Frogs will generally disperse over 150m.

The above indicates that while vegetation gaps will, to some degree, compromise the capacity for fauna to persist, gaps of <100 m will not bring about a significant barrier to the dispersal of many fauna species. A gap of 1000 m between patches of remnant vegetation is recognised as a major barrier to the movement of many fauna species and represents a threshold, that once crossed, presents a major decline in biotic interaction.

The vegetation within the east of the Survey Area is mapped as 2b: with an edge touching or <100m from a natural area selected in 2a. This is a relatively low value for retention and reflective of the disturbance history of the site.

3.2 Fauna Records

3.2.1 Fauna Recorded Locally

Desktop searches for fauna that may occur or have been recorded within DSA yielded 227 vertebrate terrestrial fauna species (Appendix C.1):

- 7 amphibians.
- 185 birds,
- 21 mammals, and
- 14 reptiles

At least eight of the listed fauna are introduced or naturalised species. Invertebrates, marine or aquatic species (fish) are not included in this list. Marine species have generally been excluded as the Survey Area is in a terrestrial setting. Wetland birds are listed but would not frequent the Survey Area.

The Yalgorup Important Bird Area (IBA) defined as conservation priority by BirdLife International, associated with the Peel Yalgorup Wetlands, is located less than 500 m west of the Survey Area (BirdLife International, 2025b, 2025a). The site supports fairy terns, large numbers of hooded plovers and over 1% of the world populations of Australian shelducks, red-necked stints, banded stilts and, sometimes, musk ducks. Other birds recorded on the lakes in large numbers include red-capped plovers, red-necked avocets, Pacific black ducks, little black cormorants, great crested grebes and black swans (BirdLife International, 2025b, 2025a).

3.2.2 Fauna of Conservation Significance

Based on the searches, 15 threatened terrestrial vertebrate fauna, eight Priority species and two Conservation Dependant or Specially Protected fauna may occur locally (not necessarily within the Survey Area). Additionally, two invertebrates of conservation significance and 33 Migratory birds have been recorded locally. Species likelihood of occurrences are evaluated in Appendix D, along with additional species that may occur but were not returned in the searches.

3.3 Black Cockatoos

3.3.1 Profiles

The Survey Area falls within the Swan Coastal Plain habitat zone (DAWE, 2022), used by black cockatoos primarily for foraging resources, with some small patches of breeding habitat. Vegetation used by black cockatoos is dominated by *Banksia* spp. and Tuart (*Eucalyptus gomphocephala*) woodlands, as well as Marri (*Corymbia calophylla*), with Jarrah (*E. marginata*) in the east. A key focus for this region is the ongoing viability of foraging resources for black cockatoos, particularly Carnaby's Cockatoo. Some parts of this region meet the definition for ecological communities in the EPBC Act list of threatened ecological communities, including Banksia Woodlands of the Swan Coastal Plain ecological community, which is listed as Endangered, and the Tuart Woodlands and Forests of the Swan Coastal Plain ecological community, which is listed as Critically Endangered. Vegetation in this region is fragmented and represented poorly in conservation reserves. The pine plantations north of the Perth metropolitan area and between Mandurah and Bunbury also provide foraging and night roosting habitat in this region (DAWE, 2022).

There are records of all three black cockatoo species occurring broadly within 20 km of the Survey Area (DBCA, 2025b) but only Carnaby's cockatoos within the DSA (10 km) – 0 FRTBC (65 records within 20 km), 0 Baudin's cockatoos (15 records with 20 km) and 171 Carnaby's cockatoos (621 records in 20 km). Species profiles are provided below.

Baudin's cockatoo (*Zanda baudinii*)

EN (EPBC Act), EN (BC Act)

Baudin's cockatoo is a large forest cockatoo endemic to the southwest of WA. Depending on the region of origin, Baudin's cockatoo is a resident, a post nuptial nomad or migrant, with the bulk of the population vacating the coldest parts of their range (the Karri Forest) in the autumn and migrating northwards during the non-breeding season. Small numbers also appear resident in a few places including Leeuwin – Naturaliste Ridge and Manjimup (Johnstone & Kirkby, 2008). Flock sizes vary from small family groups to large aggregations at roosting sites.

Breeding mainly takes place in forested areas from August to November (egg laying dates) (Tony Kirkby, pers comm.) (DAWE, 2022). Baudin's cockatoo breeds in remnant woodland or forest, but may also breed in partially cleared areas, including isolated trees. Nests are in hollows in live or dead trees particularly Karri, Marri, Jarrah, Wandoo, Bullich and Tuart (DAWE, 2022).

In the non-breeding season, Baudin's cockatoo is mainly an inhabitant of Jarrah Marri Forest but also farmland and orchards. Its main food is Marri from which it takes seeds, flowers, grubs, and nectar. Its long bill is adapted to removing seeds from Marri nuts. It feeds on a variety of other foods, including nectar and seeds from *Hakea* and *Banksia* spp., rarely Jarrah, the pith of Kangaroo Paw (*Anigozanthos flavidus*), tips of *Pinus* spp., *Macadamia* spp., almonds and pecans, seeds and fruit of apples and pears (DAWE, 2022).

Roost sites are usually in or near riparian environments or other permanent water sources in tall trees; any tree may provide roosting habitat, but particularly Jarrah, Flooded Gum, Blackbutt, Tuart and introduced *Eucalyptus* spp. (Blue Gum, Lemon Scented Gum) (DAWE, 2022; Johnstone & Kirkby, 2008).

Carnaby's cockatoo (*Zanda latirostris*)

EN (EPBC Act), EN (BC Act)

Carnaby's cockatoo mainly occurs in or near eucalypt woodlands, especially those dominated by Wandoo or Salmon Gum, and sometimes in forests of Marri, Jarrah, Karri and Tuart. It is a postnuptial nomad, moving west after breeding. Nesting occurs mainly in the Wheatbelt but is increasingly occurring on the west and south coast. This species is currently expanding its breeding range westward and south into the Jarrah Marri Forests of the Darling Scarp and into the Tuart forests of the Swan Coastal Plain along with the Capes Region (S. Priddle pers obs.). This may be due to climate change (Cale, 2003; SPRAT, n.d.; WA Museum, 2010).

Breeding occurs mainly from early July to mid-December normally in remnant woodland or forest, but also in partially cleared areas, including isolated trees. Nests are in hollows in live or dead trees, particularly Salmon Gum, Wandoo, Tuart, Jarrah, Flooded Gum, York Gum, Powderbark, Karri and Marri (DAWE, 2022). Breeding success is largely dependent on suitable feeding habitat near the nest site to provide food necessary for the survival of the chick (Johnstone et al., 2011).

The species forages in native shrubland, kwongan heathland and woodland dominated by proteaceous plant species, on seeds, flowers and nectar of *Banksia* spp., *Hakea* spp. and *Grevillea* spp., as well as *Callistemon* spp. and Marri, and in eucalypt woodland and forest that contains foraging species, individual trees and small stands of these species. It also feeds on seeds of introduced species including *Pinus* spp., *Erodium* spp., wild radish, canola, almonds, macadamia and pecans; insects and insect larvae; occasionally apples and persimmons; and liquidambar (DAWE, 2022).

Carnaby's cockatoos roost near riparian environments or other natural or artificial permanent watersources. Any tall trees may provide roosting habitat, but particularly Flat-topped Yate, Salmon Gum, Wandoo, Marri, Karri, Blackbutt, Tuart, introduced *Eucalyptus* spp. and introduced *Pinus* spp. (DAWE, 2022).

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

VU (EPBC Act), VU (BC Act)

The FRTBC is a large forest cockatoo, endemic to the Southwest. FRTBC occurs throughout the Jarrah Marri Karri forested areas and more recently on the Swan Coastal Plain. Group sizes vary from small family groups and pairs to larger gatherings at roost sites.

FRTBC generally breed in remnant woodland or forest but may also breed in partially cleared areas, including isolated trees. They nest in hollows in live or dead trees particularly Marri, Karri, Wandoo, Bullich, Blackbutt, Tuart and Jarrah (DAWE, 2022; Johnstone et al., 2013). FRTBC have been recorded breeding in all months, but with peaks in Spring and Autumn following Marri (or Jarrah) fruit flushes. There are also years when very little breeding takes place (Johnstone and Kirkby, unpublished data).

FRTBC diet is mostly (90%) seeds of Jarrah and Marri in woodlands and forest, and in the edges of Karri forests, with the remainder made up of Blackbutt, *E. staeri* (Albany Blackbutt), Bullich, *Hakea* spp, Tuart, Western Sheoak (*Allocasuarina fraseriana*), Snottygobble (*Persoonia longifolia*) and the non-indigenous Australian native *Melia azederach* (Cape Lilac) (Johnstone & Kirkby, 1999). The species forage on cones, the fruits of Snottygobble and Mountain Marri. On the Swan Coastal Plain, the species often feed on introduced *Corymbia maculata* (Spotted Gum), Cape Lilac, *Eucalyptus caesia*, *E. erythrocorys*, Lemon-scented Gum and Kaffir Plum (DAWE, 2022).

FRTBC are known to roost within any tall trees that may provide roosting habitat, particularly tall Jarrah, Marri, Blackbutt, Tuart and introduced *Eucalyptus* spp. trees or large trees on the edges of forests (DAWE, 2022).

3.3.2 Breeding Requirements and Records

All three black cockatoos rely on large hollows for breeding, which take many years to form. The onset of hollow formation is dependent on damage to the tree, from animals (normally termites) or dropped branches, then further rotting. Fire does not appear to be a hollow-forming process; it may reduce the quality and number of hollows over time (S. Priddle pers obs.). Young and healthy trees can quickly heal after damage and trees less than 100 years old are unlikely to contain large hollows. Supporting literature identifies suitable breeding hollows as occurring in:

- Trees over 150 years old (Koch, 2008),
- marri trees aged ~200 years and Jarrah (~300 years), with an average tree being inhabited at ~400 years for Marri and ~500 years for Jarrah (Inions et al., 1989),
- marri trees aged between 140 and 410 years of age (Johnstone et al., 2015),
- jarrah trees aged between 120 and 150 years (Whitford, 2002),
- marri trees aged at ~450 years, utilised by the medium sized Long-billed Corella (smaller than black cockatoos) (Mawson & Long, 1994), and
- jarrah trees aged at over 1000 years (as stags) (Wayne, 2005).

For nesting, black cockatoos show a preference for:

- Large senescing trees,
- hollows not angled more than 45 degrees from vertical,
- entrances of at least 12 cm but usually much larger (20-40 cm), and
- deep or well-sheltered hollows in main trunks, or large branches which can provide a floor space of at least 30 cm diameter or more.

All three species of black cockatoo are of similar size and utilise similar hollows when breeding. The actual species of tree is likely unimportant. For example, Carnaby's cockatoo nest in Marri trees in the Marri Forest and Wandoo in the Wheatbelt. All three species may use the same individual hollows when not occupied in the breeding season by other black cockatoo species (Kirkby pers comm, 2019). Suitable hollows may also be used interchangeably with other medium sized birds such as corellas, Galah, ducks and owls. Marri and Jarrah trees are considered by Commonwealth of Australia (DAWE, 2022; SEWPaC, 2012) to be large enough to develop hollows once they are >50 cm DBH. Wheatbelt species such as Wandoo and Salmon Gum may develop hollows at 30 cm DBH (DAWE, 2022). Karri and planted eastern states *Eucalyptus* spp. such as blue gums are generally unlikely to develop hollows unless they are at an advanced age (at least 75cm DBH but usually much larger).

While breeding, black cockatoos will generally forage within a 6 – 12 km radius of their nesting site. Following breeding, birds assemble into flocks and move through the landscape searching for food, usually within 6 kms of a night roost (SEWPaC, 2012). Black cockatoos rely on access to watering points in selecting night roost sites, with roost sites usually within two kms of a watering point where they often drink in the afternoon following daytime feeding (DAWE, 2022).

There are no known breeding hollows recorded in the DBCA database records within 5 km of the Survey Area (DBCA, 2025b), with frequent records 6 km north of the Survey Area associated with the Forrest Highway.

3.3.3 Foraging Context and Records

The regional context of black cockatoo foraging habitat within the Survey Area was assessed through estimating the likely extent of suitable foraging habitat within a 10 km radius (Landgate, 2025). The presence of likely black cockatoo habitat was then assessed within each Vegetation Association, particularly regarding the occurrence of foraging structural flora occurring within the known distribution for each species. This calculation is a maximum extent, as some areas may not provide suitable feed species or be in poor condition (Landgate, 2025).

Table 3-2 Native vegetation within 10 km of the DSA (32,590 ha) that may or may not be utilised by black cockatoos

Vegetation Association (Government of Western Australia, 2019)		Area (ha)	Habitat		
			Carnaby's	Baudin's	FRTBC
6	Medium woodland; tuart & jarrah	1,400	Primary	Primary	Primary
998	Medium woodland; tuart	3,444	Primary	Nil	Secondary
1000	Mosaic: Medium forest; jarrah-marri / Low woodland; banksia / Low forest; teatree (Melaleuca spp.)	1,891	Primary	Primary	Primary
SUM		6,735	6,735	3,291	6,735
27	Low woodland; paperbark (Melaleuca sp.)	63	Nil	Nil	Nil
48	Shrublands; scrub-heath	480	Nil	Nil	Nil
125	Bare areas; salt lakes	133	Nil	Nil	Nil
129	Bare areas; dune sand	447	Nil	Nil	Nil
1007	Mosaic: Shrublands; Acacia lasiocarpa & Melaleuca acerosa heath / Shrublands; Acacia rostellifera & Acacia cyclops thicket	634	Nil	Nil	Nil
SUM		1,757			
TOTAL		8,492			

3.3.4 Roosting Behaviour and Records

Most roosts are in a large stand of tall trees, with a dense canopy and close to permanent water. Roosting trees need to be a suitable height, have a leafy canopy to shield the birds and help retain body heat. Smaller roost sites up to 8 km away from the main roosts are sometimes used when foraging distances from the main roost become too great (e.g. Carnaby's cockatoo and FRTBC when Jarrah fruit has been exhausted locally) (S. Priddle pers obs., Johnstone et al., 2010).

Baudin's and Carnaby's cockatoos often roost as individuals (about 30 cm or more apart) in the outermost thin branches of the canopy, often among a clump of dense leaves, and generally in positions that are wind affected. FRTBC, however, roost side-by-side in family groups and on thick, protected perches under tall tree canopy (Johnstone et al., 2011).

DBCA database records no roosts within 5 km of the Survey Area, but one WTBC roosts approximately 6 km east of the Survey Area (Site HARMYAR002 with a maximum of 155 birds, from 4 surveys).

3.4 Western Ringtail Possum

3.4.1 Profile

Western ringtail possum (WRP) (*Pseudocheirus occidentalis*)

CE (EPBC Act), CE (BC Act)

WRP mostly inhabit Peppermint and Peppermint-Tuart associations from Bunbury to Albany but also occur in Jarrah Marri forest in lower densities. The highest densities of WRP occur in the Swan Coastal Plain and South Coast (Biota, 2020; Shedley & Williams, 2014). Peppermint leaves form the basis of the WRP diet in coastal areas, but when unavailable, the dominant myrtaceous species are preferred. In the inland forest, Jarrah and Marri are the main food source. Garden plant varieties are also exploited in urban areas. WRP also feed on new shoots, flowers, leaves and/or fruiting bodies from a range of flora including *Nuytsia floribunda*, *Acacia saligna*, *Hardenbergia comptoniana*, *Allocasuarina fraseriana*, *E. gomphocephala*, *E. rudis*, *Melaleuca viminea*, *M. cuticularis*, *M. raphiophylla*, *Kunzea glabrescens* and *Xylomelum occidentale* (Shedley & Williams, 2014).

WRP use a range of nest and shelter sites to avoid predators and exposure to the weather. Dreys are constructed in the canopy if hollows are not available. Adequate nest and shelter sites are necessary components of good quality habitat (Jones et al., 1994; Shedley & Williams, 2014).

Fox predation is one of the main threats and causes of mortality to WRP (Wayne, 2005) along with the loss and fragmentation of native vegetation. This is due to their high dependence on midstorey and overstorey vegetation for food, shelter and protection from predators. In the Jarrah Marri forests, for example around Margaret River, the highest relative abundance occurs in areas with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history), that are intensively fox-baited and have low indices of fragmentation (DSEWPaC, 2010).

Critical habitat for the species as outlined in the Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan (DPaW, 2017) is as follows:

Habitat critical to survival for WRP is not well understood, and is therefore based on the habitat variables observed where WRP possums are most recorded. These appear to vary between key management zones. The common themes however are high nutrient foliage availability for food, suitable structures for protection/nesting, and canopy continuity to avoid/escape predation and other threats. Long-term survival of the species requires linkages between suitable habitat patches and as such habitat critical to survival incorporates this. Vegetation communities critical to the species include long unburnt mature remnants of peppermint (*Agonis flexuosa*) woodlands with high canopy continuity and high foliage nutrients (high in nitrogen and low toxin levels); Jarrah / Marri forests and woodlands with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history), that are intensively fox-baited and have low indices of fragmentation; coastal heath, Jarrah/Marri woodland and forest, peppermint woodlands, myrtaceous heaths and shrublands, Bullich (*Eucalyptus megacarpa*) dominated riparian zones and karri forest. Any habitat where WRP occur naturally are considered critical and worthy of protection.

The Survey Area falls outside of but between sections of the Swan Coastal Plain Management Zone in the Recovery Plan zones (DPaW, 2017), approximately 25 km north of the closest mapped Zone.

3.4.2 Local Context and Records

Three key management zones have been established in DPaW (2017), comprising areas known to currently, or previously support large numbers of WRP. These management zones include the Swan Coastal Plain zone, Southern Forest zone and South Coast zone. The survey area falls within outside

but between sections of the Swan Coastal Plain management zone, detailed in Biota (2020). Biota (2020) undertook a regional survey of WRP which estimated a combined number of over 20,000 WRP within the areas surveyed from the three regional populations. Population estimates within the survey areas included the Swan Coastal Plain zone at 9,270 individuals, the Southern Forest zone at 7,500 individuals and the South Coast zone at 3,340 WRP. These results were based on density sampling and provide an estimate of population size for subpopulations within the Swan Coastal Plain management zone. The Biota (2020) surveys within the adjacent Yalgorup NP, but approximately 18 km north of the Survey Area, estimated a density of 0.44 WRP per hectare.

The DBCA (2025b) database contains 27 records of WRP within the DSA, with the closest at 1.6 km from the Survey Area.

4 Results and Discussion

4.1 Habitat Characteristics



Three key fauna habitat types and their corresponding vegetation descriptions are listed in Table 4-1 and mapped in Figure 3 (Appendix A):

- 1 Peppermint low open woodland and paddock trees on sandy soils (1.19 ha).
- 2 Coastal dune mallee with occasional Peppermint on limestone uplands and slopes (0.35 ha)
- 3 Redheart and Peppermint mid open woodland to woodland on limestone soils (1.06) and Jarrah trees (0.16 ha)³.
- 4 Cleared includes pasture, tracks and bare earth (5.35 ha).

General fauna habitat quality ranged from poor to moderate (Table 2-3) due to low connectivity within the site, lack of native understorey, low habitat complexity and lack of hollows. Vegetation within the Survey Area is mapped as degraded to completely degraded (EPA, 2016).

³ Jarrah has been excised due to elevated foraging habitat value to black cockatoos.

Table 4-1 Fauna habitat type summary occurring within the Survey Area

Type	Fauna habitat type description	Area (ha)	Photo
1	<p>Peppermint low open woodland and paddock trees over weedy understorey on sandy soils:</p> <p>Peppermint (<i>Agonis flexuosa</i>) low open woodland to woodland over <i>Hibbertia cuneiformis</i> isolated to sparse mid to tall shrubs on stony and sandy rises and slopes</p>	1.19	 <p>18.11.2025 17:00 32.97012, 115.69785 Ludlow Rd, Myalup WA</p>
2	<p>Coastal dune mallee with occasional Peppermint over weedy understorey on limestone uplands and slopes</p> <p><i>Eucalyptus foecunda</i> low mallee woodland with <i>Agonis flexuosa</i> low open woodland to woodland over <i>Hibbertia cuneiformis</i> isolated to sparse mid to tall shrubs over weed grass on outcropping limestone uplands and slopes</p>	0.35	 <p>18.11.2025 17:57 32.97088, 115.69822 Ludlow Rd, Myalup WA</p>

3 **Redheart and Peppermint mid open woodland to woodland over weedy understorey on limestone soils:**
Redheart (*Eucalyptus decipiens*), *Agonis flexuosa* mid open woodland to woodland over *Melaleuca systema*, *Templetonia retusa* mid sparse to open shrubland on outcropping limestone uplands and slopes.

1.06



3.1 **Jarrah trees over weedy understorey**
Jarrah (*Eucalyptus marginata*) paddock trees

0.16



4

Cleared

Includes pasture, tracks and bare earth

5.35



4.2 Suitable DBH Trees

The survey identified 40 suitable DBH trees (DBH >50 cm), including 5 Jarrah, and 45 Redheart (Figure 4, Appendix A). An additional 50 trees were also recorded between 30-49 cm (10 Jarrah, and 40 Redheart). Generally, Redheart were multi-stemmed, with the main joining roots normally at or just below the ground surface. This made recording of individual trees difficult and may have contributed to a higher count of trees being recorded (as stems).

4.3 Fauna Recorded

During the site visit, 19 fauna taxa were detected within the Survey Area and adjacent areas (Table 4-2). This included 16 birds and 3 mammals. Of these, none were target species (of conservation significance). There were numerous woodland birds that were not recorded but are in adjacent areas. Other animals are likely to occur but are more cryptic, nocturnal or would not have been detected during the brief diurnal reconnaissance visit (including bats, reptiles or frogs which may not have been calling). In addition, some species may only use the site as a part of a larger area of occupancy, for example birds.

Table 4-2 Fauna recorded within the Survey Area

Class	Family	Taxon	Vernacular Name	Observed
Aves	Acanthizidae	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	x
	Acanthizidae	<i>Acanthiza inornata</i>	Western Thornbill	x
	Alcedinidae	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	x
	Anatidae	<i>Tadorna tadornoides</i>	Australian Shelduck	x
	Cacatuidae	<i>Eolophus roseicapilla</i>	Galah	x
	Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	x
	Corvidae	<i>Corvus coronoides</i>	Australian Raven	x
	Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow	x
	Maluridae	<i>Malurus splendens</i>	Splendid Fairy-wren	x
	Meliphagidae	<i>Anthochaera carunculata</i>	Red Wattlebird	x
	Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater	x
	Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth	x
	Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck	x
	Threskiornithidae	<i>Threskiornis molucca</i>	Australian White Ibis	x
	Threskiornithidae	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	x
	Zosteropidae	<i>Zosterops lateralis</i>	Silveryeye	x
Mammalia	Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit	x
	Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo	x
	Phalangeridae	<i>Trichosurus vulpecula</i>	Common Brushtail Possum	x

4.4 Fauna of Conservation Significance

4.4.1 Local Records

A threatened fauna evaluation table was prepared for conservation significant fauna, based on the desktop assessment and site survey (Appendix D). Aquatic, marine, marine migratory, and regionally extinct species are excluded. Of the remaining 26 terrestrial vertebrate fauna of conservation significance that may occur within the Survey Area, none were observed at the site, although three taxa may occur within the Survey Area at times (shaded yellow, Table 4-3). The degraded condition of the site would limit the area's suitability for species that may have otherwise occurred.

Table 4-3 Conservation significant fauna that may occur within the Survey Area, based on habitat suitability.

CLASS - Family	Genus species Vernacular	Status Federal	Stat. WA	Presence of habitat	Likelihood of occurrence
AVES - Cacatuidae	<i>Calyptorhynchus banksii naso</i> Forest Red-tailed Black Cockatoo	VU	VU	Present - supporting	Possible
AVES - Cacatuidae	<i>Zanda latirostris</i> Carnaby's Cockatoo	EN	EN	Present - supporting	Possible
AVES - Falconidae	<i>Falco peregrinus</i> Peregrine Falcon	-	OS	Present - supporting	Possible

4.4.2 Species Profiles and Site Values

The following sections consider the value of the Survey Area to fauna of conservation significance that possibly occur or were identified within the Survey Area. Black cockatoos are discussed in Section 4.5 onwards and WRP in Section 4.8.

Peregrine Falcon

The Survey Area may be utilised by Peregrine Falcon for hunting as part of a much larger habitat patch. The nearest records are 3 km north (DBCA, 2025b). Breeding within the site is considered unlikely due to lack of habitat.

4.5 Black Cockatoo Breeding

No hollow bearing trees were recorded within the Survey Area. Of the 40 suitable DBH trees (DBH >50 cm), only 5 Jarrah have some potential to develop the large hollows required by black cockatoos for breeding (Figure 4, Appendix A). Even then, Jarrah are typically much less likely than Marri or other known potential breeding tree species to develop significant hollows due to the wood 'coning' out during snaps and being more termite resistant than Marri, Tuart and Karri (pers obs). The 45 Redheart are also considered unlikely to develop hollows suitable for black cockatoo breeding within the Survey Area, given that they are of a low height and are in mallee form.

4.6 Black Cockatoo Foraging

4.6.1 Black Cockatoo Foraging Field Results

No feed residue was observed, nor were any black cockatoos seen utilising the site or flying over during the survey. Table 4-4 provides black cockatoo foraging species across each habitat type and condition, based on Appendix F.

Table 4-4 Black cockatoo foraging species across habitat types

Species	Primary Foraging Species	Secondary Foraging Species	Site Condition
1. Peppermint low open woodland and paddock trees on sandy soils			
Completely Degraded or Degraded: 1.19 ha			
Good or better condition: 0.00 ha			
Baudin's cockatoo	-	-	1. Nil to Low
			-
Carnaby's cockatoo	-	<i>Agonis flexuosa</i>	2. Low (1.19 ha)
			-
FRTBC	-	-	1. Nil to Low
			-
2. Coastal dune mallee with occasional Peppermint on limestone uplands and slopes			
Completely Degraded or Degraded: 0.35 ha			
Good or better condition: 0.00 ha			
Baudin's cockatoo	-	-	1. Nil to Low
			-
Carnaby's cockatoo	-	<i>Agonis flexuosa</i>	2. Low (0.35)
			-
FRTBC	-	-	1. Nil to Low
			-
3. Redheart and Peppermint mid open woodland to woodland on limestone soils			
Completely Degraded or Degraded: 1.06 ha			
Good or better condition: 0.00 ha			
Baudin's cockatoo	-	-	1. Nil to Low
			-
Carnaby's cockatoo	-	<i>Agonis flexuosa</i>	2. Low (1.06 ha)
			-
FRTBC	-	<i>Eucalyptus decipiens</i>	2. Low (1.06 ha)
			-
3.1 Jarrah trees			
Completely Degraded or Degraded: 0.16 ha			
Good or better condition: 0.00 ha			
Baudin's cockatoo	-	<i>Eucalyptus marginata</i>	2. Low (0.16 ha)
			-
Carnaby's cockatoo	<i>Eucalyptus marginata</i>	-	3. Low to Moderate (0.16 ha)
			-
FRTBC	<i>Eucalyptus marginata</i>	-	3. Low to Moderate (0.16 ha)
			-

4.6.2 Foraging Scoring Tool Assessment Results

The total score (out of 10) is provided in Table 4-5, calculated from vegetation composition, condition and structure, site context and species stocking rate, as detailed in Section 2.2.3 and Appendix B. The foraging habitat quality scores are mapped in Figure 4 (Appendix A), based on the highest foraging score of any black cockatoo species.

The foraging habitat quality of each habitat are summarised below from Table 4-5 (DAWE, 2022) corrected with Site Context and Stocking Rate in Table 2 of Appendix E:

- Baudin's cockatoo – 2.76 ha of Lower quality foraging habitat,
- Carnaby's cockatoo - 2.76 ha of Lower quality foraging habitat, and
- FRTBC cockatoo - 2.76 ha of Lower quality foraging habitat.

Table 4-5 Black cockatoo Foraging Scoring Tool Assessment Results

Species	Site Condition Score +	Site Context + (refer to Table 3.2)	Stocking Rate	= Final Score	Foraging Habitat Quality (DCCEEW 2022)
1. Peppermint low open woodland and paddock trees on sandy soils - 1.19 ha					
Baudin's cockatoo	1. Nil to Low (1.19 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	1	Lower (0-4)
Carnaby's cockatoo	2. Low (1.19 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	2	Lower (0-4)
FRTBC	1. Nil to Low (1.19 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	1	Lower (0-4)
2. Coastal dune mallee with occasional Peppermint on limestone uplands and slopes – 0.35 ha					
Baudin's cockatoo	1. Nil to Low (0.35 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	1	Lower (0-4)
Carnaby's cockatoo	2. Low (0.35 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	2	Lower (0-4)
FRTBC	1. Nil to Low (0.35 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	1	Lower (0-4)
3. Redheart and Peppermint mid open woodland to woodland on limestone soils - 1.06					
Baudin's cockatoo	1. Nil to Low (1.06 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. based on Nil to Low moderation	1	Lower (0-4)
Carnaby's cockatoo	2. Low (1.06 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. based on Nil to Low moderation	2	Lower (0-4)
FRTBC	2. Low (1.06 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. based on Nil to Low moderation	2	Lower (0-4)
3.1 Jarrah trees – 0.16 ha					
Baudin's cockatoo	2. Low (0.16 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	2	Lower (0-4)
Carnaby's cockatoo	3. Low to Moderate (0.16 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	3	Lower (0-4)
FRTBC	3. Low to Moderate (0.16 ha)	0. < 0.1% Local breeding known/likely Local breeding unlikely (foraging habitat only) < 1%	0. No foraging evidence	3	Lower (0-4)

4.7 Roosts

There was no evidence of black cockatoo roosting within or immediately adjacent to the Survey Area.

4.8 WRP Results

No WRP, WRP dreys or scats were recorded during the surveys. One Common brushtail possum was recorded just outside of the Survey Area, within a tuart tree. It is unlikely that WRP would be utilising the site.

5 Conclusions and Recommendations

The fauna assessment determined that the proposed 8.11 ha quarry extension at Lot 5 Ludlow Road, Myalup supports predominantly degraded to completely degraded fauna habitat with limited ecological value. While small areas of Peppermint, Redheart, Coastal dune mallee and isolated Jarrah trees occur, habitat quality is low, due to fragmentation, simplified vegetation structure, absence of understorey and a lack of hollows.

No Threatened fauna were recorded during the surveys, and only three conservation-significant species, being Carnaby's Cockatoo, Forest Red-tailed Black Cockatoo and Peregrine Falcon may use the site as potential supporting habitat, occasionally. No black cockatoo breeding hollows, suitable hollow-bearing trees, or roosting evidence were identified. All assessed areas of vegetation provide lower-quality foraging habitat, and the total potential impact area is well below EPBC Act referral thresholds for black cockatoo foraging.

No Western Ringtail Possums, dreys, or scats were detected, and habitat conditions indicate the species is unlikely to utilise the Survey Area.

Overall, the proposed clearing is expected to have a low impact on fauna. Once the final clearing footprint is confirmed, the black cockatoo foraging assessment should be briefly updated to validate EPBC referral requirements. Based on current information, however, a referral is unlikely to be triggered.

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Appendix A Figures

Figure 1 Desktop Study Area

Figure 2 Survey area

Figure 3 Fauna habitats

Figure 4 Suitable DBH trees and black cockatoo foraging habitat quality

Figure 5 Nocturnal survey effort and results

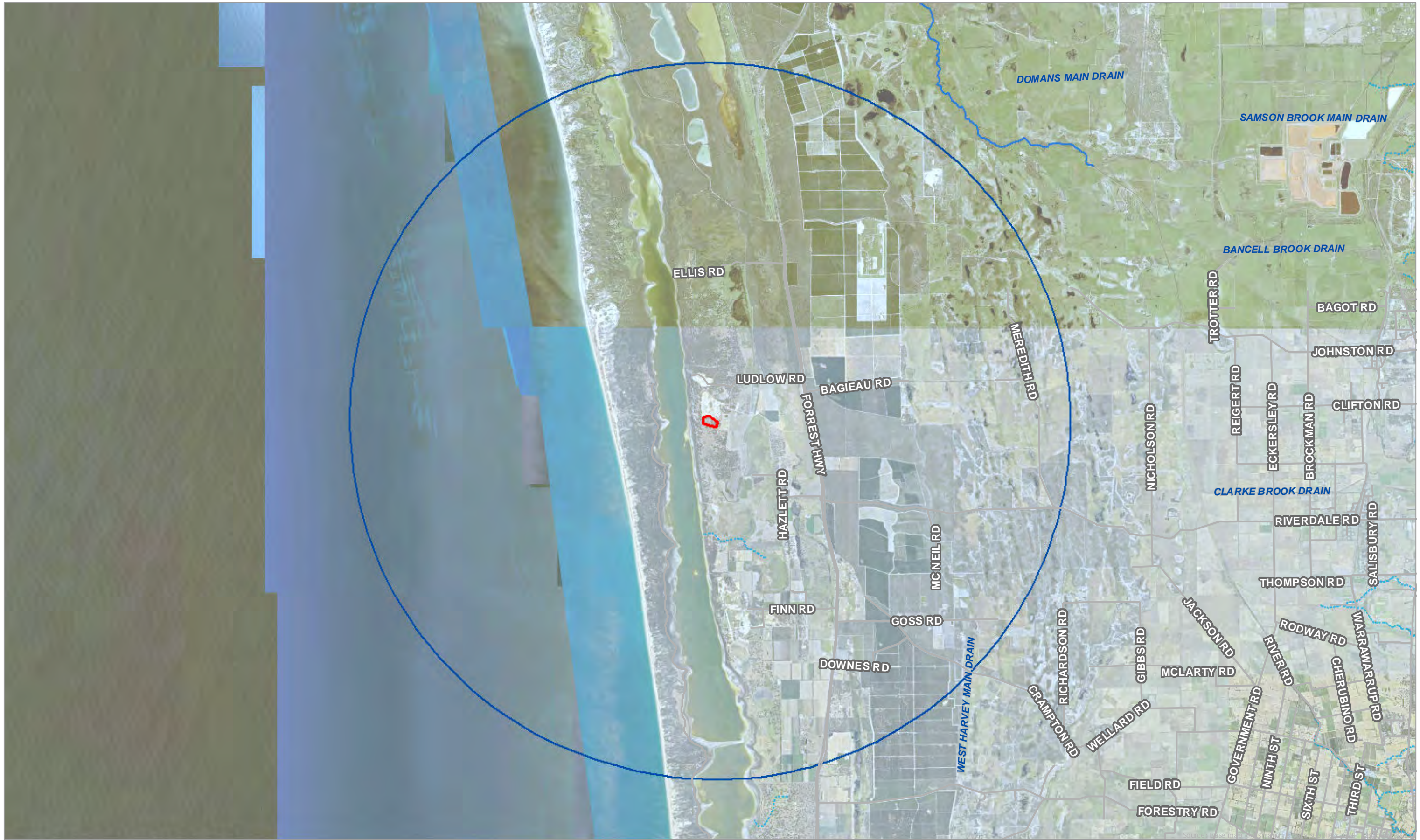


Figure 1 Desktop Study Area

- Road
- Major watercourse
- Minor drainage line
- Survey Area
- Desktop Study Area

PORTION OF LOT 2 LUDLOW ROAD,
MYALUP

Ref: SW539
Date: 25/11/2025 Author: SP

A3 @ 1:100000


0 0.5 1 2 km

GRID: GDA zone 50

www.swenvironmental.com.au

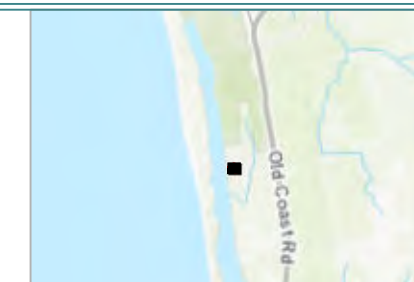


Figure 2 Survey Area

 Survey Area

PORTION OF LOT 2 LUDLOW ROAD,
MYALUP

Ref: SW539
Date: 25/11/2025 Author: SP



A3 @ 1:1500

0 10 20 40 m



 **SW**
Environmental
www.swenvironmental.com.au

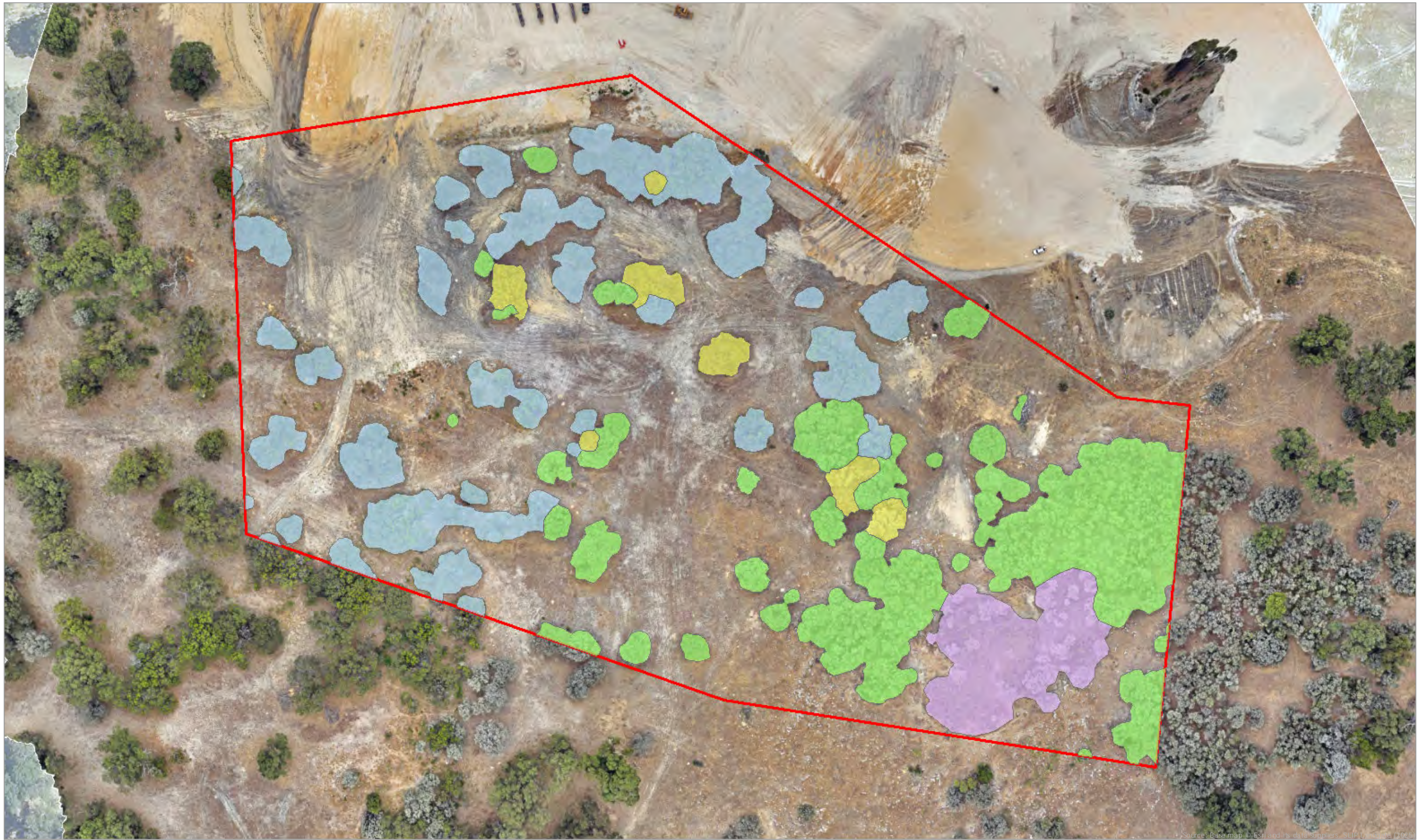


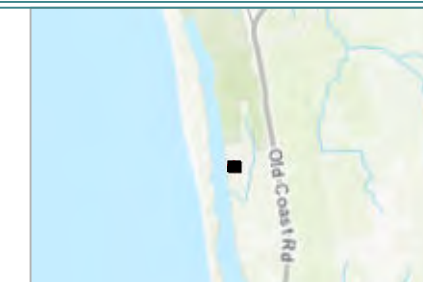
Figure 3 Fauna habitats

PORTION OF LOT 2 LUDLOW ROAD,
MYALUP

Ref: SW539
Date: 2/12/2025 Author: SP

Fauna habitat

- 1. Peppermint low open woodland and paddock trees on sandy soils
- 2. Coastal dune mallee with occasional Peppermint over weedy understorey on limestone uplands and slopes
- 3.1. Red heart and Peppermint mid open woodland to woodland on limestone soils
- 3.2. Jarrah trees
- Survey Area



A3 @ 1:1500

0 10 20 40 m



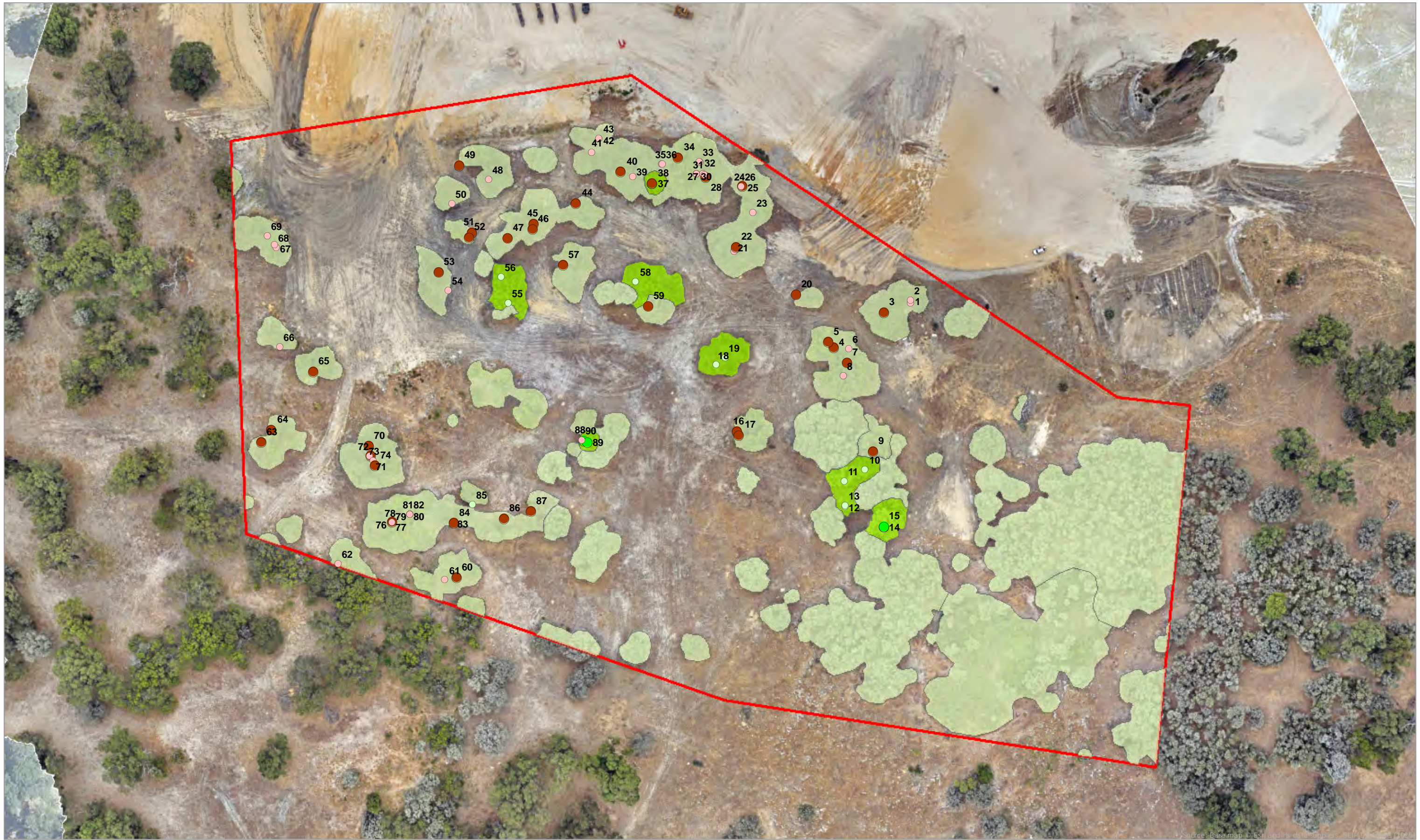


Figure 4 Suitable DBH trees and black cockatoo foraging habitat quality

PORTION OF LOT 2 LUDLOW ROAD,
MYALUP

Ref: SW539
Date: 2/12/2025 Author: SP

- Jarrah tree (30 - 49 cm)
 - Jarrah tree (> 50 cm)
 - Red heart tree (30 - 49 cm)
 - Red heart tree (> 50 cm)
 - Survey Area
- Black cockatoo foraging quality
- 2. Lower quality
 - 3. Lower quality

A3 @ 1:1500

SW Environmental
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Figure 5 Nocturnal survey effort and results

- - - Spotlight transect 18/11/2025
- Survey Area

No animals observed within Survey Area

PORTION OF LOT 2 LUDLOW ROAD,
MYALUP

Ref: SW539
Date: 2/12/2025 Author: SP

A3 @ 1:1500

SW Environmental
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Appendix B Conservation codes

Fauna in WA may be afforded protection under the WA BC Act and or federal EPBC Act. Species listed as threatened or migratory under the above legislation are referred to collectively in this document as being 'conservation significant' or 'target' species. These terms include species and communities listed under the DBCA Priority lists.

BC Act

The WA BC Act and associated Regulations provide for the licensing and management of activities that affect biodiversity. The BC Act provides for the listing of threatened native animals (fauna) that need protection as critically endangered, endangered or vulnerable species because they are under identifiable threat of extinction (species).

The *Biodiversity Conservation (Listing of Native Species) (Fauna) Order 2023* under the *Biodiversity Conservation Regulations 2018* contain the lists of Threatened, Extinct and Specially Protected species under Part 2 of the BC Act. These are described below.

Threatened species and communities

- PD: Presumed totally destroyed (TECs only)
- CR: Critically endangered species
- EN: Endangered species
- VU: Vulnerable species

Extinct species

- EX: Extinct species
- EW: Extinct in the wild species

Specially protected species

- MI: Migratory species
- CD: Species of special conservation interest (conservation dependent fauna)
- OS: Other specially protected species

EPBC Act

In accordance with Commonwealth legislation, the EPBC Act provides a list of 'Matters of National Environmental Significance' (NES), which includes significant fauna. Under the EPBC Act fauna matters of NES may be listed in any one of the following categories as defined in *Section 179* of the Act:

- Extinct,
- *Extinct in the wild,
- *Critically endangered,
- *Endangered,
- *Vulnerable,
- Conservation dependent.

*Only these categories are matters of NES under the Act.

The EPBC Act also lists migratory species that are recognized under international treaties including the Japan Australia Migratory Bird Agreement (JAMBA), the China Australia Migratory Bird Agreement (CAMBA) and the Bonn Convention (The Convention on the conservation of Migratory Species of Wild Animals). The EPBC Act is regulated by the DCCEEW.

IUCN Red List

The IUCN Red List is an inventory of the global conservation status of species and used to assist DBCA and other agencies in attributing a given threatened species status. It does not have any statutory authority and is not considered in detail in this assessment.

Appendix C Potential fauna list and fauna recorded

Appendix C.1 Fauna that has been recorded or may occur within the DSA (10 km) and fauna recorded

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birdata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Heleioporus eyrei</i>	Moaning Frog				Amphibia	Limnodynastidae	X		X		
<i>Limnodynastes dorsalis</i>	Western Banjo Frog				Amphibia	Limnodynastidae	X		X		
<i>Crinia glauerti</i>	Glauert's Froglet				Amphibia	Myobatrachidae	X		X		
<i>Crinia insignifera</i>	Sign-bearing Froglet				Amphibia	Myobatrachidae	X		X		
<i>Geocrinia leai</i>	Ticking Frog				Amphibia	Myobatrachidae			X		
<i>Litoria adelaidensis</i>	Slender Tree Frog				Amphibia	Pelodyadidae	X		X		
<i>Litoria moorei</i>	Motorbike Frog				Amphibia	Pelodyadidae	X				
<i>Acanthiza apicalis</i>	Inland Thornbill				Aves	Acanthizidae	X	X	X		
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	x			Aves	Acanthizidae	X	X	X		
<i>Acanthiza inornata</i>	Western Thornbill	x			Aves	Acanthizidae	X		X		
<i>Gerygone fusca</i>	Western Gerygone				Aves	Acanthizidae	X	X	X		
<i>Sericornis frontalis</i>	White-browed Scrubwren				Aves	Acanthizidae	X	X	X		
<i>Sericornis maculatus</i>	Spotted Scrubwren				Aves	Acanthizidae			X		
<i>Smicromis brevirostris</i>	Weebill				Aves	Acanthizidae	X	X	X		
<i>Accipiter fasciatus</i>	Brown Goshawk				Aves	Accipitridae	X		X		
<i>Aquila audax</i>	Wedge-tailed Eagle				Aves	Accipitridae	X	X	X		
<i>Circus approximans</i>	Swamp Harrier				Aves	Accipitridae	X		X		
<i>Elanus axillaris</i>	Black-shouldered Kite				Aves	Accipitridae	X		X		
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle				Aves	Accipitridae	X				
<i>Haliastur sphenurus</i>	Whistling Kite				Aves	Accipitridae	X		X		
<i>Hamirostra isura</i>	Black-breasted Buzzard				Aves	Accipitridae			X		
<i>Hieraaetus morphnoides</i>	Little Eagle				Aves	Accipitridae	X	X	X		
<i>Lophoictinia isura</i>	Square-tailed Kite				Aves	Accipitridae	X		X		
<i>Tachypiza cirrocephala</i>	Collared Sparrowhawk				Aves	Accipitridae	X		X		

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birddata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Acrocephalus australis</i>	Australian Reed Warbler				Aves	Acrocephalidae	X		X		
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	x			Aves	Alcedinidae	X		X		
<i>Todiramphus sanctus</i>	Sacred Kingfisher				Aves	Alcedinidae	X		X		
<i>Anas castanea</i>	Chestnut Teal				Aves	Anatidae	X		X		
<i>Anas gracilis</i>	Grey Teal				Aves	Anatidae	X		X		
<i>Anas platyrhynchos</i>	Common Mallard				Aves	Anatidae	X		X		
<i>Anas superciliosa</i>	Pacific Black Duck				Aves	Anatidae	X	X	X		
<i>Aythya australis</i>	Hardhead				Aves	Anatidae	X		X		
<i>Biziura lobata</i>	Musk Duck				Aves	Anatidae	X		X		
<i>Chenonetta jubata</i>	Australian Wood Duck				Aves	Anatidae	X		X		
<i>Cygnus atratus</i>	Black Swan				Aves	Anatidae	X		X		
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck				Aves	Anatidae	X		X		
<i>Oxyura australis</i>	Blue-billed Duck		P4		Aves	Anatidae			X	X	
<i>Spatula rhynchotis</i>	Australasian Shoveler				Aves	Anatidae	X		X		
<i>Stictonetta naevosa</i>	Freckled Duck				Aves	Anatidae			X		
<i>Tadorna tadornoides</i>	Australian Shelduck	x			Aves	Anatidae	X	X	X		
<i>Anhinga melanogaster</i>	Oriental Darter				Aves	Anhingidae			X		
<i>Anhinga novaehollandiae</i>	Australasian Darter				Aves	Anhingidae	X		X		
<i>Apus pacificus</i>	Fork-tailed Swift		MI	MI	Aves	Apodidae					X
<i>Ardea alba</i>	Great Egret				Aves	Ardeidae	X		X		
<i>Ardea pacifica</i>	White-necked Heron				Aves	Ardeidae	X	X	X		
<i>Botaurus poiciloptilus</i>	Australasian Bittern		EN	EN	Aves	Ardeidae					X
<i>Egretta garzetta</i>	Little Egret				Aves	Ardeidae	X				
<i>Egretta novaehollandiae</i>	White-faced Heron				Aves	Ardeidae	X		X		
<i>Nycticorax caledonicus</i>	Nankeen Night Heron				Aves	Ardeidae	X		X		

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birddata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Artamus cinereus</i>	Black-faced Woodswallow				Aves	Artamidae	X		X		
<i>Artamus cyanopterus</i>	Dusky Woodswallow				Aves	Artamidae	X	X	X		
<i>Cracticus nigrogularis</i>	Pied Butcherbird				Aves	Artamidae	X				
<i>Cracticus torquatus</i>	Grey Butcherbird				Aves	Artamidae	X	X	X		
<i>Gymnorhina tibicen</i>	Australian Magpie				Aves	Artamidae	X	X	X		
<i>Strepera versicolor</i>	Grey Currawong				Aves	Artamidae	X		X		
<i>Cacatua pastinator</i>	Western Corella				Aves	Cacatuidae			X		
<i>Cacatua sanguinea</i>	Little Corella				Aves	Cacatuidae	X				
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo		VU	VU	Aves	Cacatuidae	X	X	X		X
<i>Eolophus roseicapilla</i>	Galah	x			Aves	Cacatuidae	X	X	X		
<i>Zanda baudinii</i>	Baudin's Black-Cockatoo		EN	EN	Aves	Cacatuidae	X		X	X	X
<i>Zanda latirostris</i>	Carnaby's Black Cockatoo		EN	EN	Aves	Cacatuidae	X	X	X	X	X
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	x			Aves	Campephagidae	X		X		
<i>Lalage tricolor</i>	White-winged Triller				Aves	Campephagidae	X		X		
<i>Dromaius novaehollandiae</i>	Emu				Aves	Casuariidae	X	X	X		
<i>Anarhynchus bicinctus</i>	Double-banded Plover		MI		Aves	Charadriidae			X		
<i>Charadrius melanops</i>	Black-fronted Dotterel				Aves	Charadriidae	X		X		
<i>Erythrogonys cinctus</i>	Red-kneed Dotterel				Aves	Charadriidae	X		X		
<i>Vanellus tricolor</i>	Banded Lapwing				Aves	Charadriidae	X		X		
<i>Columba livia</i>	Rock Dove				Aves	Columbidae	X				
<i>Ocyphaps lophotes</i>	Crested Pigeon				Aves	Columbidae	X				
<i>Phaps chalcoptera</i>	Common Bronzewing				Aves	Columbidae	X		X		
<i>Phaps elegans</i>	Brush Bronzewing				Aves	Columbidae	X	X	X		
<i>Spilopelia chinensis</i>	Spotted Turtle Dove				Aves	Columbidae	X		X		
<i>Spilopelia senegalensis</i>	Laughing Turtle Dove				Aves	Columbidae	X				

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birdata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Corvus bennetti</i>	Little Crow				Aves	Corvidae	X				
<i>Corvus coronoides</i>	Australian Raven	x			Aves	Corvidae	X	X	X		
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo				Aves	Cuculidae	X	X	X		
<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo				Aves	Cuculidae	X		X		
<i>Chalcites lucidus</i>	Shining Bronze-cuckoo				Aves	Cuculidae	X	X	X		
<i>Heteroscenes pallidus</i>	Pallid Cuckoo				Aves	Cuculidae	X				
<i>Dicaeum hirundinaceum</i>	Mistletoebird				Aves	Dicaeidae	X		X		
<i>Stagonopleura oculata</i>	Red-eared Firetail				Aves	Estrildidae	X		X		
<i>Falco berigora</i>	Brown Falcon				Aves	Falconidae	X		X		
<i>Falco cenchroides</i>	Nankeen Kestrel				Aves	Falconidae	X		X		
<i>Falco hypoleucos</i>	Grey Falcon		VU	VU	Aves	Falconidae					X
<i>Falco longipennis</i>	Australian Hobby				Aves	Falconidae	X	X	X		
<i>Falco peregrinus</i>	Peregrine falcon		OS		Aves	Falconidae	X		X	X	
<i>Haematopus longirostris</i>	Australian Pied Oystercatcher				Aves	Haematopodidae	X				
<i>Hirundo neoxena</i>	Welcome Swallow	x			Aves	Hirundinidae	X	X	X		
<i>Petrochelidon ariel</i>	Fairy Martin				Aves	Hirundinidae	X				
<i>Petrochelidon nigricans</i>	Tree Martin				Aves	Hirundinidae	X	X	X		
<i>Chroicocephalus novaehollandiae</i>	Silver Gull				Aves	Laridae	X	X	X		
<i>Hydroprogne caspia</i>	Caspian Tern		MI	MI	Aves	Laridae	X		X		X
<i>Larus pacificus</i>	Pacific Gull				Aves	Laridae	X				
<i>Sternula nereis nereis</i>	Australian Fairy Tern		VU	VU	Aves	Laridae					X
<i>Thalasseus bergii</i>	Crested Tern		MI	MI	Aves	Laridae	X		X	X	
<i>Cincloramphus cruralis</i>	Brown Songlark				Aves	Locustellidae	X		X		
<i>Cincloramphus mathewsi</i>	Rufous Songlark				Aves	Locustellidae	X				
<i>Malurus lamberti</i>	Variiegated Fairy-wren				Aves	Maluridae			X		

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birdata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Malurus splendens</i>	Splendid Fairy-wren	x			Aves	Maluridae	X	X	X		
<i>Leipoa ocellata</i>	Malleefowl		VU	VU	Aves	Megapodiidae					X
<i>Acanthorhynchus superciliosus</i>	Western Spinebill				Aves	Meliphagidae	X		X		
<i>Anthochaera carunculata</i>	Red Wattlebird	x			Aves	Meliphagidae	X	X	X		
<i>Anthochaera lunulata</i>	Western Wattlebird				Aves	Meliphagidae	X		X		
<i>Epthianura albifrons</i>	White-fronted Chat				Aves	Meliphagidae	X	X	X		
<i>Gavicalis virescens</i>	Singing Honeyeater				Aves	Meliphagidae	X		X		
<i>Lichmera indistincta</i>	Brown Honeyeater				Aves	Meliphagidae	X	X	X		
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater				Aves	Meliphagidae	X	X	X		
<i>Ptilotula ornata</i>	Yellow-plumed Honeyeater				Aves	Meliphagidae	X				
<i>Merops ornatus</i>	Rainbow Bee-eater	x			Aves	Meropidae	X		X		
<i>Grallina cyanoleuca</i>	Magpie-lark				Aves	Monarchidae	X	X	X		
<i>Anthus australis</i>	Australian Pipit				Aves	Motacillidae	X	X	X		
<i>Motacilla cinerea</i>	Grey Wagtail		MI	MI	Aves	Motacillidae					X
<i>Daphoenositta chrysoptera</i>	Varied Sittella				Aves	Neosittidae	X		X		
<i>Ardeotis australis</i>	Australian Bustard				Aves	Otididae	X				
<i>Colluricincla harmonica</i>	Grey Shrike-thrush				Aves	Pachycephalidae	X	X	X		
<i>Pachycephala fuliginosa</i>	Western Whistler				Aves	Pachycephalidae			X		
<i>Pachycephala rufiventris</i>	Rufous Whistler				Aves	Pachycephalidae	X		X		
<i>Pandion haliaetus</i>	Osprey		MI	MI	Aves	Pandionidae	X		X		X
<i>Pardalotus punctatus</i>	Spotted Pardalote				Aves	Pardalotidae	X		X		
<i>Pardalotus striatus</i>	Striated Pardalote				Aves	Pardalotidae	X	X	X		
<i>Pelecanus conspicillatus</i>	Australian Pelican				Aves	Pelecanidae	X		X		
<i>Eopsaltria griseogularis</i>	Western Yellow Robin				Aves	Petroicidae	X	X	X		

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birdata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Microeca fascians</i>	Jacky Winter				Aves	Petroicidae	X				
<i>Petroica boodang</i>	Scarlet Robin				Aves	Petroicidae	X		X		
<i>Petroica goodenovii</i>	Red-capped Robin				Aves	Petroicidae	X				
<i>Microcarbo melanoleucos</i>	Little Pied Cormorant				Aves	Phalacrocoracidae	X	X	X		
<i>Phalacrocorax carbo</i>	Great Cormorant				Aves	Phalacrocoracidae	X		X		
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant				Aves	Phalacrocoracidae	X	X	X		
<i>Phalacrocorax varius</i>	Australian Pied Cormorant				Aves	Phalacrocoracidae	X		X		
<i>Coturnix pectoralis</i>	Stubble Quail				Aves	Phasianidae	X		X		
<i>Pavo cristatus</i>	Common Peafowl				Aves	Phasianidae	X				
<i>Podargus strigoides</i>	Tawny Frogmouth	x			Aves	Podargidae			X		
<i>Podiceps cristatus</i>	Great Crested Grebe				Aves	Podicipedidae	X		X		
<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe				Aves	Podicipedidae	X		X		
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe				Aves	Podicipedidae	X		X		
<i>Ardenna carneipes</i>	Flesh-footed Shearwater		VU	MI	Aves	Procellariidae					X
<i>Ardenna grisea</i>	Sooty Shearwater		MI	VU & MI	Aves	Procellariidae					X
<i>Barnardius zonarius</i>	Australian Ringneck	x			Aves	Psittacidae	X	X	X		
<i>Neophema elegans</i>	Elegant Parrot				Aves	Psittacidae	X		X		
<i>Platycercus icterotis</i>	Western Rosella				Aves	Psittacidae	X		X		
<i>Polytelis anthopeplus</i>	Regent Parrot				Aves	Psittacidae	X	X	X		
<i>Purpureicephalus spurius</i>	Red-capped Parrot				Aves	Psittacidae	X	X	X		
<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet				Aves	Psittacidae	X				
<i>Parvipsitta porphyrocephala</i>	Purple-crowned Lorikeet				Aves	Psittaculidae			X		
<i>Fulica atra</i>	Eurasian Coot				Aves	Rallidae	X		X		
<i>Gallinula tenebrosa</i>	Dusky Moorhen				Aves	Rallidae	X		X		

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birdata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Porphyrio porphyrio</i>	Western Swamphen				Aves	Rallidae	X		X		
<i>Porzana fluminea</i>	Australian Spotted Crake				Aves	Rallidae	X		X		
<i>Tribonyx ventralis</i>	Black-tailed Nativehen				Aves	Rallidae			X		
<i>Zapornia tabuensis</i>	Spotless Crake				Aves	Rallidae			X		
<i>Cladorhynchus leucocephalus</i>	Banded Stilt				Aves	Recurvirostridae	X	X	X		
<i>Himantopus himantopus</i>	Black-winged Stilt				Aves	Recurvirostridae	X		X		
<i>Himantopus leucocephalus</i>	Pied Stilt				Aves	Recurvirostridae			X		
<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet				Aves	Recurvirostridae	X	X	X		
<i>Rhipidura albiscapa</i>	Grey Fantail				Aves	Rhipiduridae	X	X	X		
<i>Rhipidura leucophrys</i>	Willie Wagtail				Aves	Rhipiduridae	X	X	X		
<i>Rostratula australis</i>	Australian Painted Snipe		EN	EN	Aves	Rostratulidae					X
<i>Actitis hypoleucos</i>	Common Sandpiper		MI	MI	Aves	Scolopacidae	X		X	X	X
<i>Arenaria interpres</i>	Ruddy turnstone		MI	MI	Aves	Scolopacidae	X	X	X	X	X
<i>Calidris acuminata</i>	Sharp-tailed sandpiper		MI	MI	Aves	Scolopacidae	X	X	X	X	X
<i>Calidris alba</i>	Sanderling		MI	MI	Aves	Scolopacidae	X		X	X	X
<i>Calidris canutus</i>	Red Knot		EN	VU & MI	Aves	Scolopacidae	X				X
<i>Calidris falcinellus</i>	Broad-billed Sandpiper		MI	MI	Aves	Scolopacidae					X
<i>Calidris ferruginea</i>	Curlew Sandpiper		CR	CR & MI	Aves	Scolopacidae	X		X	X	X
<i>Calidris melanotos</i>	Pectoral Sandpiper		MI	MI	Aves	Scolopacidae					X
<i>Calidris pugnax</i>	Ruff		MI	MI	Aves	Scolopacidae					X
<i>Calidris ruficollis</i>	Red-necked stint		MI	MI	Aves	Scolopacidae	X	X	X	X	X
<i>Calidris subminuta</i>	Long-toed Stint		MI	MI	Aves	Scolopacidae					X
<i>Calidris tenuirostris</i>	Great Knot		CR	CR & MI	Aves	Scolopacidae	X		X	X	X
<i>Gallinago megala</i>	Swinhoe's Snipe		MI	MI	Aves	Scolopacidae					X
<i>Gallinago stenura</i>	Pin-tailed Snipe		MI	MI	Aves	Scolopacidae					X
<i>Limosa lapponica</i>	Bar-tailed Godwit		MI	MI	Aves	Scolopacidae					X
<i>Limosa limosa</i>	Black-tailed Godwit		MI	EN & MI	Aves	Scolopacidae					X
<i>Numenius madagascariensis</i>	Eastern Curlew		CR	CR & MI	Aves	Scolopacidae	X		X		X

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birdata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Numenius minutus</i>	Little Curlew		MI	MI	Aves	Scolopacidae					X
<i>Numenius phaeopus</i>	Whimbrel		MI	MI	Aves	Scolopacidae			X		X
<i>Tringa brevipes</i>	Grey-tailed Tattler		MI, P4	MI	Aves	Scolopacidae	X		X		X
<i>Tringa glareola</i>	Wood Sandpiper		MI	MI	Aves	Scolopacidae					X
<i>Tringa nebularia</i>	Common Greenshank		MI	MI	Aves	Scolopacidae	X		X	X	X
<i>Tringa stagnatilis</i>	Little Greenshank		MI	MI	Aves	Scolopacidae			X		X
<i>Tringa totanus</i>	Common Redshank		MI	MI	Aves	Scolopacidae					X
<i>Xenus cinereus</i>	Terek Sandpiper		MI	VU & MI	Aves	Scolopacidae	X		X		
<i>Ninox boobook</i>	Boobook Owl				Aves	Strigidae	X		X		
<i>Megalurus gramineus</i>	Little Grassbird				Aves	Sylviidae	X		X		
<i>Platalea flavipes</i>	Yellow-billed Spoonbill				Aves	Threskiornithidae	X		X		
<i>Plegadis falcinellus</i>	Glossy ibis		MI	MI	Aves	Threskiornithidae			X	X	
<i>Threskiomis molucca</i>	Australian White Ibis	x			Aves	Threskiornithidae	X		X		
<i>Threskiomis spinicollis</i>	Straw-necked Ibis	x			Aves	Threskiornithidae	X		X		
<i>Tyto alba</i>	Barn Owl				Aves	Tytonidae			X		
<i>Tyto novaehollandiae novaehollandiae</i>	Masked Owl (southwest)		P3		Aves	Tytonidae			X		
<i>Zosterops lateralis</i>	Silvereye	x			Aves	Zosteropidae	X	X	X		
<i>Westralunio carteri</i>	Carter's Freshwater Mussel		VU	VU	Bivalvia	Hyriidae			X	X	
<i>Synemon gratiosa</i>	Graceful Sunmoth		P4		Insecta	Castniidae			X	X	
<i>Bos taurus</i>	Cow				Mammalia	Bovidae					
<i>Vulpes vulpes</i>	Red Fox				Mammalia	Canidae	X		X		
<i>Dasyurus geoffroii</i>	Chuditch		VU	VU	Mammalia	Dasyuridae			X	X	X
<i>Phascogale tapoatafa wambenger</i>	South-western Brush-tailed Phascogale		CD		Mammalia	Dasyuridae	X		X	X	
<i>Felis catus</i>	Cat				Mammalia	Felidae	X				
<i>Oryctolagus cuniculus</i>	Rabbit	x			Mammalia	Leporidae	X				
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	x			Mammalia	Macropodidae	X				

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birdata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Notamacropus irma</i>	Western Brush Wallaby		P4		Mammalia	Macropodidae			X	X	
<i>Austronomus australis</i>	White-striped Free-tailed Bat				Mammalia	Molossidae			X		
<i>Hydromys chrysogaster</i>	Water-rat		P4		Mammalia	Muridae			X		
<i>Mus musculus</i>	House Mouse				Mammalia	Muridae	X		X		
<i>Rattus rattus</i>	Black Rat				Mammalia	Muridae	X		X		
<i>Isoodon fusciventer</i>	Quenda		P4		Mammalia	Peramelidae			X	X	
<i>Trichosurus vulpecula</i>	Common Brushtail Possum	x			Mammalia	Phalangeridae			X		
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum		CR	CR	Mammalia	Pseudocheiridae	X		X	X	X
<i>Sus scrofa</i>	Pig				Mammalia	Suidae	X				
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat				Mammalia	Vespertilionidae	X		X		
<i>Falsistrellus mackenziei</i>	Western False Pipistrelle		P4		Mammalia	Vespertilionidae	X		X	X	
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat				Mammalia	Vespertilionidae			X		
<i>Nyctophilus major</i>	Long-eared Bat				Mammalia	Vespertilionidae			X		
<i>Vespadelus regulus</i>	Southern Forest Bat				Mammalia	Vespertilionidae	X		X		
<i>Ctenophorus adelaidensis</i>	Southern Heath Dragon				Reptilia	Agamidae	X		X		
<i>Chelodina oblonga</i>	Southern Snake-necked Turtle				Reptilia	Chelidae	X				
<i>Pseudonaja affinis</i>	Dugite				Reptilia	Elapidae			X		
<i>Christinus marmoratus</i>	Marbled Gecko				Reptilia	Gekkonidae	X				
<i>Delma grayii</i>	Side-barred Delma				Reptilia	Pygopodidae	X		X		
<i>Ctenotus ora</i>	Coastal Plains Skink		P3		Reptilia	Scincidae			X		
<i>Hemiergis peronii</i>	Lowlands Earless Skink				Reptilia	Scincidae	X		X		
<i>Hemiergis quadrilineatus</i>	Two-toed Earless Skink				Reptilia	Scincidae	X		X		
<i>Lerista lineata</i>	Perth Slider		P3		Reptilia	Scincidae	X		X	X	
<i>Menetia greyii</i>	Common Dwarf Skink				Reptilia	Scincidae			X		
<i>Morethia lineocellata</i>	West Coast Morethia Skink				Reptilia	Scincidae	X				

Taxon	Vernacular Name	Observed	WA Cons Status	EPBC Status	Class	Family	ALA, 10 KM	Birdata, 10 KM	Dandjoo, 10 KM	DBCA, 10 KM	PMST, 10 KM
<i>Tiliqua rugosa</i>	Bobtail				Reptilia	Scincidae	X		X		
<i>Varanus gouldii</i>	Sand Goanna				Reptilia	Varanidae	X				
<i>Varanus rosenbergi</i>	Heath Goanna				Reptilia	Varanidae	X				

Appendix C.2 PMST database results

Protected Matters Search Tool

Report Generated - 5:44PM - 13 November 2025

Matters of National Environment Significance	Count	Other Matters Protected by the EPBC Act	Count
World Heritage Properties	0	Commonwealth Lands	1
National Heritage Places	0	Commonwealth Heritage Places	0
Wetlands of International Importance (Ramsar Wetlands)	1	Listed Marine Species	94
		Whales and Other Cetaceans	13
Great Barrier Reef Marine Park	0	Critical Habitats	0
Commonwealth Marine Area	1	Commonwealth Reserves Terrestrial	0
Listed Threatened Ecological Communities	6	Australian Marine Parks	0
Listed Threatened Species	68	Habitat Critical to the Survival of Marine Turtles	0
Listed Migratory Species	69		

Extra Information <input type="checkbox"/>	Count	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 and is accurate at the time of generation. Please see the caveat for interpretation of information provided here. Consider carefully the age of information for decision making.	
State and Territory Reserves	5		
Regional Forest Agreements	0		
Nationally Important Wetlands	1		
EPBC Act Referrals	13		
Key Ecological Features	1	Report Metadata	Caveat
Biologically Important Areas	7		

Appendix D Threatened Fauna Evaluation

Table D.1 provides an evaluation of the presence of habitat and the likelihood of occurrence for conservation significant (target) fauna species within the Survey Area. The potential to be impacted depends on the nature of the impacts proposed, habitat utilised by the target species and the likelihood of occurrence. The presence of habitat is broken into four categories:

- **Present - core:** Potential or known habitat present within the Survey Area. Consists of "habitat critical to the survival of a species" which refers to core areas that are necessary for activities such as foraging, breeding, roosting, or dispersal, necessary for the long-term maintenance of the species to maintain genetic diversity and long-term evolutionary development (DoE, 2013) or habitat types recognised in Recovery Plans or guidelines.
- **Present - supporting:** Likely to provide dispersal, transitory or supporting habitat that may support core / critical habitat areas, such as small areas of lesser quality habitat where an animal has a large home range.
- **Marginal:** Habitat present is not typical but may be suitable, or habitat is typical, but condition and microhabitat requirements of species are not present.
- **Absent:** No potential or known habitat is present within the project area.

There are four categories for likelihood of occurrence:

- **Present:** Species was recorded during the field investigations.
- **Possible:** Suitable habitat present and the species could occur in the Survey Area based on the proximity of nearest records.
- **Unlikely:** Species known or predicted within the locality. Suitable habitat may be present in the Survey Area, but the proximity of nearest records suggests it is unlikely to occur.
- **Nil:** Species known or predicted to occur within the locality but no suitable habitat within the Survey Area.

Some fauna have been excluded as they are not relevant to the proposal or would not be impacted:

- Marine (e.g. seals, dolphins, whales, penguins).
- Marine migratory species (e.g. Albatrosses) or where breeding is in the northern hemisphere, e.g. marine shorebirds and waders, e.g. Hooded plover, Crested tern, Grey wagtail. See Table D.2 for migratory birds that may use the wetland to the west, but not frequent the Survey Area.
- Species considered regionally extinct or misidentified or outside of the animals known distribution (e.g. Malleefowl, Bilby, Numbat and Woylie).

Conservation status is as per the (federal) EPBC Act and (WA) DBCA Parks and Wildlife Service's Threatened and Priority Fauna List last updated in January 2025. Refer to Appendix B for Conservation Codes.

Table D.1 Evaluation of the presence of habitat and the likelihood of occurrence for conservation fauna significant species within the Survey Area

CLASS - Family	Genus species Vernacular	Status Federal	Stat. WA	Requirements	Presence of habitat	Likelihood of occurrence
INSECTA - Castniidae	<i>Synemon gratiosa</i> Graceful Sunmoth	-	P4	Sun-moths are most common in sedgelands, heathlands, woodlands and sometimes in open parts of the forest where their 'foodplants' (various grasses, sedges and mat-rushes) are found. The graceful sun-moth breeds on two species of Lomandra mat-rushes (<i>L. maritima</i> and <i>L. hermaphrodita</i>). The adult moths live for only two to ten days, but at a particular site the adult moths appear over a four-six week period, between mid February and late March. The Graceful Sun Moth is endemic to Western Australia, and is restricted to the Swan Coastal Plain between the Wanneroo area in northern Perth, south to Mandurah (approximately 60 km south of central Perth) (DEC, 2011). There are pockets of records west of the wetlands around 7 km north west of the Survey Area (DBCA, 2025).	Marginal	Unlikely
AVES - Accipitridae	<i>Elanus scriptus</i> Letter-winged kite	-	P4	Wide ranging and nomadic and SW WA in non breeding range (Cornell Lab, 2024).	Marginal	Unlikely
AVES - Anatidae	<i>Oxyura australis</i> Blue-Billed Duck	-	P4	Deep, densely vegetated freshwater lakes, swamps when breeding; winters on more open waters (Morcombe, 2011).	Absent	Nil
AVES - Apodidae	<i>Apus pacificus</i> Fork-tailed Swift	MI	MI	Aerial taxa, over open country, sometimes forests and cities (Pizzey & Knight, 2007). Usually in flocks, sometimes with Tree Martins and Masked Woodswallows (Johnstone & Storr, 1998)	Marginal	Unlikely
AVES - Ardeidae	<i>Ardea ibis</i> Cattle Egret	MI		Waders that occur in stock paddocks, pastures, crop lands, wetlands, mudflats, drains, irrigation areas and estuaries (Pizzey & Knight, 2007).	Marginal	Unlikely
AVES - Ardeidae	<i>Botaurus poiciloptilus</i> Australasian Bittern	EN	EN	The Australasian Bittern occurs in terrestrial freshwater wetlands and, rarely, estuarine habitats. In the south-west it is found in beds of tall rush mixed with, or near, short fine sedge or open pools. The species also occurs around swamps, lakes, pools, rivers and channels fringed with lignum (<i>Muehlenbeckia</i> sp.), canegrass (<i>Eragrostis</i> sp.) or other dense vegetation. The species occasionally ventures into areas of open water or onto banks. In the SW WA, it is confined to a relatively small number of regularly occupied locations. These locations probably number less than 70, including: less than five north of Perth; less than 10 in the greater Perth metropolitan area; less than 10 south to Busselton; less than 10 in the Lake Muir district; less than 10 from Augusta to Walpole; less than 10 around Albany; and less than 10 around Esperance and Cape Arid. Most of these sites are discrete basin/sumpland wetlands with local catchments, and many depend on the surface expression of groundwater (SPRAT, n.d.).	Absent	Nil
AVES - Cacatuidae	<i>Calyptorhynchus banksii naso</i> Forest Red-tailed Black Cockatoo	VU	VU	The Forest Red-tailed Black Cockatoo inhabits the dense Jarrah, Karri and Marri forests receiving more than 600 mm rainfall annually (SPRAT, n.d.). The FRTBC occurs within the same habitat as the Baudin's Cockatoo. FRTBC nest in Jarrah, Karri, Marri and Wandoo favouring large top entry hollows with entrances ranging over 12 cm in diameter and hollow depth one to five metres) (Johnstone et al., 2011; SEWPaC, 2012). It breeds between February to December (with a peak between October and December, also a peak in some years in April–May) probably every two years (Johnson and Kirkby, Undated). The species predominately feeds on seeds from Marri and Jarrah fruits and Blackbutt, Albany Blackbutt, Forest Sheoak, Snottygobble and the non-indigenous native Spotted Gum and Cape Lilac within its home range of about 116-187 ha (SPRAT, n.d.).	Present - supporting	Possible

CLASS - Family	Genus species Vernacular	Status Federal	Stat. WA	Requirements	Presence of habitat	Likelihood of occurrence
AVES - Cacatuidae	<i>Zanda baudinii</i> Baudin's Cockatoo	EN	EN	Baudin's Cockatoo is mainly found in eucalypt forests, especially Jarrah-Marri Forest, Karri Forest, and less frequently in woodlands of Wandoo, Blackbutt, Flooded Gum Yate, partly cleared farmlands and urban areas including roadside trees and house gardens. This cockatoo forages at all levels of the forest from the canopy to the ground, often feeding in the understorey on proteaceous trees and shrubs, especially Banksia, and in orchards both in trees and on dropped or fallen fruit on the ground (Johnstone et al., 2011). Preferred roosts are in areas with a dense canopy close to permanent sources of water (SPRAT, n.d.). The range of the species during the non-breeding season (breeds in August though to late December) may be determined by the distribution of Marri, and that nesting might be confined to areas in which Karri occurs (SPRAT, n.d.). It is known to nest in hollows of Eucalypts usually at some height (Pizzey & Knight, 2007), often 30-50m above ground (Jupp, 2000). Tree hollows usually have an entrance of 30-40cm, >30cm deep and are mostly vertical (Johnstone et al., 2011; SPRAT, n.d.).	Marginal	Unlikely
AVES - Cacatuidae	<i>Zanda latirostris</i> Carnaby's Cockatoo	EN	EN	This species is a postnuptial nomad, moving west after breeding. Carnaby's Cockatoo mainly occurs in or near eucalypt woodlands, especially those dominated by Wandoo or Salmon Gum, and sometimes reported in forests of Marri, Jarrah, Karri and Tuart. Nesting hollows may be located anywhere from 2 m to >10 m from ground, mainly in the Wheatbelt (Cale, 2003; SPRAT, n.d.; WA Museum, 2010). It is known to forage in native shrubland, kwongan heathland and woodland dominated by proteaceous plant species such as Banksia spp. (including Dryandra spp.), Hakea spp. and Grevillea spp. Forages in pine plantations, eucalypt woodland and forest that contains foraging species. Also individual trees and small stands of these species (SEWPac, 2012). Breeding occurs mainly from early July to mid-December. Breeding success is largely dependent on suitable feeding habitat adjacent to the nest site to provide the necessary food for the survival of the chick, for example adjacent pine forest or remnant vegetation (Johnstone et al., 2011).	Present - supporting	Possible
AVES - Falconidae	<i>Falco hypoleucos</i> Grey Falcon	VU	VU	Frequents timbered lowland plains, particularly <i>Acacia</i> shrublands that are crossed by tree-lined water courses (Garnett et al., 2011; Ley & Tynan, 2016; Schoenjahn, 2013, 2018; Watson, 2011). Has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter (P. Olsen & Olsen, 1986; Schoenjahn, 2018).	Marginal	Unlikely
AVES - Falconidae	<i>Falco peregrinus</i> Peregrine Falcon	-	OS	Peregrine Falcons occur in woodland, plains, gorges, wetlands but tend to breed either in stick-nests in trees or nest on cliff ledges. It appears that hollows and large abandoned nests of other birds may be used where cliff ledges are limited. Breeds Aug-Dec. Where good habitat occurs, and the density of Peregrine Falcons is high, active nests may occur within 2.5km of each other. The diet of the Peregrine Falcon includes wood duck, pigeons and doves, galahs, rosellas and cockatoo, starlings and larks (J. Olsen et al., 2006).	Present - supporting	Possible
AVES - Rostratulidae	<i>Rostratula australis</i> Australian Painted Snipe	EN	EN	Well-vegetated shallows and margins of wetlands, dams, sewage ponds; wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, open timber (Pizzey & Knight, 2007).	Absent	Nil
AVES - Pandionidae	<i>Pandion haliaetus</i> Osprey	M	M	Generally coastal species that feeds on fish. Nests in large trees or on islands, pilons etc (Pizzey & Knight, 2007).	Marginal	Unlikely
AVES - Tytonidae	<i>Tyto novaehollandiae</i> Masked Owl (Southwest)	-	P3	Inhabits forests, open woodlands and farmlands with large trees, including timber watercourses paperbark woodlands. Widespread but very sparse, they breed any time of the year when conditions are favourable with a nesting period of about three months (Pizzey & Knight, 2007).	Marginal	Unlikely

CLASS - Family	Genus species Vernacular	Status Federal	Stat. WA	Requirements	Presence of habitat	Likelihood of occurrence
BIVALVIA - Hyriidae	<i>Westralunio carteri</i> Carter's Freshwater Mussel	VU	VU	Patchily distributed in sandy/muddy sediments of freshwater lakes, rivers and streams with greatest densities associated with woody debris and overhanging riparian vegetation near stream banks and edges of lakes/dams (DAWE, 2017). Adults mostly sessile, but do move through sediments with a muscular foot, creating visual tracks; Juveniles much more mobile, moving in a similar fashion as a caterpillar (DAWE, 2017). When in burrowed, filter-feeding position, siphons extended, mantle and siphons have a mottled red/black appearance; inhalant siphon lined with papillae (DAWE, 2017).	Absent	Nil
MAMMALIA - Dasyuridae	<i>Dasyurus geoffroii</i> Chuditch	VU	VU	Quolls may occupy a range of habitats including forest, woodland and desert, though in the SW they are largely restricted to Jarrah forest or scattered through the southern and eastern wheat belt (DEC, 2010). Current records indicated that this only represents approximately 5% of their former range. Habitat critical to Western Quoll are large areas of undisturbed habitat which a sufficient variety of key food and other resources such as large hollow logs, burrows or small caves at ground level for denning. To be suitable as den sites, logs must have a diameter of at least 30 cm but usually greater than 50 cm, a hollow diameter of 7–20 cm and generally 1m long (Orell & Morris, 1994). Annually, an adult female Chuditch will utilise an estimated average of 66 logs and 110 burrows within her home range. A large amount of den sites is required for both sexes. They occupy relatively large home ranges, with males utilizing over 15 km ² and females, 3–4 km ² (Orell & Morris, 1994).	Marginal	Unlikely
MAMMALIA - Dasyuridae	<i>Phascogale tapoatafa</i> Southern Brush-tailed Phascogale	-	CD	This arboreal species is found in a variety of forest types. Ideal habitat for this species consists of dry sclerophyll forest and open woodland (Jarrah, Marri, and mixed Jarrah Karri) that contain hollow bearing trees and sparse ground cover. Their many nesting sites include hollow tree limbs, rotten stumps and even birds' nests. Lactating females prefer a large tree cavity with a small entrance with a nest made of bark, feathers and fur. A female's home range covers 20 to 70 hectares, a male's home range overlaps females and increases during breeding season. It is predominantly carnivorous, foraging on arthropods, invertebrates, small vertebrates and nectar (Strahan, 1995).	Marginal	Unlikely
MAMMALIA - Macropodidae	<i>Macropus irma</i> Western Brush Wallaby	-	P4	Optimum habitat for the Western Brush Wallaby includes open Jarrah forest or woodland and seasonally wet flats with low grasses and scrubby thickets, but also areas of mallee and heathland. Common dietary flora includes <i>Carpobrotus edulis</i> , <i>Cynodon dactylon</i> and <i>Nuytsia floribunda</i> (DEC, 2010). Needs large areas of habitat.	Absent	Nil
MAMMALIA - Macropodidae	<i>Setonix brachyurus</i> Quokka	VU	VU	The understorey structure of the habitats currently used by Quokka consist of dense, low vegetation that provides refuge from predation (Hayward, 2002). The mainland habitats include dense riparian vegetation (Hayward et al., 2005), but additionally (from SPRAT (n.d.)) <ul style="list-style-type: none"> • heath and shrubland, • Swamp Peppermint (<i>Taxandria linearifolia</i>) dominated swamps in Jarrah forest, • swampy shrublands, • swordgrass-dominated understorey, • regrowth areas of the Karri forest, • Bullich swamp forest, • Paperbark (<i>Melaleuca</i> spp.) swamp. A low density of near-surface fuel, a complex vegetation structure and a varied fire-age mosaic best predict the probability of occupancy of quokka in the southern forest (DEC, 2013).	Absent	Nil

CLASS - Family	Genus species Vernacular	Status Federal	Stat. WA	Requirements	Presence of habitat	Likelihood of occurrence
MAMMALIA - Muridae	<i>Hydromys chrysogaster</i> Water Rat, Rakali	-	P4	The Rakali is usually found in permanent fresh or brackish water but can be found in marine environments. Fresh water habitats include swamps, lakes, dams even urban drainage swamps. Typically forages close to the shoreline, restricting its movements to shallow water (up to 2 m in depth) (CSIRO, 2004).	Absent	Nil
MAMMALIA - Peramelidae	<i>Isodon obesulus fusciventer</i> Quenda	-	P4	Bandicoot habitat consists of dense scrubby, often swampy vegetation with a dense cover up to one metre high particularly near watercourses/wetlands. It often feeds in adjacent forest (Jarrah and Wandoo) and woodlands that are burnt on a regular basis. Nests can be concealed next to or under old logs, shrubs or piles of debris and are made up of ground litter piled up over a shallow depression providing internal chambers. Home ranges vary with population density and range from 5-8.6 ha for males and 1-6 ha for females (DEC, 2010). Feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogeous fungi. Their searches for food often create distinctive conical holes in the soil (DBCA, n.d.). Diggings observed.	Marginal	Unlikely
MAMMALIA - Pseudocheiridae	<i>Pseudocheirus occidentalis</i> Western Ringtail Possum	CR	CR	In dense, coastal Peppermint forest, home ranges are about 0.5 hectares to 1.5 ha and in eucalypt forests about 2.5 ha. In the northern jarrah forests, home ranges are larger and have been recorded to at least 5.6 ha. Peppermint leaves form the basis of the WRP diet in coastal areas (between 79-100% based on a study of WRP near Busselton by Jones et al. (1994), but when unavailable, the dominant myrtaceous species are preferred. In the inland forest, Jarrah and Marri the main food source. Garden plant varieties are also exploited in urban areas. WRP use a range of nest and shelter sites to avoid predators and exposure to the weather. Dreys are constructed in the canopy if hollows are not available. Adequate nest and shelter sites are necessary components of good quality habitat (Jones et al., 1994; Shedley & Williams, 2014).	Marginal	Unlikely
MAMMALIA - Vespertilionidae	<i>Falsistrellus mackenziei</i> Western False Pipistrelle	-	P4	It occurs in wet sclerophyll forest dominated by Karri (<i>Eucalyptus diversicolor</i>), and in the high rainfall zones of the Jarrah (<i>E. marginata</i>) and Tuart (<i>E. gomphocephala</i>) forests. It has also been recorded in mixed Tuart-Jarrah tall woodlands on the adjacent coastal plain. Marri (<i>E. calophylla</i>), Sheoak (<i>Allocasuarina heugeliana</i>) and Peppermint (<i>Agonis flexuosa</i>) trees are often co-dominant at its collection localities. This species roosts in tree hollows (Australian Museum, 2020) in colonies of 5 to 30 bats. The species feed on flying insects between below the forest canopy.	Marginal	Unlikely
REPTILIA - Scincidae	<i>Lerista lineata</i> Perth slider	-	P3	<i>Lerista lineata</i> is a small (total length: 9 cm), slender fossorial species with 2 fingers, 3 toes, immovable eyelids and brownish or silvery grey body with prominent black paravertebral lines, a broad black upper lateral stripe and narrow pale midlateral stripe. Current distribution locally restricted to the Swan Coastal Plain south of the Swan River including Garden and Rottnest Islands, extending south to Binningup (near Bunbury), with a possible single, old record from Busselton (1949). The restricted mainland habitat consists of pale sands (calcareous and siliceous) on coastal plains with Banksia and/or Eucalyptus, and coastal and low fixed dunes, supporting heathlands and shrublands, providing a well-developed patchy litter ground cover. This species shelters in the upper layers of loose soil beneath leaf litter, logs, at the base of shrubs, inside bulldozer spoil heaps alongside firebreaks/tracks, in abandoned stick-ant nests, and occasionally in loose soil beneath discarded rubbish (TSSC 2020). Nearest records nearly 6 km to the west (DBCA, 2025).	Marginal	Unlikely
REPTILIA - Scincidae	<i>Ctenotus ora</i> Coastal Plains Skink	-	P3	<i>Ctenotus ora</i> is a recently described species of medium sized (6cm) skink with a restricted range within the southern Swan Coastal Plain and Cape Naturaliste area, as far north as Pinjarra and south as far as Yallingup and Dunsborough (Ecoscape, 2012). It has previously been recorded in areas with sandy substrates and low vegetation (including heath) in open Eucalyptus/Corymbia woodland over Banksia in	Absent	Unlikely

CLASS - Family	Genus species Vernacular	Status Federal	Stat. WA	Requirements	Presence of habitat	Likelihood of occurrence
				the sandy coastal plain and coastal dunes (Kay & Keogh, 2012). Nearest records nearly 10 km east (DBCA, 2025).		

Table D.2 Migratory species that may occur in association with the wetland approximately 450m west of the Study Area.

Family	Taxon	Vernacular Name	WA Cons Status	EPBC Status
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	MI	MI
Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	MI	MI
Laridae	<i>Thalasseus bergii</i>	Crested Tern	MI	MI
Motacillidae	<i>Motacilla cinerea</i>	Grey Wagtail	MI	MI
Pandionidae	<i>Pandion haliaetus</i>	Osprey	MI	MI
Procellariidae	<i>Ardenna carneipes</i>	Flesh-footed Shearwater	VU	MI
Procellariidae	<i>Ardenna grisea</i>	Sooty Shearwater	MI	VU & MI
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	MI	MI
Scolopacidae	<i>Arenaria interpres</i>	Ruddy turnstone	MI	MI
Scolopacidae	<i>Calidris acuminata</i>	Sharp-tailed sandpiper	MI	MI
Scolopacidae	<i>Calidris alba</i>	Sanderling	MI	MI
Scolopacidae	<i>Calidris falcinellus</i>	Broad-billed Sandpiper	MI	MI
Scolopacidae	<i>Calidris melanotos</i>	Pectoral Sandpiper	MI	MI
Scolopacidae	<i>Calidris pugnax</i>	Ruff	MI	MI
Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	MI	MI
Scolopacidae	<i>Calidris subminuta</i>	Long-toed Stint	MI	MI
Scolopacidae	<i>Gallinago megala</i>	Swinhoe's Snipe	MI	MI
Scolopacidae	<i>Gallinago stenura</i>	Pin-tailed Snipe	MI	MI
Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed Godwit	MI	MI
Scolopacidae	<i>Limosa limosa</i>	Black-tailed Godwit	MI	EN & MI
Scolopacidae	<i>Numenius minutus</i>	Little Curlew	MI	MI
Scolopacidae	<i>Numenius phaeopus</i>	Whimbrel	MI	MI
Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed Tattler	MI, P4	MI
Scolopacidae	<i>Tringa glareola</i>	Wood Sandpiper	MI	MI
Scolopacidae	<i>Tringa nebularia</i>	Common Greenshank	MI	MI
Scolopacidae	<i>Tringa stagnatilis</i>	Little Greenshank	MI	MI
Scolopacidae	<i>Tringa totanus</i>	Common Redshank	MI	MI
Scolopacidae	<i>Xenus cinereus</i>	Terek Sandpiper	MI	VU & MI
Threskiornithidae	<i>Plegadis falcinellus</i>	Glossy ibis	MI	MI

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Appendix E Black Cockatoo Foraging Quality Scoring Tool

Scoring system for the assessment of foraging value of vegetation for black cockatoos

Acknowledgements: The following methodology is derived and adapted from the methodology of Bamford Consulting Ecologists (BCE), June 2020.

The Federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) requires a calculation of a score out of 10 for assessing black cockatoo foraging habitat to align with the application of the federal Offset Assessment Guide (offsets guide). The offset guide accompanies the EPBC Act environmental offsets policy and has been developed to give effect to the policy's requirements, utilising a balance sheet approach to quantify impacts and offsets.

The foraging value score provides a numerical score that reflects the significance of vegetation as foraging habitat for black cockatoos, and this score provides the information needed by the DCCEEW to assess impact significance and offset requirements. The foraging value of the vegetation depends upon the type, density and condition of trees and shrubs in an area and can be influenced by the context such as the availability of foraging habitat nearby. The BCE (2020) scoring system uses the three components above from the federal offsets guide and includes a fourth (moderation) component.

Calculating the total score (out of 10) requires the following steps:

- **Site condition.** Determining a score out of six for the vegetation composition, condition and structure (Table 1); plus
- **Site context.** Determining a score out of three for the context of the site;
- **Species stocking rate.** Determining a score out of one for species density.
- **Score.** Determining the total score out of 10, which may require moderation for context and species density with respect to the site condition (vegetation) score. Moderation also includes consideration of pine plantations as a special case for foraging value.

Calculation of scores and the moderation process are described in detail below.

Site condition. Vegetation composition, condition and structure scoring

Table 1

Site Score	Description of Vegetation Values		
	Carnaby's cockatoo	Baudin's cockatoo	Forest Red-tailed Black Cockatoo
0	<p>No foraging value.</p> <ul style="list-style-type: none"> Dead trees. Plant species that are not known to be fed on. Water bodies (e.g. salt lakes, dams, rivers); Bare ground, mown or pasture grass. Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits). 	<p>No foraging value.</p> <ul style="list-style-type: none"> Dead trees. Plant species that are not known to be fed on. Water bodies (e.g. dams, rivers). Bare ground, mown or pasture grass. Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits). 	<p>No foraging value.</p> <ul style="list-style-type: none"> Dead trees. Plant species that are not known to be fed on. Water bodies (e.g. dams, rivers). Bare ground, mown or pasture grass. Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).
1	<p>Nil to Low foraging value.</p> <ul style="list-style-type: none"> Scattered specimens of known food plants but projected foliage cover of these is < 2%. This could include urban areas with scattered foraging trees. Paddocks that are lightly vegetated with melons or other known food-source weeds (e.g. <i>Erodium</i> spp.) that represent a short- term and/or seasonal food source. Blue Gum plantations (foraging by Carnaby's Black-Cockatoos has been reported but appears to be unusual). 	<p>Nil to Low foraging value.</p> <ul style="list-style-type: none"> Scattered specimens of known food plants but projected foliage cover of these < 1%. This could include urban areas with scattered foraging trees. 	<p>Nil to Low foraging value.</p> <ul style="list-style-type: none"> Scattered specimens of known food plants but projected foliage cover of these < 1%. Could include urban areas with scattered foraging trees.
2	<p>Low foraging value.</p> <ul style="list-style-type: none"> Shrubland in which species of foraging value, such as shrubby banksias, have < 10% projected foliage cover. Woodland with tree banksias 2-5% projected foliage cover. Open eucalypt woodland/mallee of small- fruited species. Primary feed species that are isolated or disease affected. Some secondary foraging species that are not frequently fed on or are not considered a sustaining resource, Vegetation in a Completely Degraded or Degraded condition or relatively small areas relative to other higher quality surrounding habitat. Examples include dieback (e.g. <i>Phytophthora</i> spp.) 	<p>Low foraging value.</p> <ul style="list-style-type: none"> Woodland with scattered specimens of known food plants (e.g. Marri and Jarrah) 1-5% projected foliage cover. Urban areas with scattered foraging trees. Some secondary foraging species that are not frequently fed on or are not considered a sustaining resource, Vegetation in a Completely Degraded or Degraded condition or relatively small areas relative to other higher quality surrounding habitat. Examples include dieback (e.g. <i>Phytophthora</i> spp.) affected Jarrah or <i>Banksia</i> or severe canker (<i>Quambalaria coyrecup</i>) affected Marri or very sparse primary or secondary 	<p>Low foraging value.</p> <ul style="list-style-type: none"> Woodland with scattered specimens of known food plants (e.g. Marri, Jarrah or Sheoak) 1-5% projected foliage cover. Urban areas with scattered food plants such as Cape Lilac, <i>Eucalyptus caesia</i> and <i>E. erythrocorys</i>. Some secondary foraging species that are not frequently fed on or are not considered a sustaining resource. Vegetation in a Completely Degraded or Degraded condition or relatively small areas relative to other higher quality surrounding habitat. Examples include dieback (e.g. <i>Phytophthora</i> spp.) affected Jarrah or

Site Score	Description of Vegetation Values		
	Carnaby's cockatoo	Baudin's cockatoo	Forest Red-tailed Black Cockatoo
	<p>affected Jarrah or <i>Banksia</i> or severe canker (<i>Quambalaria coyrecup</i>) affected Marri or very sparse primary or secondary feed species.</p> <ul style="list-style-type: none"> Paddocks that are densely vegetated with melons or other known food-source weeds (e.g. <i>Erodium spp.</i>) that represent a short- term and/or seasonal food source. 	<p>feed species.</p>	<p><i>Banksia</i> or severe canker (<i>Quambalaria coyrecup</i>) affected Marri or very sparse primary or secondary feed species.</p>
3	<p>Low to Moderate foraging value.</p> <ul style="list-style-type: none"> Shrubland in which species of foraging value, such as shrubby banksias, have 10-20% projected foliage cover. Woodland with tree banksias 5-20% projected foliage cover. Eucalypt Woodland/Mallee of small-fruited species. Eucalypt Woodland with Marri < 10% projected foliage cover. 	<p>Low to Moderate foraging value.</p> <ul style="list-style-type: none"> Eucalypt Woodland with known food plants (especially Marri) 5-20% projected foliage cover. Parkland-cleared Eucalypt Woodland/Forest with known food plants 10-40% projected foliage cover (poor long-term viability without management). Younger areas of (managed) revegetation with known food plants 10-40% projected foliage cover (establishing food sources with good long-term viability). 	<p>Low to Moderate foraging value.</p> <ul style="list-style-type: none"> Eucalypt Woodland with known food plants (especially Marri and Jarrah) 5-20% projected foliage cover. Parkland-cleared Eucalypt Woodland/Forest with known food plants 10-40% projected foliage cover (poor long-term viability without management). Younger areas of (managed) revegetation with known food plants 10-40% projected foliage cover (establishing food sources with good long-term viability).
4	<p>Moderate foraging value.</p> <ul style="list-style-type: none"> Woodland/low forest with tree banksias (of key species <i>B. attenuata</i> and <i>B. menziesii</i>) 20- 40% projected foliage cover. Kwongan/ Shrubland in which species of foraging value, such as shrubby banksias, have 20-40% projected foliage cover; Eucalypt Woodland/Forest with Marri 20- 40% projected foliage cover. Primary feed species (e.g., Hakea, Jarrah, Marri or pine trees) present but patchy or as paddock trees, Habitat dominated by secondary feed species - vegetation communities with very few primary feed species present. Native vegetation where few primary or secondary feed species are present in Degraded or Good condition. 	<p>Moderate foraging value.</p> <ul style="list-style-type: none"> Marri-Jarrah Woodland/Forest with 20- 40% projected foliage cover. Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. Eucalypt Woodland/Forest with diverse, healthy understorey and known food trees (especially Marri) 10- 20% projected foliage cover. Orchards with highly desirable food sources (e.g. apples, pears, some stone fruits). Primary feed species (e.g., Hakea, Jarrah, Marri or pine trees) present but patchy or as paddock trees, Habitat dominated by secondary feed species - vegetation communities with very few primary feed species present. Native vegetation where few primary or secondary feed species are present in Degraded 	<p>Moderate foraging value.</p> <ul style="list-style-type: none"> Marri-Jarrah Woodland/Forest with 20- 40% projected foliage cover. Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. Sheoak Forest with 40-60% projected foliage cover. Primary feed species (e.g., Hakea, Jarrah, Marri or pine trees) present but patchy or as paddock trees, Habitat dominated by secondary feed species - vegetation communities with very few primary feed species present. Native vegetation where few primary or secondary feed species are present in Degraded or Good condition.

Site Score	Description of Vegetation Values		
	Carnaby's cockatoo	Baudin's cockatoo	Forest Red-tailed Black Cockatoo
		or Good condition.	
5	<p>Moderate to High foraging value.</p> <ul style="list-style-type: none"> Banksia Low Forest (of key species <i>B. attenuata</i> and <i>B. menziesii</i>) with 40-60% projected foliage cover. Banksia Low Forest (of key species <i>B. attenuata</i> and <i>B. menziesii</i>) with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. Eucalypt Woodland/Forest with Marri 40- 60% projected foliage cover. Pine plantations with trees more than 10 years old (but see pine note below in moderation section). 	<p>Moderate to High foraging value.</p> <ul style="list-style-type: none"> Marri-Jarrah Forest with 40-60% projected foliage cover. Marri-Jarrah Forest with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. 	<p>Moderate to High foraging value.</p> <ul style="list-style-type: none"> Marri-Jarrah Forest with 40-60% projected foliage cover. Marri-Jarrah Forest with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. Sheoak Forest with > 60% projected foliage cover.
6	<p>High foraging value.</p> <ul style="list-style-type: none"> Banksia Low Forest (of key species <i>B. attenuata</i> and <i>B. menziesii</i>) with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term). Eucalypt Woodland/Forest with Marri 40- 60% projected foliage cover. Primary feed species e.g. <i>Hakea</i>, Jarrah, Marri or pine trees dominant as patches, or components of a larger patch. 	<p>High foraging value.</p> <ul style="list-style-type: none"> Marri-Jarrah Forest with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term). Primary feed species e.g. <i>Hakea</i>, Jarrah, or Marri dominant as paddock trees, patches, or components of a larger patch. 	<p>High foraging value.</p> <ul style="list-style-type: none"> Marri-Jarrah Forest with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term). Primary feed species e.g. <i>Hakea</i>, Jarrah, or Marri dominant patches, or components of a larger patch.

Structure and condition per EPA (2016).

Site context

Table 2

Site Context Score	Site as a percentage of the existing native vegetation suitable for foraging within the DSA (10 km)	
	Local breeding known/likely	Local breeding unlikely (foraging habitat only)
3	> 5%	> 10%
2	1 - 5%	5 - 10%
1	0.1 - 1%	1 - 5%
0	< 0.1%	< 1%

Site Context is a function of site size, availability of nearby habitat and the availability of nearby breeding areas. Site context includes consideration of connectivity.

Table 2 provides a guide to site context scoring. The maximum score for site context is 3, being a function of presence/absence of nearby breeding and the distribution of foraging habitat across the landscape. Note that Desktop Study Area (DSA) is defines the ‘Local area’ within a 10 km ⁴radius of the centre point of the Survey Area.

Table 2 provides weighting for known (or suspected) nearby breeding and for the proportion of foraging habitat in the site against available foraging habitat within 10 km (within the DSA). Some adjustments may be needed. For example, a small area of foraging habitat (e.g. 0.5% of such habitat within 10 km) could be upgraded to a context of 2 if it formed part of a critical movement corridor. In contrast, the same sized area of habitat, of the same local proportion, could be downgraded if it were so isolated that birds could never access it.

Stocking rate (species density) (derived from BCE (2020))

Species stocking rate is described as “the usage and/or density of a species at a particular site” in the offsets guide. The description also implies that a site supports a discrete population, which is unlikely in the case of highly mobile black cockatoos. Assignment of the species density score (0 or 1) is based upon the cockatoo species being either abundant or not abundant. A score of 1 is used where the species is seen or reported regularly and/or there is abundant foraging evidence. Regularly is when the species is seen at intervals of every few days or weeks for at least several months of the year. A score of 0 is used when the species is recorded or reported very infrequently and there is little or no foraging evidence. Where information on actual presence of birds is lacking, a species density score can be assigned by interpreting the landscape and the site context. For example, a site with a moderate condition score that is part of a network of such habitat where a black-cockatoo species is known would get a species density score of 1 even without clear presence data, while a species density score of 0 can be assigned to a site where the level of usage can confidently be predicted to be low.

⁴ Note BCE use 15 km.

Score

Moderation of scores for the calculation of a value out of 10. The calculation out of 10 requires the *Site condition* score (out of 6) to be combined with the scores given for *Site context* and *Stocking rate*.

BCE (2020) notes: It is considered that the context and density scores are not independent of vegetation characteristics; otherwise habitat of absolutely no value for black cockatoo foraging (such as concrete or a wetland) could get a foraging score out of 10 as high as 4 if it occurred in an area where the species breed (context score of 3) and are abundant (species density score of 1). Similarly, vegetation of negligible or low characteristics which could not support black cockatoos could be assigned a score as high as 6 out of 10. In that case, the score of 6 would be more a reflection of nearby vegetation of high characteristics than of the foraging value of the negligible to low scoring vegetation. The black cockatoos would only be present because of vegetation of high characteristics, so applying the context and species density scores to vegetation of low characteristics would not give a true reflection of their foraging value.

For this reason, the context and species density scores need to be moderated for the vegetation characteristic score to prevent vegetation of little or no foraging value receiving an excessive score out of 10. A simple approach is to assign a context and species density score of zero to sites with a Condition score of low (2), negligible (1) or none (0), on the basis that birds will not use such areas unless they are adjacent to at least low-moderate quality foraging habitat (>3). The approach to calculating a score out of 10 can be summarised as follows:

Vegetation composition, condition and structure score (out of 6)	Context score	Species density score
3-6 (low/moderate to high value)	Assessed as per Site condition	Assessed as per Site context
0-2 (no to low value)	0	0

Note that this moderation approach may require interpretation depending on the context. For example, vegetation with a condition score of 2 could be given a context score of 1 under special circumstances. Such as when very close to a major breeding area or if strategically located along a movement corridor.

Appendix F Black Cockatoo Foraging Plants

Table F-1 Flora taxa within the Survey Area with potential for quality black cockatoo foraging value

Species	Common name	Habit	Baudin's cockatoo	Carnaby's cockatoo	FRTBC	References
<i>Agonis flexuosa</i>	Peppermint tree	Tree		Secondary		(Groom, 2011; Valentine & Stock, 2008)
<i>Eucalyptus decipiens</i>	Redheart	Tree			Secondary	(Johnstone et al., 2017)
<i>Eucalyptus marginata</i>	Jarrah	Tree	Secondary	Primary	Primary	(Birds Australia, n.d.; DoEE, 2017; Groom, 2011; Johnstone et al., 2010a, 2010b, 2010c, 2017; Johnstone & Kirkby, 1999; Johnstone & Storr, 1998; Saunders, 1979; SEWPaC, 2012; Valentine & Stock, 2008)

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Appendix G Tree Survey Results

Label	Tree Sp	DBH (mm)	Category	Hollows	DBH 300 (mm)	DBH 50 (mm)	Easting	Northing
1	Redheart	440	7. Suitable DBH Tree without hollows	0	1	0	378321	6351376
2	Redheart	380	7. Suitable DBH Tree without hollows	0	1	0	378321	6351378
3	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378309	6351372
4	Redheart	600	7. Suitable DBH Tree without hollows	0	0	1	378288	6351358
5	Redheart	600	7. Suitable DBH Tree without hollows	0	0	1	378286	6351360
6	Redheart	450	7. Suitable DBH Tree without hollows	0	1	0	378295	6351357
7	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378294	6351351
8	Redheart	470	7. Suitable DBH Tree without hollows	0	1	0	378292	6351346
9	Redheart	700	7. Suitable DBH Tree without hollows	0	0	1	378305	6351313
10	Jarrah	370	7. Suitable DBH Tree without hollows	0	1	0	378302	6351306
11	Jarrah	450	7. Suitable DBH Tree without hollows	0	1	0	378293	6351301
12	Jarrah	350	7. Suitable DBH Tree without hollows	0	1	0	378293	6351290
13	Jarrah	400	7. Suitable DBH Tree without hollows	0	1	0	378293	6351290
14	Jarrah	600	7. Suitable DBH Tree without hollows	0	0	1	378309	6351281
15	Jarrah	850	7. Suitable DBH Tree without hollows	0	0	1	378309	6351281
16	Redheart	600	7. Suitable DBH Tree without hollows	0	0	1	378247	6351322
17	Redheart	550	7. Suitable DBH Tree without hollows	0	0	1	378248	6351320
18	Jarrah	370	7. Suitable DBH Tree without hollows	0	1	0	378238	6351350
19	Jarrah	400	7. Suitable DBH Tree without hollows	0	1	0	378242	6351353
20	Redheart	5000	7. Suitable DBH Tree without hollows	0	0	1	378272	6351380
21	Redheart	450	7. Suitable DBH Tree without hollows	0	1	0	378246	6351399
22	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378247	6351400
23	Redheart	300	7. Suitable DBH Tree without hollows	0	1	0	378254	6351415
24	Redheart	470	7. Suitable DBH Tree without hollows	0	1	0	378249	6351426
25	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378249	6351426
26	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378249	6351426
27	Redheart	380	7. Suitable DBH Tree without hollows	0	1	0	378232	6351431
28	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378234	6351430
29	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378233	6351431
30	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378230	6351431
31	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378230	6351431
32	Redheart	300	7. Suitable DBH Tree without hollows	0	1	0	378232	6351436
33	Redheart	300	7. Suitable DBH Tree without hollows	0	1	0	378231	6351437
34	Redheart	550	7. Suitable DBH Tree without hollows	0	0	1	378222	6351438
35	Redheart	350	7. Suitable DBH Tree without hollows	0	1	0	378215	6351435
36	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378215	6351435
37	Jarrah	600	7. Suitable DBH Tree without hollows	0	0	1	378211	6351427
38	Redheart	550	7. Suitable DBH Tree without hollows	0	0	1	378211	6351427
39	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378203	6351430
40	Redheart	600	7. Suitable DBH Tree without hollows	0	0	1	378198	6351432

Basic Fauna and Targeted Black Cockatoo and Western Ringtail Possum Survey
Part Lot 5, Ludlow Road, Myalup

Label	Tree Sp	DBH (mm)	Category	Hollows	DBH 300 (mm)	DBH 50 (mm)	Easting	Northing
41	Redheart	420	7. Suitable DBH Tree without hollows	0	1	0	378185	6351441
42	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378189	6351446
43	Redheart	380	7. Suitable DBH Tree without hollows	0	1	0	378189	6351446
44	Redheart	600	7. Suitable DBH Tree without hollows	0	0	1	378179	6351419
45	Redheart	550	7. Suitable DBH Tree without hollows	0	0	1	378161	6351410
46	Redheart	650	7. Suitable DBH Tree without hollows	0	0	1	378160	6351408
47	Redheart	620	7. Suitable DBH Tree without hollows	0	0	1	378149	6351404
48	Redheart	420	7. Suitable DBH Tree without hollows	0	1	0	378141	6351429
49	Redheart	580	7. Suitable DBH Tree without hollows	0	0	1	378129	6351435
50	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378126	6351419
51	Redheart	620	7. Suitable DBH Tree without hollows	0	0	1	378134	6351406
52	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378133	6351404
53	Redheart	800	7. Suitable DBH Tree without hollows	0	0	1	378120	6351389
54	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378124	6351382
55	Jarrah	400	7. Suitable DBH Tree without hollows	0	1	0	378150	6351377
56	Jarrah	320	7. Suitable DBH Tree without hollows	0	1	0	378147	6351387
57	Redheart	640	7. Suitable DBH Tree without hollows	0	0	1	378173	6351392
58	Jarrah	380	7. Suitable DBH Tree without hollows	0	1	0	378204	6351386
59	Redheart	760	7. Suitable DBH Tree without hollows	0	0	1	378209	6351375
60	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378128	6351260
61	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378123	6351259
62	Redheart	350	7. Suitable DBH Tree without hollows	0	1	0	378078	6351266
63	Redheart	900	7. Suitable DBH Tree without hollows	0	0	1	378045	6351317
64	Redheart	700	7. Suitable DBH Tree without hollows	0	0	1	378049	6351323
65	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378067	6351347
66	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378053	6351358
67	Redheart	300	7. Suitable DBH Tree without hollows	0	1	0	378051	6351400
68	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378051	6351401
69	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378047	6351405
70	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378090	6351316
71	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378091	6351312
72	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378091	6351312
73	Redheart	440	7. Suitable DBH Tree without hollows	0	1	0	378092	6351309
74	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378093	6351307
75	Redheart	380	7. Suitable DBH Tree without hollows	0	1	0	378100	6351283
76	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378100	6351283
77	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378100	6351283
78	Redheart	360	7. Suitable DBH Tree without hollows	0	1	0	378100	6351283
79	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378100	6351283
80	Redheart	420	7. Suitable DBH Tree without hollows	0	1	0	378108	6351287
81	Redheart	400	7. Suitable DBH Tree without hollows	0	1	0	378108	6351287
82	Redheart	450	7. Suitable DBH Tree without hollows	0	1	0	378108	6351287
83	Redheart	460	7. Suitable DBH Tree without hollows	0	1	0	378127	6351283
84	Redheart	500	7. Suitable DBH Tree without hollows	0	0	1	378127	6351283
85	Jarrah	300	7. Suitable DBH Tree without hollows	0	1	0	378135	6351291

Label	Tree Sp	DBH (mm)	Category	Hollows	DBH 300 (mm)	DBH 50 (mm)	Easting	Northing
86	Redheart	700	7. Suitable DBH Tree without hollows	0	0	1	378148	6351285
87	Redheart	520	7. Suitable DBH Tree without hollows	0	0	1	378159	6351288
88	Jarrah	500	7. Suitable DBH Tree without hollows	0	0	1	378182	6351318
89	Jarrah	500	7. Suitable DBH Tree without hollows	0	0	1	378183	6351317
90	Redheart	450	7. Suitable DBH Tree without hollows	0	1	0	378181	6351318

Appendix H

Phytophthora Dieback and Extractive Industries
Information Brochure



PHYTOPHTHORA DIEBACK AND EXTRACTIVE INDUSTRIES INFORMATION BROCHURE

for
Staff, Customers and Clients



What is *Phytophthora* (*multivora*) dieback?

Phytophthora dieback is a soil-borne pathogen that kills a wide range of plant species in the southwest of WA by destroying their root systems. There are over fifty species of *Phytophthora* that occur worldwide. *Phytophthora multivora* is very widespread in south-west WA with a distribution similar to that known for *P. cinnamomi*, and is the second most frequently isolated *Phytophthora* species from natural plant communities in WA¹. It has been identified as a primary cause of Tuart decline.

Impact of *Phytophthora* dieback

Phytophthora dieback has had a significant impact on the biodiversity of native plants and animals from WA. Furthermore, the pathogen has had a significant effect on the nursery, horticultural, mining, floricultural and forestry industries in WA. *Phytophthora multivora* is pathogenic to bark and cambium of Tuart and Jarrah trees and is believed to be involved in the decline of both eucalypt species within the tuart woodland in south-west Western Australia¹.

Phytophthora multivora can proliferate on calcareous soils that are believed to be suppressive to other *Phytophthora* species such as *P. cinnamomi*. It is also found in a range of other soil types, including sand and gravel.

Scope for Managing *Phytophthora* dieback

The movement of large volumes of soil is a significant risk in terms of spreading *Phytophthora* sp. The extractive industry has the opportunity to reduce the rate of spread of *Phytophthora* sp. by taking steps to minimise the accidental spread of the pathogen. Operations responsible for the extraction of basic raw materials in the >500 mm rainfall zone are at greatest risk of spreading the pathogen. In particular, operations occurring near native plant communities dominated with *Banksia* species and other Proteaceae are at high risk.

Different types of extracted materials have their different levels of inherent risk with regards to the likelihood of being infested with *Phytophthora* dieback and therefore these differences need to be taken into account when preparing management plans. For example, sand and gravel are easily infested with *Phytophthora*, whereas limestone and hard rock generally aren't, however *Phytophthora multivora* is known to proliferate in limestone rich environments.

Plants Potentially Susceptible to *Phytophthora multivora* Dieback¹

<i>Agonis flexuosa</i>	Sweet Peppermint
<i>Banksia attenuata</i>	Slender Banksia
<i>Banksia grandis</i>	Bull Banksia
<i>Banksia littoralis</i>	Swamp Banksia
<i>Banksia menziesii</i>	Firewood Banksia
<i>Banksia prionotes</i>	Acorn Banksia
<i>Bossiaea</i> sp.	Cactus Pea
<i>Conospermum</i> sp.	Smokebush
<i>Eucalyptus gomphocephala</i>	Tuart
<i>Eucalyptus marginata</i>	Jarrah
<i>Gastrolobium spinosum</i>	Prickly Poison
<i>Leucopogon verticillatus</i>	Tassel Flower
<i>Patersonia</i> sp.	Native Iris
<i>Pinus radiata</i>	Radiata Pine
<i>Podocarpus drouynianus</i>	Wild Plum
<i>Xanthorrhoea gracilis</i>	Slender Grasstree

Best practice management techniques are described by the Dieback Working Group² and these assist quarry operators to minimise the risk of their operations in acting as a vector for the transfer of the pathogen. The methods described in this document are by no means an all-encompassing list and other techniques may be available or developed.

Summary of Best Practice Management Techniques

Guidelines for a site entirely infested with *Phytophthora* dieback:

- Training of staff on *Phytophthora* dieback and management.
- Place signs that illustrate the hygiene measures required.
- Contain any surface water on site.
- Stockpile areas are to be hard and well drained.
- All vehicles should be clean on exit.
- Notify customers of the dieback status of the site.
- Secure the site by fencing off areas outside of the operation.

Guidelines for a site free of *Phytophthora* dieback:

- Areas should be identified as follows:
 - Extraction and processing areas
 - Roads, including haul roads
 - Turn around points
 - Hygiene points
 - Storage and stockpile areas
 - Water sources
- No unauthorised entry to be permitted
- Vehicles should be “clean on entry”
- Separate excavation and loading areas
- Stockpile areas to be hard and well drained
- Place signs that illustrate the status and measures required
- Use dieback free water on site
- Notify customers of the dieback status of the site
- Regular checks of stockpiles should be done

Guidelines for a site partially infested with *Phytophthora* dieback

- Apply guidelines as indicated above.

Guidelines for a site that is uninterpretable

- Apply guidelines as indicated above.

INFORMATION FOR THIS BROCHURE HAS BEEN OBTAINED FROM:

¹Scott PM, Burgess TI, Barber PA, Shearer BL, Stukely MJC, Hardy GStJ and Jung T (2009). *Phytophthora multivora* sp. nov., a new species recovered from declining *Eucalyptus*, *Banksia*, *Agonis* and other plant species in Western Australia. *Persoonia*. 2009;22:1-13

²Dieback Working Group, 2011. Management of *Phytophthora* Dieback in Extractive Industries. Accessed from www.dec.wa.gov.au