

**LOT 287 SOUTH WESTERN HIGHWAY, GWINDINUP
SAND AND GRAVEL PIT**

**CLEARING PERMIT
SUPPORTING DOCUMENT**

PREPARED FOR:

MARIO MICHELE GIACCI

NOVEMBER 2024

PREPARED BY:

Martinick Bosch Sell Pty Ltd
4 Cook Street
West Perth WA 6005
Ph: (08) 9226 3166
Email: info@mbsenvironmental.com.au
Web: www.mbsenvironmental.com.au

MBS
ENVIRONMENTAL



environmental and geoscience consultants

LOT 287 SOUTH WESTERN HIGHWAY, GWINDINUP CLEARING PERMIT SUPPORTING DOCUMENT

Distribution List:

Company	Contact name	Copies	Date
MGM Bulk Pty Ltd	Craig Carbone Sales/Business Development	Electronic	6 November 2024

Document Control for Job Number: MGM287EXT

Document Status	Prepared By	Authorised By	Date
Draft Report	Emily Cranstoun	Kirsi Kauhanen	1 November 2024
Final Draft	Emily Cranstoun	Kirsi Kauhanen	6 November 2024

Disclaimer, Confidentiality and Copyright Statement

This report is copyright. Ownership of the copyright remains with Martinick Bosch Sell Pty Ltd (MBS Environmental) and **Mario Michele Giacci**.

This report has been prepared for **Mario Michele Giacci** on the basis of instructions and information provided by **Mario Michele Giacci** and therefore may be subject to qualifications which are not expressed.

No person other than those authorised in the distribution list may use or rely on this report without confirmation in writing from MBS Environmental and **Mario Michele Giacci**. MBS Environmental has no liability to any other person who acts or relies upon any information contained in this report without confirmation.

This report has been checked and released for transmittal to **Mario Michele Giacci**.

These Technical Reports:

- Enjoy copyright protection and the copyright vests in Martinick Bosch Sell Pty Ltd (MBS Environmental) and **Mario Michele Giacci** unless otherwise agreed in writing.
- May not be reproduced or transmitted in any form or by any means whatsoever to any person without the written permission of the Copyright holder.

EXECUTIVE SUMMARY

Mario Michele Giacci (the applicant) is proposing the expansion of sand and gravel extraction operations at Lot 287 South Western Highway (the property), approximately 3.5 km south of Boyanup. The proposed extraction area, totalling 13.36 ha in size, contains a mosaic of remnant native vegetation (8.02 ha), blue gum plantation (3.96 ha) and cleared areas (1.37 ha). A Native Vegetation Clearing Permit (NVCP) from Department of Water and Environmental Regulation (DWER) is required to remove the 8.02 ha of remnant native vegetation. This report provides supporting information for the NVCP application.

The proposed extraction area is centrally located on Lot 287 to avoid native vegetation and associated fauna habitat mapped in excellent condition, that is further to the north and east within the property. The need for native vegetation clearing has been further reduced by maximising the proposed extraction within areas of blue gum plantation, existing access tracks and other cleared areas. A minimum 40 m setback of the proposed extraction area has been applied to avoid potential indirect impacts to Reserves north and south of the property.

Extraction within Lot 287 has already progressed through Stages 1 to 11 totalling 17.27 ha, and rehabilitation of these exhausted areas has commenced. The proposed expansion to extraction areas at Lot 287 is 13.36 ha comprising three main phases which combined, include eight stages of less than 2 ha each. The proposed methodology of clearing in stages will minimise the area of disturbance at any particular time and ensure that the duration of habitat loss will be as short as possible.

Key impacts of the proposed native vegetation clearing are:

- The staged removal of up to 8.02 ha of native vegetation and associated fauna habitat.
- The removal of 8.02 ha of black cockatoo foraging habitat, including 126 potential nesting trees (trees that have a suitable DBH to develop a nest hollow but do not currently have hollows) and five (5) suitable nesting trees (trees with a potentially suitable hollow). No known nesting trees or known roosting trees will be removed.
- The removal of habitat for a low-density population of Western Ringtail Possums.

The proposed clearing has been assessed as 'may be at variance' to clearing principle A, 'at variance' to clearing principle B, and either 'not at variance' or 'not likely to be at variance' to the remaining clearing principles. The scale of the proposed staged clearing is relatively small in the highly vegetated local context, and the potential impacts are proposed to be mitigated through revegetation. The resulting potential residual impacts of the proposed clearing are considered to be localised and short term and can be sufficiently addressed through management and offset measures.

A range of environmental management measures will be implemented to target the management of clearing activities, dust, dieback, weeds and drainage. These will further minimise potential environmental impacts associated with the clearing.

It is proposed that at least 8.02 ha of native revegetation will be undertaken to replace the 8.02 ha of proposed native vegetation clearing. This native revegetation is proposed in a location that will maximise the connectivity of remnant native vegetation in adjacent Reserves to create a north to south corridor through the centre of Lot 287. This revegetation will mitigate the impacts of native vegetation clearing associated with the proposed extraction activities. Further offsets will be determined as part of the NVCP process.

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	PROJECT DESCRIPTION	4
2.1	PROPOSED EXTRACTION	4
2.2	PROPOSED EXTRACTIVE STAGING	4
2.3	PROPOSED CLEARING WITHIN STAGES	4
2.4	PROPOSED REHABILITATION ZONES	5
3.	JUSTIFICATION OF THE PROPOSAL	9
4.	SUMMARY OF ECOLOGICAL SURVEY EFFORT	10
5.	EXISTING ENVIRONMENT	13
5.1	BIOREGIONAL CONTEXT	13
5.2	ZONING AND LAND USE	13
5.3	CLIMATE	13
5.4	LANDFORM	14
5.5	SOIL SYSTEMS AND ACID SULFATE SOIL (ASS) RISK	14
5.6	GROUNDWATER	15
5.7	SURFACE WATER	17
5.8	VEGETATION AND FLORA	17
5.8.1	Broadscale Vegetation Mapping	17
5.8.2	Vegetation Types and Condition	21
5.8.3	Threatened and Priority Ecological Communities	24
5.8.4	Flora Assemblage in Lot 287	24
5.8.5	Conservation Significant Flora	24
5.8.6	Declared Pests and WoNS	24
5.9	ECOLOGICAL LINKAGES	24
5.10	ENVIRONMENTALLY SENSITIVE AREA	25
5.11	CONSERVATION AREAS	25
5.12	FAUNA	27
5.12.1	Fauna Habitat	27
5.12.2	Fauna Assemblage	27
5.12.3	Conservation Significant Fauna	28
6.	MEASURES TO AVOID, MINIMISE AND MITIGATE	33
7.	STAKEHOLDER ENGAGEMENT	35
8.	ASSESSMENT AGAINST CLEARING PRINCIPLES	36
8.1	SUMMARY	36
8.2	CLEARING PRINCIPLE A – BIODIVERSITY	36
8.3	CLEARING PRINCIPLE B – SIGNIFICANT FAUNA HABITAT	39
8.4	CLEARING PRINCIPLE C – THREATENED FLORA	41
8.5	CLEARING PRINCIPLE D – THREATENED ECOLOGICAL COMMUNITIES	41
8.6	CLEARING PRINCIPLE E – REMNANT VEGETATION	42
8.7	CLEARING PRINCIPLE F - WATERCOURSE OR WETLAND ENVIRONMENTS	43
8.8	CLEARING PRINCIPLE G - LAND DEGRADATION	43
8.9	CLEARING PRINCIPLE H - CONSERVATION ESTATE	44
8.10	CLEARING PRINCIPLE I - SURFACE AND GROUNDWATER QUALITY	45
8.11	CLEARING PRINCIPLE J - FLOODING POTENTIAL	45
9.	OTHER APPROVALS, LICENCES AND PERMITS	46
10.	CONCLUSION	47

11.	REFERENCES	48
-----	------------------	----

TABLES

Table 1:	Summary of Ecological Survey Effort	10
Table 2:	Piezometer Locations in Lot 287	15
Table 3:	Vegetation Association Extents	17
Table 4:	Vegetation Complex Extents	18
Table 5:	Proposed Clearing Extent by Vegetation Units	21
Table 6:	Proposed Clearing Extent by Vegetation Condition	21
Table 7:	Ecological Linkages Proximity Values	24
Table 8:	Fauna Habitat Summary	27
Table 9:	Breeding Habitat within the Proposed Clearing Area	29
Table 10:	Implementation of Mitigation Hierarchy Sequence	33
Table 11:	Summary of Assessment Against the 10 Clearing Principles	36
Table 12:	Proposed Impact to Native Vegetation within Lot 287	37
Table 13:	Potential Impact to Black Cockatoo Breeding Habitat within Lot 287	38
Table 14:	Vegetation Extents	42
Table 15:	Other Relevant Approvals, Licences and Permits	46

FIGURES

Figure 1:	Property Location	2
Figure 2:	Lot 287 Boundary	3
Figure 3:	Proposed Extraction Phases	6
Figure 4:	Proposed Native Vegetation Clearing	7
Figure 5:	Revegetation Zone and Extractive Phases	8
Figure 6:	Soil Systems and Landforms	16
Figure 7:	Surface Hydrology	19
Figure 8:	Vegetation Associations and Complexes	20
Figure 9:	Vegetation Type	22
Figure 10:	Vegetation Condition	23
Figure 11:	Ecological Linkages	26
Figure 12:	Fauna Habitat	31
Figure 13:	Remnant Fauna Habitat	32

APPENDICES

Appendix 1: Flora and Vegetation Survey 2024 52
Appendix 2: Fauna Assessment 2019 53

1. INTRODUCTION

Mario Michele Giacci (the applicant), owner of Lot 287 (Plan 100056) South Western Highway, Gwindinup (the property), is applying for a Native Vegetation Clearing Permit (NVCP) from Department of Water and Environmental Regulation (DWER) for the expansion of sand and gravel extraction operations.

Lot 287 is located on South Western Highway approximately 3.5 km south of Boyanup, as shown in Figure 1 . Lot 287 totals 60.1 ha, of which extraction operations have previously been approved under a Development Approval (DA) and Extractive Industries Licence (EIL) for 17.27 ha of the western area. The proposed extraction area will extend eastward of the existing pit for a further 13.36 ha (Figure 2). Access to the site is gained off Lowrie Road via an easement on adjacent Lot 393, which is also owned by the applicant.

The proposed extraction area, totalling 13.36 ha in size, contains a mosaic of remnant native vegetation (8.02 ha), blue gum plantation (3.96 ha) and cleared areas (1.37 ha). A Native Vegetation Clearing Permit (NVCP) from Department of Water and Environmental Regulation (DWER) is required to remove the 8.02 ha of native vegetation.

This report provides supporting information for the NVCP application and is based on a desktop review of publicly available information and baseline environmental surveys.



Legend

- Lot Boundary
- State Road
- Local Road

Scale: 1:300000
 Original Size: A4
 Image: ESRI World Imagery
 Grid: GDA94 / MGA zone 50

0 5 10 km

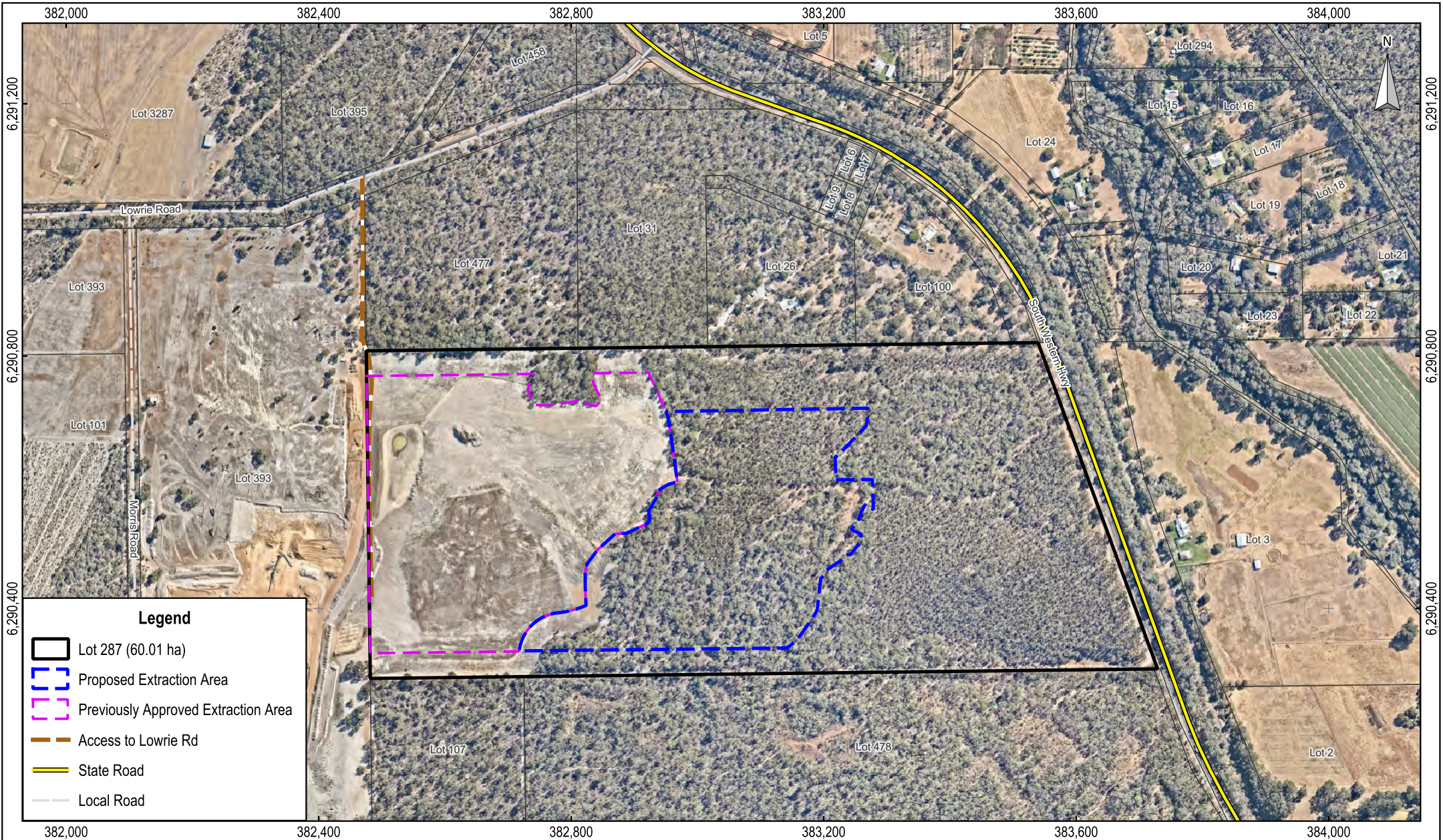
Mario Michele Giacci
 Lot 287 South Western Highway,
 Gwindinup

Figure 1

Location

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au





Scale: 1: 8,000
 Original Size: A4
 Air Photo Date: June 2024
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 2
Lot 287 Boundary

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au

2. PROJECT DESCRIPTION

2.1 PROPOSED EXTRACTION

The applicant is proposing to extract approximately 400,000 m³ of sand and gravel from a 13.36 ha extraction area. Extraction within Lot 287 has already progressed from Stages 1 through to 11 totalling 17.27 ha and rehabilitation of the exhausted areas has commenced. The expansion to the extraction area at Lot 287 is proposed to occur gradually in eight stages, each less than 2 ha in size. Final batters (maximum 1:6 slopes) and pit floor (approximately 1:10 slope) will remain at least 2 m above the maximum groundwater level. Following extraction, the entire extraction area is proposed to be gradually rehabilitated with a combination of native vegetation and pasture, in keeping with the rural character of the property.

2.2 PROPOSED EXTRACTIVE STAGING

The proposed expansion to extraction areas at Lot 287 is split to three main phases which include a further eight extractive stages. Phases 1 to 3 are comprised of Stage 13 to Stage 20, all of which are less than 2 ha each. A summary of the proposed phases, stages and impact areas is detailed below and presented in Figure 3:

- Phase 1
 - Stage 12 (1.87 ha)
 - Stage 13 (1.52 ha)
 - Stage 14 (0.87 ha)
- Phase 2
 - Stage 15 (2.00 ha)
 - Stage 16 (1.99 ha)
 - Stage 17 (1.86 ha)
 - Stage 18 (0.82 ha)
- Phase 3
 - Stage 19 (1.37 ha)
 - Stage 20 (1.05 ha)

2.3 PROPOSED CLEARING WITHIN STAGES

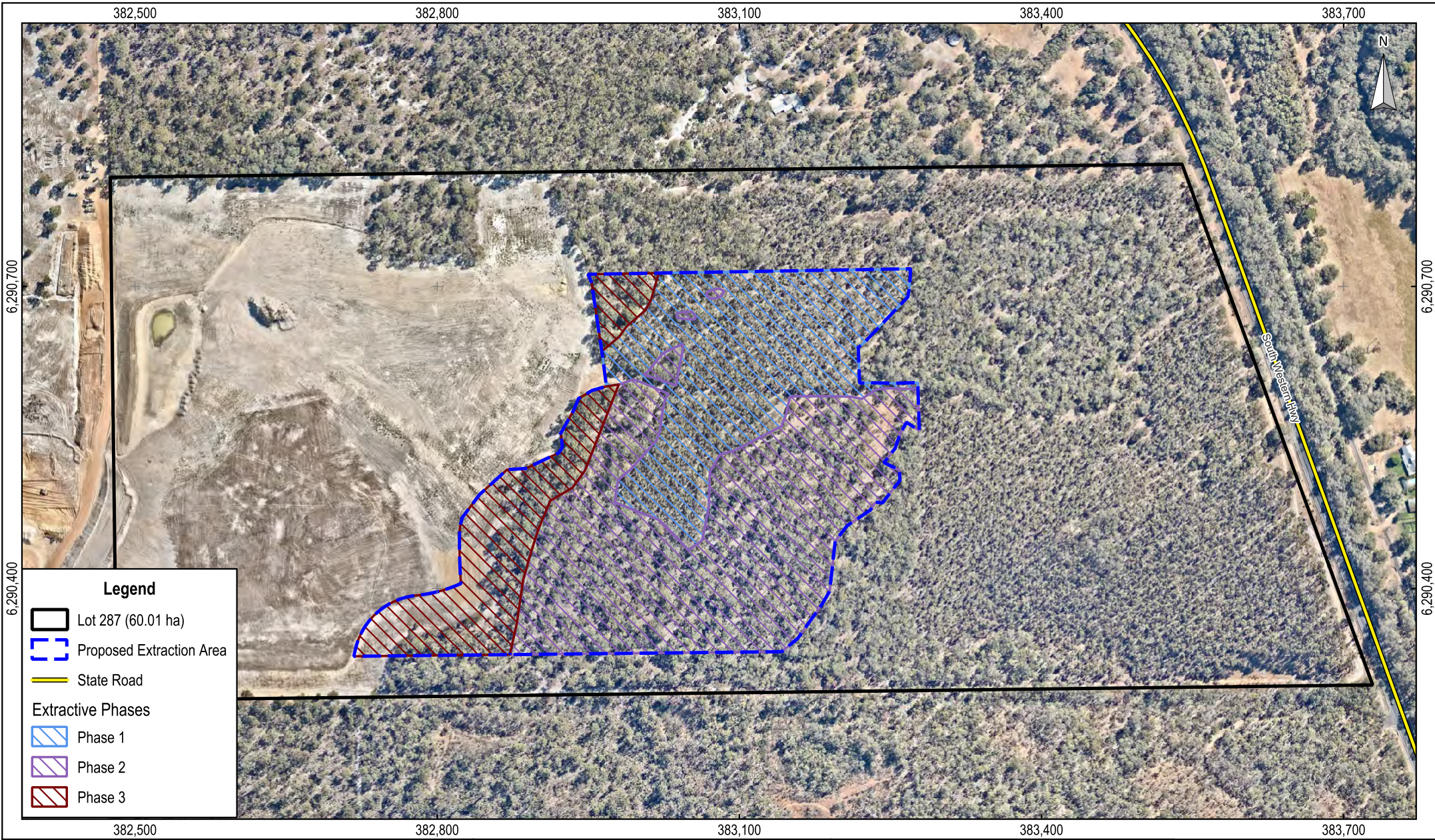
Phase 1 does not require the clearing of native vegetation, however Phases 2 and 3 require the removal of 6.51 ha and 1.48 ha of native vegetation respectively. A summary of the proposed clearing within the Phases is detailed below and presented in Figure 4

- Phase 1 (4.26 ha) features blue gum plantation and some cleared areas, and therefore is not subject to this clearing permit application. It should be noted that the plantation contains four (4) remnant, native trees, which have been excised from Stage 12 and instead included in Stage 15 (Phase 2).
- Phase 2 (6.68 ha) mainly consists of native vegetation (6.51 ha) including the four (4) remnant trees from within the Phase 1 boundary, with some cleared areas, and is subject to this native vegetation clearing permit application.
- Phase 3 (2.42 ha) mainly consists of native vegetation (1.48 ha) with some cleared areas and is subject to this native vegetation clearing permit application.

2.4 PROPOSED REHABILITATION ZONES

It is proposed that at least 8.02 ha of native revegetation will be undertaken to replace the 8.02 ha of proposed native vegetation clearing. This native revegetation is proposed in a location that will maximise the connectivity of remnant native vegetation in adjacent Reserves to create a north to south corridor through the centre of Lot 287. In addition to this, the proposed staging and therefore timing of the revegetation will enable native revegetation to have commenced in Phases 1 and 2, prior to the clearing of Phase 3, which is an existing corridor that currently connects the adjacent Reserves to the north and south of the property. Revegetation will be aligned with the extractive staging and undertaken progressively, to mitigate the impacts of native vegetation clearing associated with the proposed extraction activities.

Proposed rehabilitation is presented in Figure 5 and specified in further detail, in Section 6.



Scale: 1: 5,000
 Original Size: A4
 Air Photo Date: June 2024
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

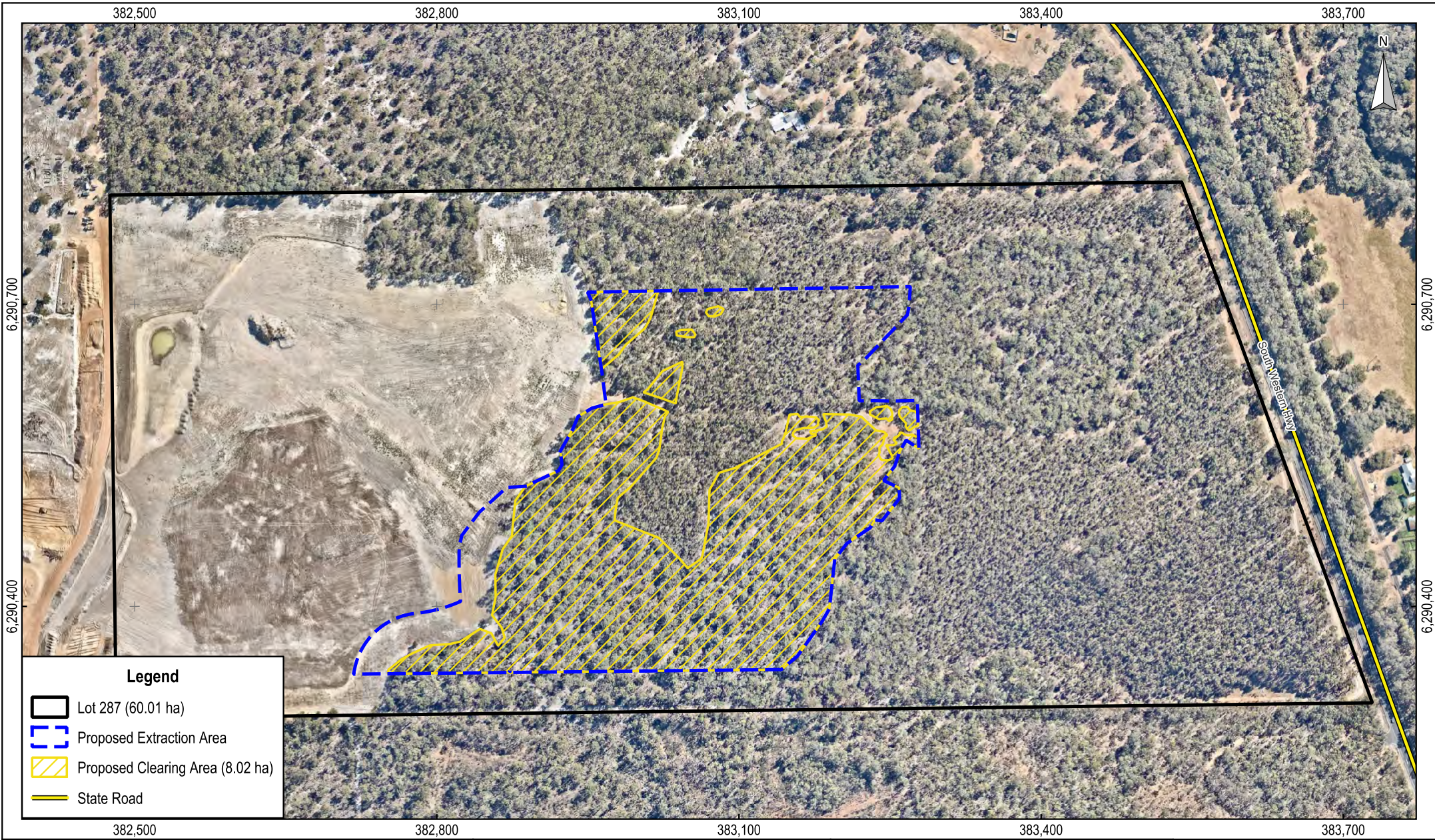
0 100 200 m

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 3
Proposed Extraction Phases

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au

MBS
 ENVIRONMENTAL



Scale: 1: 5,000
 Original Size: A4
 Air Photo Date: June 2024
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 4
Proposed Native Vegetation Clearing

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au

MBS
 ENVIRONMENTAL

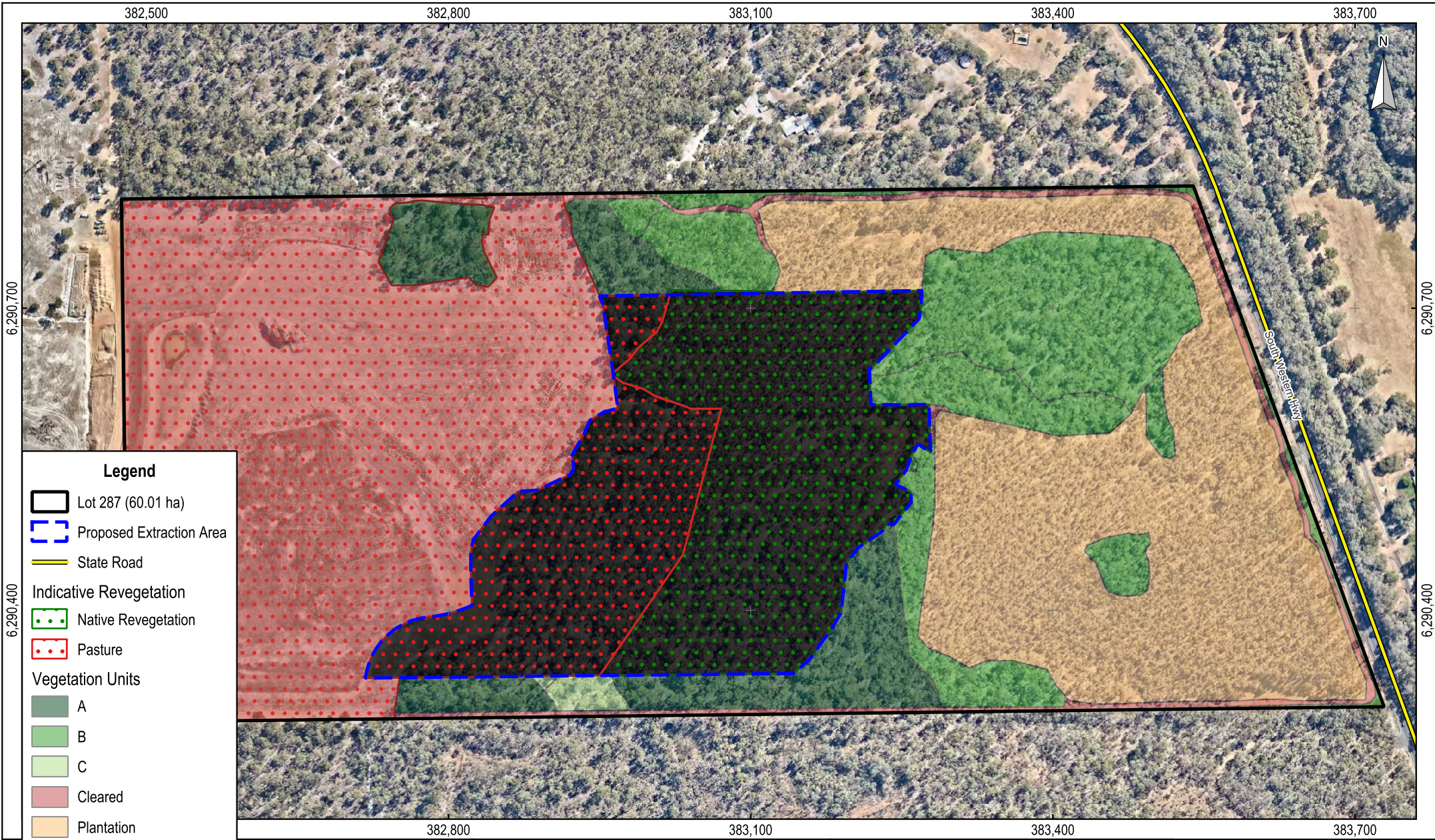


Figure 5

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Native Revegetation

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au



3. JUSTIFICATION OF THE PROPOSAL

State Planning Policy 2.4 stipulates that basic raw materials are a finite resource and their efficient use is required to ensure an ongoing supply to support economic development in Western Australia. The policy notes that basic raw materials are essential for the construction of buildings, roads, other infrastructure and agricultural production.

Demand for sand and gravel within the south west is well understood, and following the immense quantities of sand and gravel required for the Bunbury Outer Ring Road, a significant resource deficit has been left for a rapidly growing region. While it is not possible to know the exact future commercial uses of the sand and gravel resources, based on other extractive projects in the region, the material will be used in a capacity which enables public benefit. For example, there are state and local government road safety upgrade projects, industrial areas (providing economic growth and tax revenue), residential and state housing (desperately required to address an existing housing crisis and support local south west construction industry), public buildings, parks and recreational areas, all of which provide direct and critical infrastructure for rapidly growing communities in the south west.

Sites where extraction requires minimal clearing of native vegetation, which is already fragmented or degraded from historic activities, should be prioritised. Not only does Lot 287 meet this category, but it also provides a range of possibilities for achieving net environmentally beneficial outcomes, on a localised scale, through mitigation, rehabilitation and offsetting activities.

4. SUMMARY OF ECOLOGICAL SURVEY EFFORT

To support the environmental approvals for the Proposal, the surveys summarised below in Table 1 have been undertaken.

Table 1: Summary of Ecological Survey Effort

Survey	Summary
Detailed and Targeted Flora and Vegetation Survey Lot 287 South Western Highway, Gwindinup, Western Australia (Ecoedge, 2024).	<p>Survey date: 1 and 29 September 2023</p> <p>Survey area: 46.2 ha</p> <p>Survey effort: Detailed and Targeted Flora and Vegetation Survey</p> <p>Summary of findings:</p> <ul style="list-style-type: none"> • One hundred and one native vascular flora taxa and 11 introduced taxa were recorded in the 21.36 ha of native vegetation within the survey area. • No Threatened or Priority flora was found in the survey area. • All 75 Threatened or Priority taxa potentially occurring in the survey area were assigned a post-survey residual likelihood of “unlikely”. • An individual of the Declared Pest plant *<i>Asparagus asparagoides</i> (Bridal creeper), was recorded in the survey area. • Four vegetation units, including one that consists of *<i>Eucalyptus globulus</i> plantations were identified and mapped in the survey area: <ul style="list-style-type: none"> — Vegetation unit A. <i>Eucalyptus marginata</i> mid open forest over <i>Corymbia haematoxylon</i>, (<i>Banksia grandis</i>, <i>Xylomelum occidentale</i>) low woodland on greybrown gravelly loamy sand (11.48 ha). — Vegetation unit B. <i>Eucalyptus marginata</i>, <i>Corymbia calophylla</i> mid open forest over <i>Corymbia haematoxylon</i> scattered low trees on grey-brown loamy sand (8.14 ha). — Vegetation unit C. <i>Eucalyptus marginata</i> mid open forest over <i>Corymbia haematoxylon</i>, <i>Xylomelum occidentale</i> low woodland on grey sand (0.53 ha). — Vegetation unit PL. <i>Eucalyptus globulus</i> plantation (17.50 ha). • Statistical comparison of the three floristic quadrats placed within the survey area showed the vegetation was more like the vegetation on the Darling Scarp near Harvey than it was to that of the Whicher Scarp adjacent to and south of the survey area. • The survey area vegetation did not align with any Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC). • Vegetation condition mapping identified vegetation in Excellent to Completely Degraded condition, with an additional 8.55 ha of the survey area as cleared: <ul style="list-style-type: none"> — 4.86 ha (12.91%) in Excellent condition. — 12.32 ha (32.72%) in Very Good condition. — 1.28 ha (3.4%) in Good condition. — 1.33 ha (3.53%) in Degraded condition. — 17.87 ha (47.44%) in Completely Degraded condition.
Desktop Study and Reconnaissance Flora and Vegetation Survey Lot 287 South Western Hwy, Gwindinup, WA (Marsh, 2019).	<p>Survey date: Nov 2018</p> <p>Survey area: 46 ha (19 ha of which was native vegetation)</p> <p>Survey effort: Reconnaissance Flora and Vegetation Survey</p> <p>Summary of findings:</p> <ul style="list-style-type: none"> • A total of 55 native vascular plant taxa representative of 47 plant genera and 29 plant families were recorded within the survey area.

Survey	Summary
	<ul style="list-style-type: none"> Seven introduced species were recorded, none of which are listed as a Declared Pest under the <i>Biosecurity and Agriculture Management Act 2007</i> (DPIRD 2018). No Threatened or Priority flora species were identified within the survey area. Three vegetation types were defined within the survey area, all consisting of variations of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> woodlands over <i>Xanthorrhoea preissii</i>. Most of the remnant areas of native vegetation ranged in condition from very good to good (40.2%), with the remainder of the survey area completely degraded and consisting of blue gum plantations, tracks and cleared areas (58.7%). No TEC or PEC were inferred to occur within the survey area.
Fauna Assessment Lot 287 South Western Highway Gwindinup (Harewood, 2019).	<p>Survey date: 27 and 28 February 2019</p> <p>Survey area: 60 ha (Lot 287)</p> <p>Survey effort: Level 1 Fauna with Targeted Black Cockatoo Habitat Assessment (EPA 2016)</p> <p>Summary of findings:</p> <ul style="list-style-type: none"> Desktop assessment identified 29 mammal (including nine bat species), 92 bird, 36 reptile and three frog species. Four main fauna habitat types include: <ul style="list-style-type: none"> Tall woodland of Jarrah and Marri over low woodland of <i>Banksia grandis</i> over all sparse shrubland of <i>Kunzea glabrescens</i> over low sparse shrubland of <i>Xanthorrhoea preissii</i>. Tall woodland of Jarrah and Marri over tall sparse shrubland of <i>Kunzea glabrescens</i> over low sparse shrubland of <i>Xanthorrhoea preissii</i> and <i>Xanthorrhoea gracilis</i>. Tall woodland of Jarrah and Marri over low sparse shrubland of <i>Xanthorrhoea preissii</i> and <i>Hibbertia hypericoides</i>. Disturbed: Blue gum plantations, tracks, and clearings. Overall fauna habitat quality appears to be in good condition and it can be expected that a high percentage of the predicted species would be present, with 25 species positively identified from foraging evidence, scats, tracks, skeletons or calls. Evidence of three vertebrate fauna species of conservation significance within Lot 287: <ul style="list-style-type: none"> Forest Red-tailed Black Cockatoo (Vulnerable under the Biodiversity Conservation Act 2016 [BC Act] and Environment Protection and Biodiversity Conversation Act 1999 [EPBC Act]), Baudin's Black Cockatoo (Endangered under the BC Act and EPBC Act) Western Ringtail Possum (Critically Endangered under the BC Act and EPBC Act) Black Cockatoo Habitat Assessment identified: <ul style="list-style-type: none"> 405 potential nesting trees (trees have a suitable diameter at breast height (DBH) to develop a nest hollow, but do not have hollows) on the property. 26 Suitable nesting trees (trees with a suitable hollow based on the size of the entrance to an apparent hollow) were identified out of the 405 potential nesting trees

Survey	Summary
	<p>— No trees were conclusively identified as known nesting trees (trees currently or recently having been used for Black Cockatoo breeding).</p> <p>Additional ten vertebrate and invertebrate species of conservation significance may utilise the site, though no evidence of these species being present, was recorded during the survey.</p>

5. EXISTING ENVIRONMENT

The existing environment was assessed from the review of publicly accessible, desktop information and the field surveys. The findings are summarised below in Section 5.1 to . As far as possible, the findings presented are specific to the proposed clearing/ extraction area. Where this level of detail has not been available or is not of relevance, the area of assessment has been specified (e.g. Lot 287).

5.1 BIOREGIONAL CONTEXT

The proposed clearing area is located within the Jarrah Forest Bioregion classified by the Interim Biogeographic Regionalisation for Australia (IBRA) and described as a duricrusted plateau of Yilgarn Craton characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Marri-wandoo woodlands on clayey soils (Thackway and Cresswell 1995).

The Jarrah Forest Bioregion is divided into two subregions, Jarrah Forest 1 (JF1 – Northern Jarrah Forest) and Jarrah Forest 2 (JF2 – Southern Jarrah Forest), of which the proposed clearing area is located within JF2 subregion. This subregion is comprised of eluvial and alluvial deposits that support Agonis shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands (CALM 2003).

5.2 ZONING AND LAND USE

The primary land use associated with the JF2 subregion includes grazing (improved pastures) and dry land agriculture, forestry, (both native and plantations), irrigated horticulture, mining, rural residential, easements, and conservation (CALM 2003).

Lot 287 is zoned as 'Rural' under the Shire of Capel Local Planning Scheme (LPS) No.8 and falls within three Special Control Areas (SCA):

- SCA4 Transport Corridors.
- SCA6 Strategic Minerals and Basic Raw Materials.
- SCA8 Regional Ecological Linkages.

Lot 287 has a Mineral Sands Caveat (in favour of Cristal Mining Limited) to protect mineral sand mining rights on the property. Extensive mineral sands mining has been undertaken to the west of Lot 287. In addition to an active sand and gravel extraction area on the western side of the property, Lot 287 contains a blue gum plantation with pockets of remnant native vegetation.

5.3 CLIMATE

The climate of the project area is Mediterranean, with cool wet winters and hot dry summers. Bureau of Meteorology (BoM) Long-term average climate data for the closest meteorological station (Donnybrook, 9 km southeast of the property) is shown below in Chart 1. The average annual rainfall is 970.4 mm, mean minimum temperatures between 5 and 15°C and mean maximum temperatures between 16 and 31°C (BoM 2024).

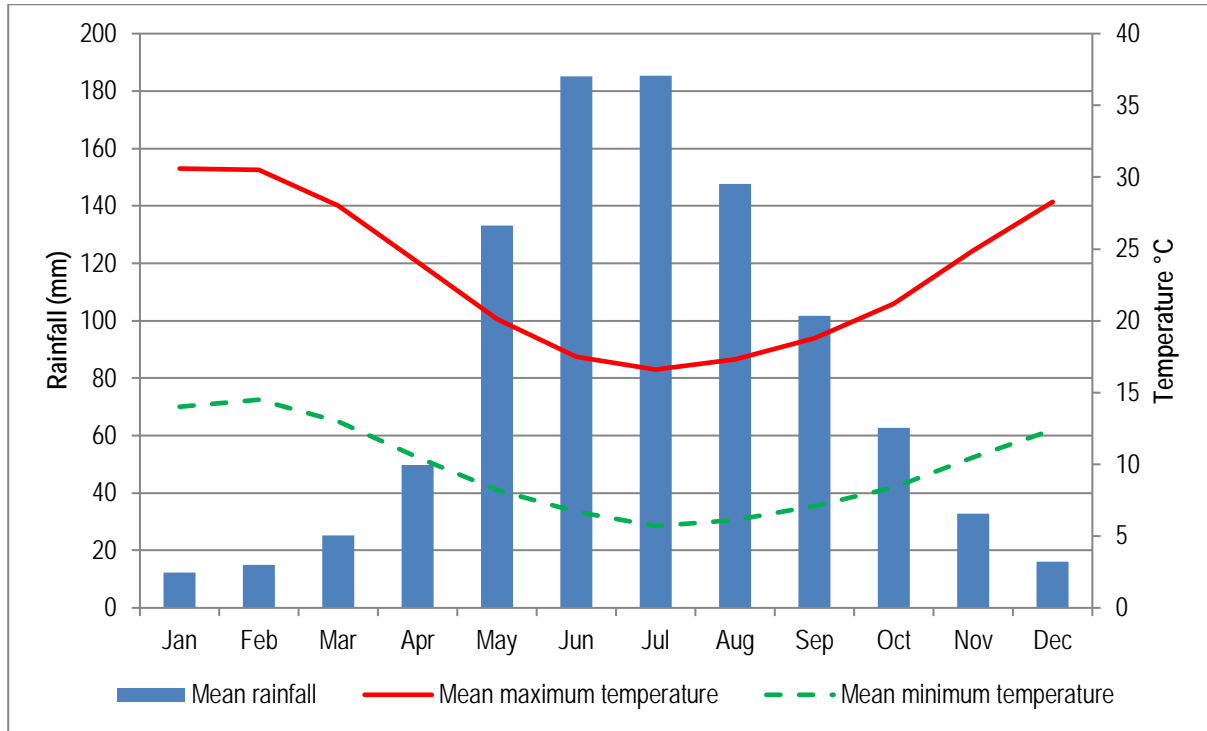


Chart 1: Climate Statistics (1900–2023) for Donnybrook (BoM Station 9534)

5.4 LANDFORM

The highest point on Lot 287 is situated approximately halfway along the southern boundary and has an elevation of 111 m Australian Height Datum (mAHD) (Figure 6). From this point, the land to the west and north slopes and undulates downward at gradients between approximately 1:10 and 1:20. Near the northern boundary there are steep areas of approximately a 1:6 slope. To the east of the proposed extraction area lies the steepest gradients on the property, which slope towards South Western Highway at gradients up to 1:6 within the proposed extraction area and 1:4 further east, beyond the proposed extraction area.

Natural landform within the proposed extraction area on Lot 287 ranges from 109 mAHD in the south to 67 mAHD in the northwest.

5.5 SOIL SYSTEMS AND ACID SULFATE SOIL (ASS) RISK

The Australian Soil Resource Information System (ASRIS) identifies three soil and landform mapping systems within and surrounding the proposed extraction area, as presented in Figure 6 and detailed below (CSIRO 2014):

- **Whicher Scarp System:** Low scarp and raised platform, on the northern edge of the Donnybrook Sunkland. Sandy gravel and pale deep sands, loamy gravel and non-saline wet soils. Jarrah-marri forest and woodland.
- **Goodwood Valleys System:** Valleys of the Donnybrook Sunkland. Sandy gravel, loamy gravel, and deep sands. Jarrah-marri forest and woodland.
- **Blackwood Plateau System:** Lateritic plateau in the Donnybrook Sunkland. Sandy gravel, loamy gravel, and deep sand. Jarrah-marri forest.

Although the proposed clearing area is located outside of DWER's ASS mapping (DWER-055), it is away from wetlands and waterways and located on well-draining, sandy soils, with a deep watertable. According to Department of Environment Regulation (DER) the proposed clearing area is not located in an area of concern for ASS formation (DER 2015), and it is therefore assumed this is the reason why the area is unmapped on DWER's ASS mapping.

As ASS have not been encountered during previous extractive operations at Lot 287, it is assumed that the risk of ASS within the proposed clearing area is low.

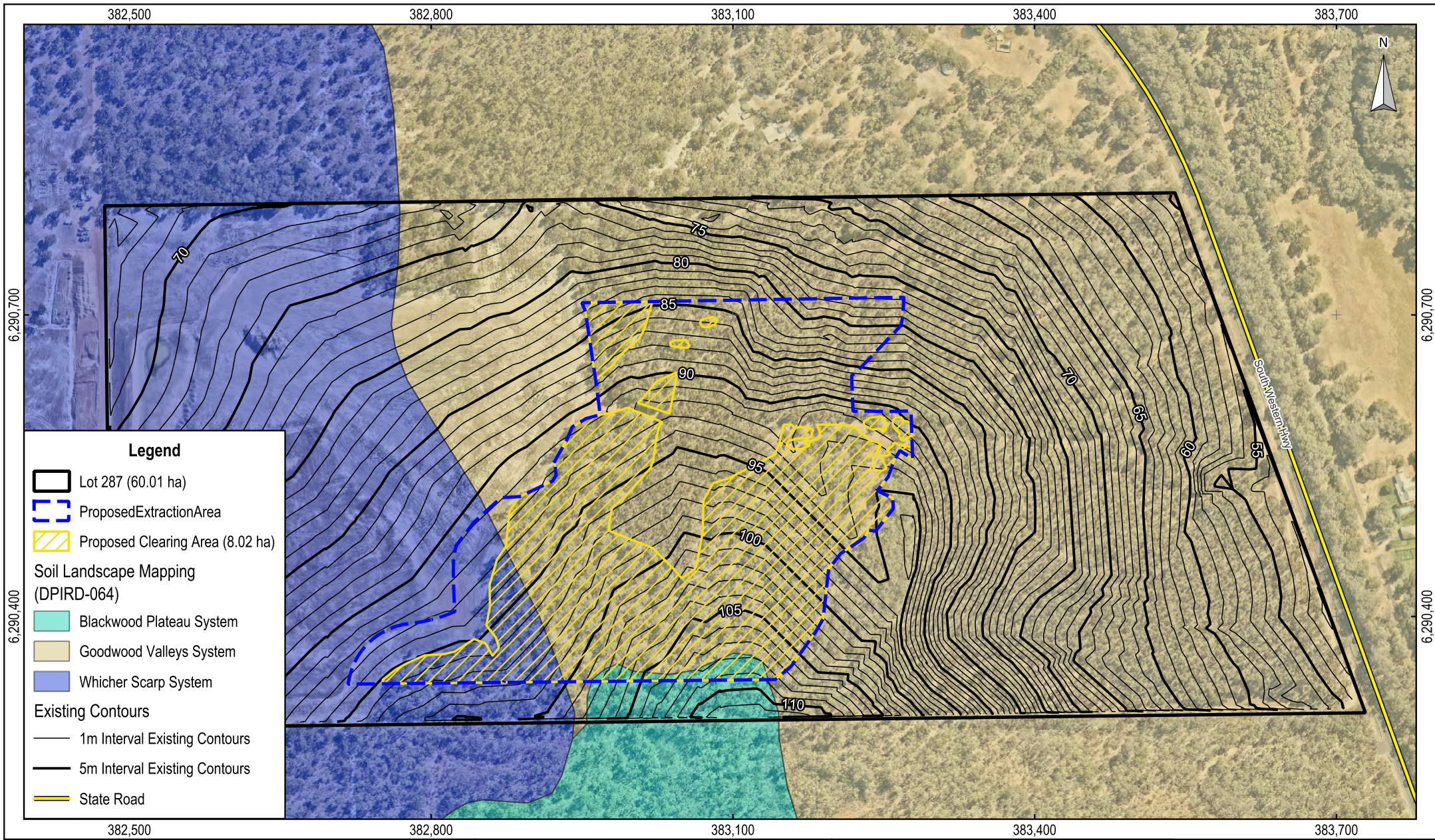
5.6 GROUNDWATER

Two piezometers were installed on Lot 287 in September 2012, and their locations are shown in Figure 6. Readings taken on 20 September 2012 are shown in Table 2. The results show that groundwater is approximately 7.8 m from the surface. The extractive operations on the site since 2013 have not intersected the groundwater table.

The lowest point of excavation on Lot 287 is the stormwater retention pond (at 65 mAHD) in the northwestern part of the property (Figure 6). This pond will remain approximately 2 m above maximum groundwater levels. Landform in the rest of the extraction area will be higher than the pond and depth to maximum groundwater will be more than 2 m.

Table 2: Piezometer Locations in Lot 287

Piezometer	Ground level (AHD)	Groundwater depth from natural ground level	Groundwater level (AHD)
A	68.20 m	7.85 m	60.35 m
B	70.90 m	7.84 m	63.06 m



Legend

- Lot 287 (60.01 ha)
- Proposed Extraction Area
- Proposed Clearing Area (8.02 ha)

Soil Landscape Mapping (DPIRD-064)

- Blackwood Plateau System
- Goodwood Valleys System
- Whicher Scarp System

Existing Contours

- 1m Interval Existing Contours
- 5m Interval Existing Contours
- State Road

Scale: 1: 5,000
 Original Size: A4
 Air Photo Date: June 2024
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

0 100 200 m

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 6
Soil Systems and Landforms

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au

5.7 SURFACE WATER

The proposed clearing area at its closest points is located approximately 500 m north east to 1 km west of a large multiple-use palusplain wetland totalling approximately 42,000 ha (DBCA-019). Additionally, the associated Preston River is located approximately 480 m east of the proposed clearing area (Figure 7, DWER-031).

There are no watercourses within the proposed clearing area or more broadly on Lot 287, given the well-draining soil types and lack of catchment area. Surface flow is only likely to occur during intense or prolonged rainfall events. Any surface flow leaving the proposed clearing area, does so across the western boundary into Lot 393 Lowrie Road, with the exception of the small area in the eastern limit in the Preston River catchment. Management of stormwater runoff for the proposed extraction area is detailed in a site-specific Stormwater Management Plan (MBS 2024a).

The location of the proposed clearing area is compliant with the advice of Water Quality Protection Note No. 15 (DWER 2019). The proposed extraction area is not within a proclaimed Public Drinking Water Supply Area (PDWSA), land subject to seasonal flooding or defined floodplain and is well separated from all waterways.

5.8 VEGETATION AND FLORA

5.8.1 BROADSCALE VEGETATION MAPPING

Lot 287 contains a mosaic of remnant native vegetation, blue gum plantation, and some cleared land. In broadscale vegetation mapping, the proposed clearing area has been mapped within Pre-European Vegetation Associations 1017 and 1181 (DPIRD-006):

- Vegetation Association 1017 - Medium open woodland; jarrah & marri, with low woodland; banksia.
- Vegetation Association 1181 - Medium woodland, jarrah & *Eucalyptus haematoxylon* (Whicher Range).

Vegetation Association extents are presented in Figure 8 and detailed below in Table 3:

Table 3: Vegetation Association Extents

Area Type	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	Current Extent in DBCA Managed Lands (%)
IBRA Bioregion: Jarrah Forest	4,506,660.25	2,399,838.15	53.25	37.14
IBRA Sub-Region: JF2	2,607,879.52	1,291,457.94	49.52	34.67
LGA: Shire of Capel	55,945.03	18,585.28	33.22	15.15
Vegetation Association: 1017	17,528.01	11,550.51	65.90	47.96
Vegetation Association: 1181	19,217.13	8,915.02	46.39	26.83

The proposed clearing area is represented by 2.16 ha of Vegetation Association 1017 and 5.86 ha of Vegetation Association 1181. The proposed clearing will therefore result in a reduction of these vegetation associations by 0.02% and 0.07% respectively.

The Vegetation Complexes - South West forest region of Western Australia (DBCA-047), maps the proposed clearing area within three vegetation complexes, as presented in Figure 8 and detailed below in Table 4:

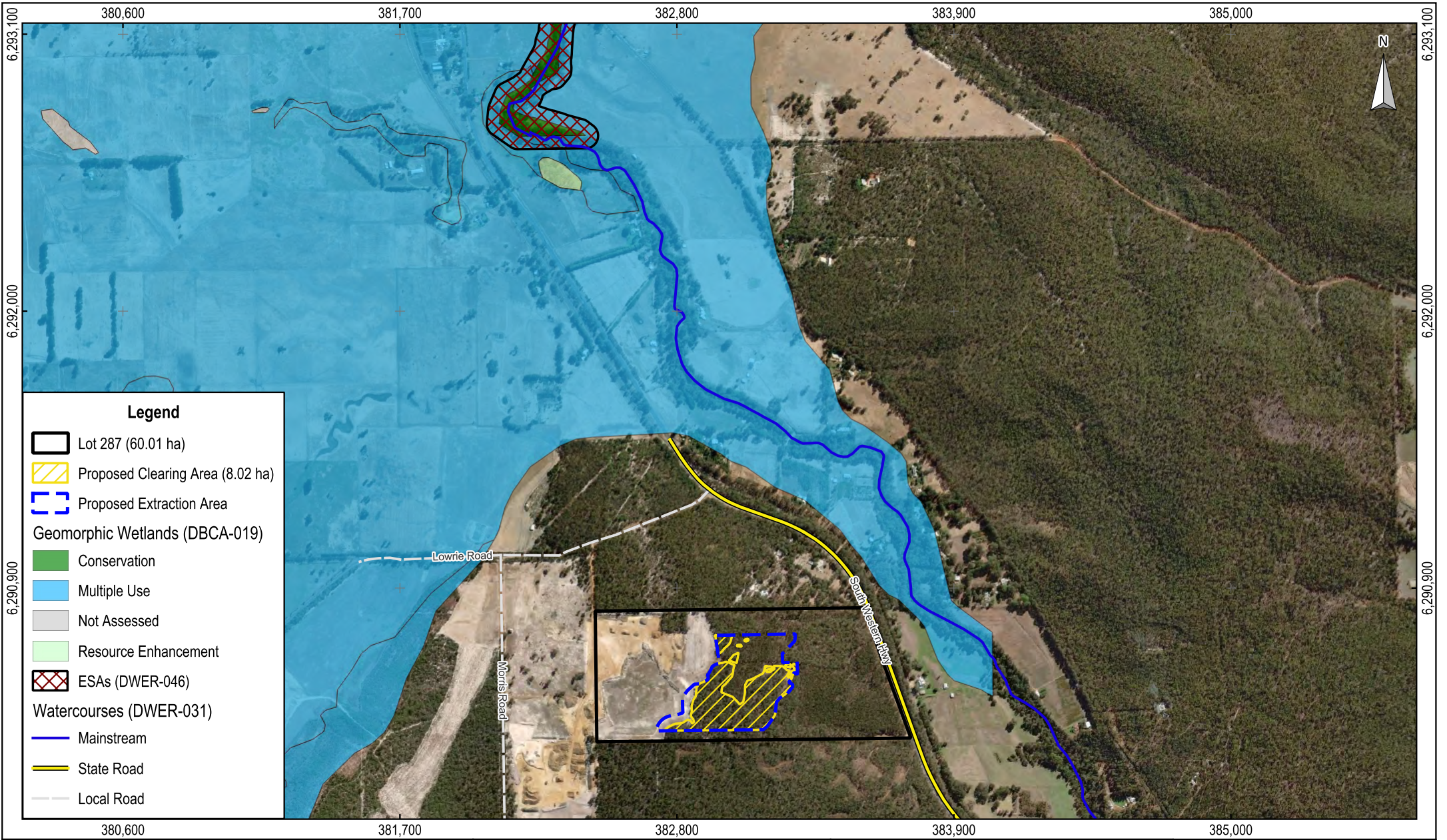
- Subregion: Blackwood Plateau and Plain
 - Complex: Kingia (Uplands) - Open forest of *Eucalyptus marginata* subsp. *Marginata* - *Corymbia calophylla* - *Allocasuarina fraseriana* - *Banksia grandis* - *Xylomelum occidentale* on lateritic uplands in perhumid and humid zones.
 - Complex: Rosa (Valleys) - Woodland to open forest of *Corymbia calophylla* - *Eucalyptus marginata* subsp. *Marginata* - *Xylomelum occidentale* on slopes and tall shrubland of *Agonis linearifolia* in valley floors in the humid zone.
- Subregion: Whicher Scarp
 - Complex: Whicher Scarp (Uplands) - Open forest of *Eucalyptus marginata* subsp. *Marginata* - *Corymbia calophylla* on escarpment with some *Corymbia haematoxylon*, *Banksia attenuata*, and *Xylomelum occidentale* in the humid zone.

Table 4: Vegetation Complex Extents

Area Type	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	Current Extent in DBCA Managed Lands (%)
Subregion: Blackwood Plateau and Plain	359,230.97	295,907.94	82.37	76.76
• Complex: Kingia (155)	102,026.18	96,173.78	94.26	92.60
• Complex: Rosa (243)	17,240.71	12,979.04	75.28	66.40
Subregion: Whicher Scarp	20,813.46	9,484.53	45.57	25.80
• Complex: Whicher Scarp (290)	4,509.59	3,129.06	69.39	53.60

Source: DBCA-047

The proposed clearing area is represented by 0.25 ha of the Kingia complex, 6.88 ha of the Rosa complex and 0.89 ha of the Whicher Scarp complex. The proposed clearing will therefore result in a reduction of these vegetation complexes by <0.01%, 0.05% and 0.03% respectively.

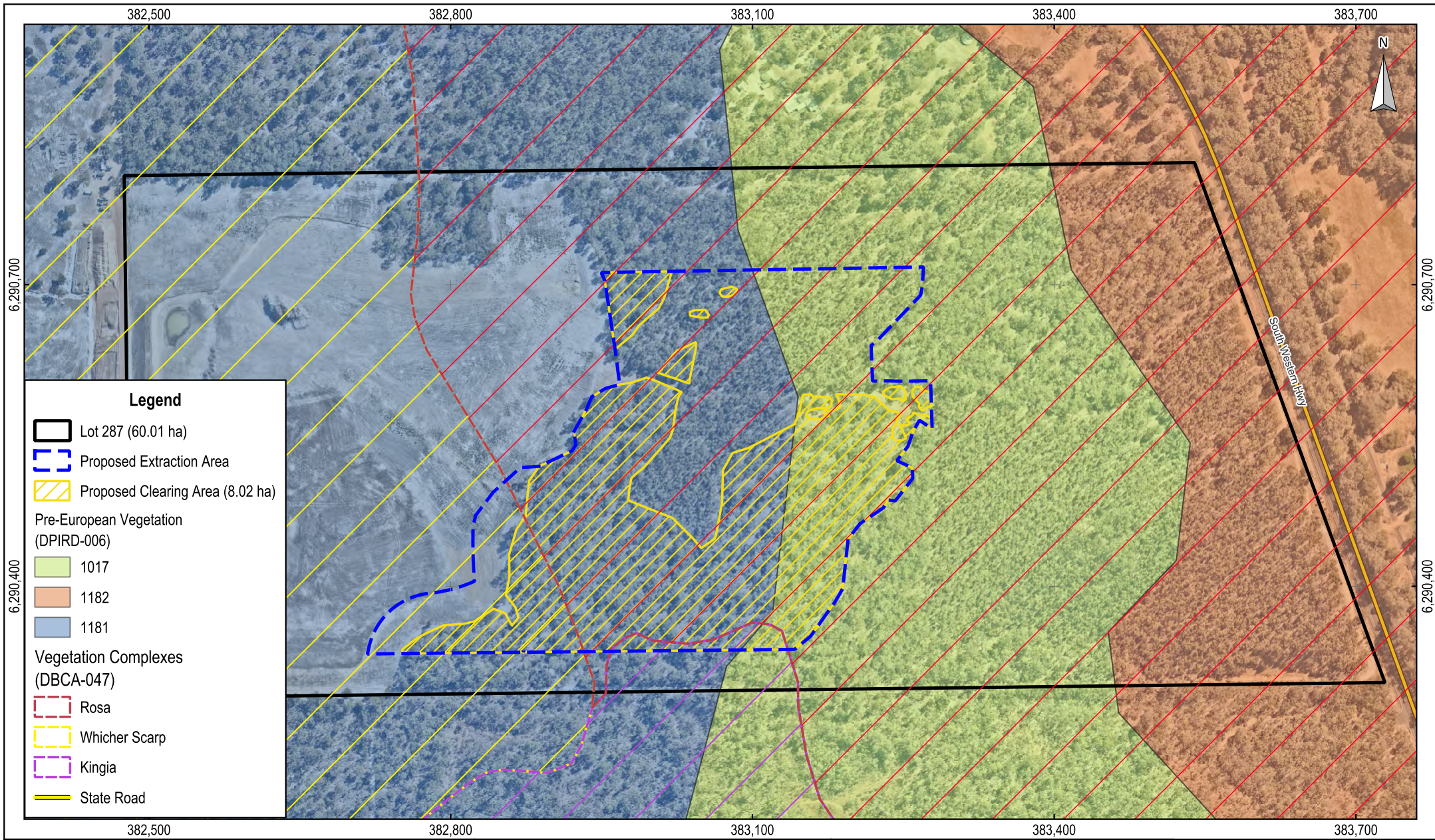


Scale: 1: 20,000
 Original Size: A4
 Air Photo Date: June 2024
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 7
Surface Hydrology

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au



Scale: 1: 5,000
 Original Size: A4
 Air Photo Date: June 2024
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

0 100 200 m

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 8
Vegetation Associations and Complexes

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au

MBS
 ENVIRONMENTAL

5.8.2 Vegetation Types and Condition

Ecoedge (2024) identified three native vegetation types represented on the site, an introduced vegetation type and cleared areas, as described below. The proposed native vegetation clearing (proposed clearing area) is shown in Figure 9 and detailed in Table 5:

- Vegetation unit A: *Eucalyptus marginata* mid open forest over *Corymbia haematoxylon*, (*Banksia grandis*, *Xylomelum occidentale*) low woodland on grey-brown gravelly loamy sand.
- Vegetation unit B: *Eucalyptus marginata*, *Corymbia calophylla* mid open forest over *Corymbia haematoxylon* scattered low trees on grey-brown loamy sand.
- Vegetation unit C: *Eucalyptus marginata* mid open forest over *Corymbia haematoxylon*, *Xylomelum occidentale* low woodland on grey sand.
- Vegetation unit PL: *Eucalyptus globulus* (blue gum) plantation
- Cleared: Areas previously cleared of native vegetation and remaining cleared

Table 5: Proposed Clearing Extent by Vegetation Units

Vegetation Unit	Survey Area (ha)	Proposed Clearing Area (ha)	% of Vegetation Unit Impacted within the Proposed Clearing
A	11.48	7.46	65.0%
B	8.14	0.26	3.3%
C	0.53	0.27	50.9%
Total	20.15	7.99*	39.7%

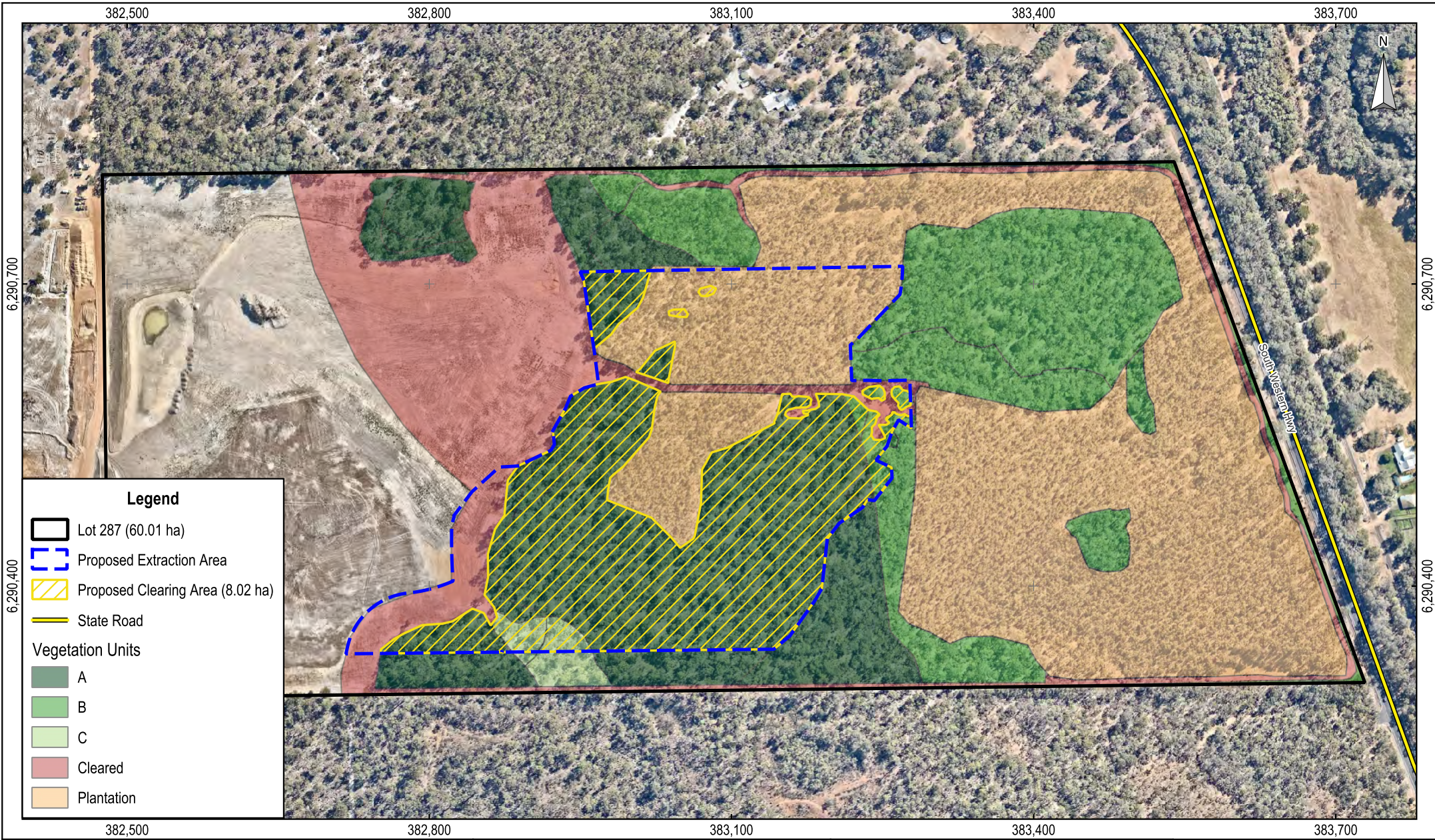
*Ecoedge (2024) data does not map four (4) isolated trees (0.03 ha) within the vegetation unit 'PL' as native vegetation due to the scale of the vegetation mapping. These four trees were identified during the fauna survey (Harewood 2019) and as such have been included in the proposed clearing area. The total proposed clearing of vegetation units (7.99 ha), does not align with clearing amount for the area permit (8.02 ha) as a result.

Vegetation condition mapping by Ecoedge (2024) identified vegetation in the survey area as occurring in Excellent to Completely Degraded condition (Keighery 1994). Vegetation condition in the proposed clearing area is presented in Figure 10 and detailed below in Table 6:

Table 6: Proposed Clearing Extent by Vegetation Condition

Vegetation Condition	Survey Area (ha)	Proposed Clearing Area (ha)	% Impacted
Excellent	4.87	0.12	2.5%
Very Good	12.31	6.62	53.8%
Good	1.28	0.5	39.1%
Degraded	1.33	0.75	56.4%
Completely Degraded (Native Vegetation only)	0.36	-	0%
Total	20.15	7.99*	39.7%

*Ecoedge (2024) data does not map four (4) isolated trees (0.03 ha) within the vegetation unit 'PL' as native vegetation due to the scale of the vegetation mapping. These four trees were identified during the fauna survey (Harewood 2019) and as such have been included in the proposed clearing area. The total proposed clearing extent by vegetation condition (7.99 ha), does not align with clearing amount for the area permit (8.02 ha) as a result.

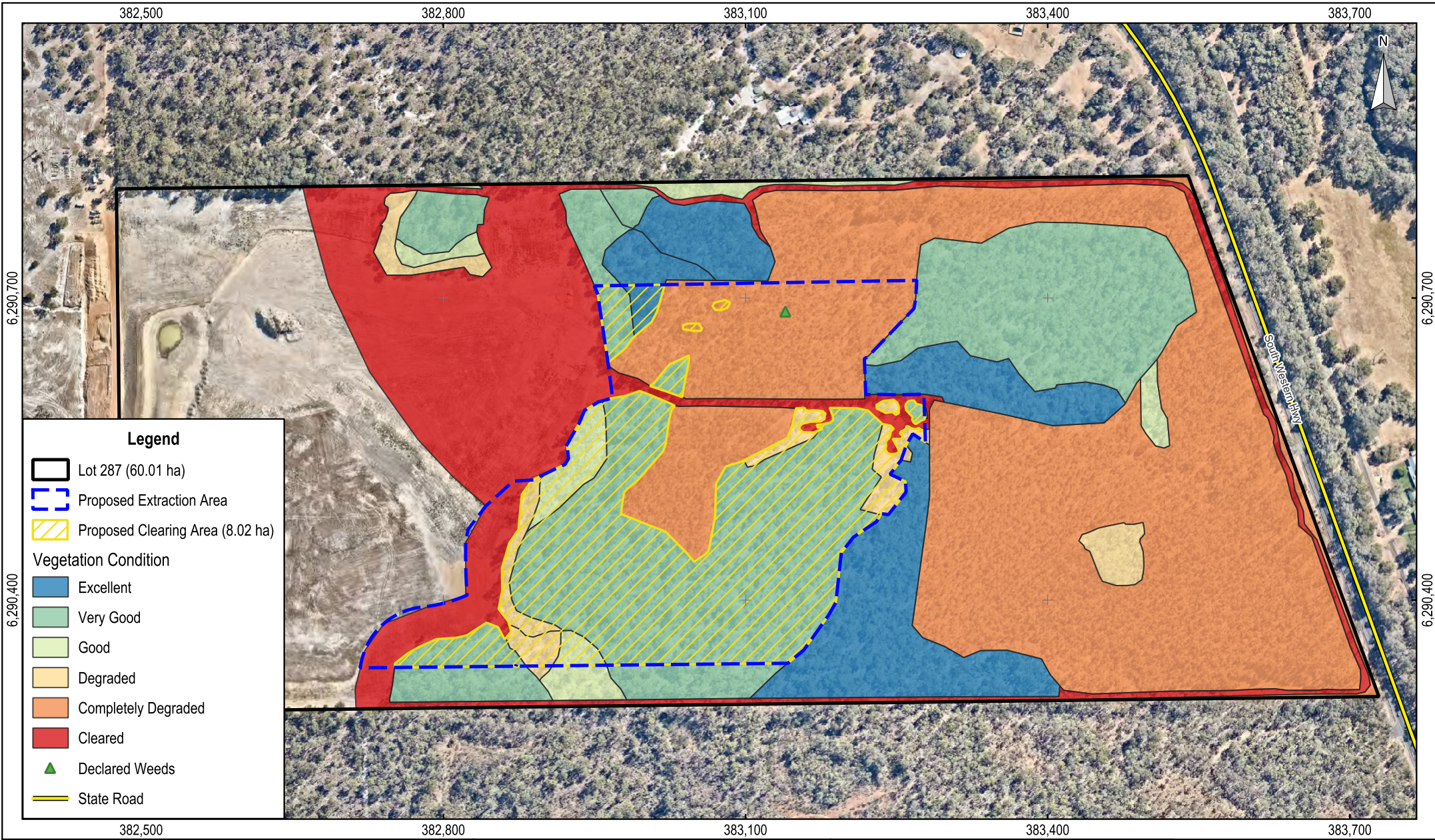


Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 9
Vegetation Type

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au





Scale: 1: 5,000
 Original Size: A4
 Air Photo Date: June 2024
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

0 100 200 m

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 10
Vegetation Condition

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au

MBS
 ENVIRONMENTAL

5.8.3 Threatened and Priority Ecological Communities

No Threatened or Priority ecological communities have been recorded within the proposed clearing area or more broadly in Lot 287 (Ecoedge 2024, Marsh 2019).

5.8.4 Flora Assemblage in Lot 287

One hundred and one native vascular flora taxa and 11 introduced taxa were recorded in the 21.3 ha of native vegetation within the survey area. The dominant taxa within the survey were Asteraceae (ten species including four weed taxa), Fabaceae (ten species, one weed), Proteaceae (nine species), and Orchidaceae (eight species) (Ecoedge 2024).

5.8.5 Conservation Significant Flora

No Threatened or Priority flora species have been recorded within the proposed cleared area or more broadly within Lot 287 (Ecoedge 2024, Marsh 2019). The post survey likelihood of occurrence identified all 75 conservation significant species identified from the desktop assessment, as 'unlikely to occur' (Ecoedge 2024).

Pre -survey and post-survey likelihood of occurrence assessments are presented in Ecoedge (2024) survey report, which is located in Appendix 1.

5.8.6 Declared Pests and WoNS

Several weed species have been recorded, including Declared Pest species *Asparagus asparagoides*, which was recorded from a single plant within the proposed clearing area (Ecoedge 2024). No Weeds of National Significance (WoNS) have been recorded in the proposed clearing area or more broadly within Lot 287 (Ecoedge 2024, Marsh 2019).

5.9 ECOLOGICAL LINKAGES

The South West Regional Ecological Linkages (SWREL) axis lines data (WALGA 2009), maps two axis lines in the vicinity of proposed clearing area as having regional significance for ecological connectivity. A linkage axis line to the east is associated with the Preston River and another linkage axis line to the south is associated with state forest along the escarpment. The proximity ratings of native vegetation parcels to the mapped axis lines of the linkages are shown in Figure 11 with explanation for the proximity values provided below in Table 7. The majority of the vegetation proposed to be cleared has been mapped as proximity rating 1b with the rest as 1c. A substantial area (approximately 5 ha) of native vegetation on Lot 287 had not been mapped in the WALGA 2009 assessment. This area has been indicated in Figure 11 and is tentatively assigned proximity value 1b as it is part of the patch already mapped as 1b on the property.

Table 7: Ecological Linkages Proximity Values

Proximity Values	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

Proximity Values	Description	
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

Source: WALGA 2009

On a local scale, remnant native vegetation within the proposed clearing area may provide habitat connectivity for native fauna species dispersing from native vegetation immediately north of Lot 287, to an extensive corridor of vegetation associated with state forest and other reserves along the escarpment. Rehabilitation proposed will enhance the north/ south ecological connectivity which is detailed further in Section 6.

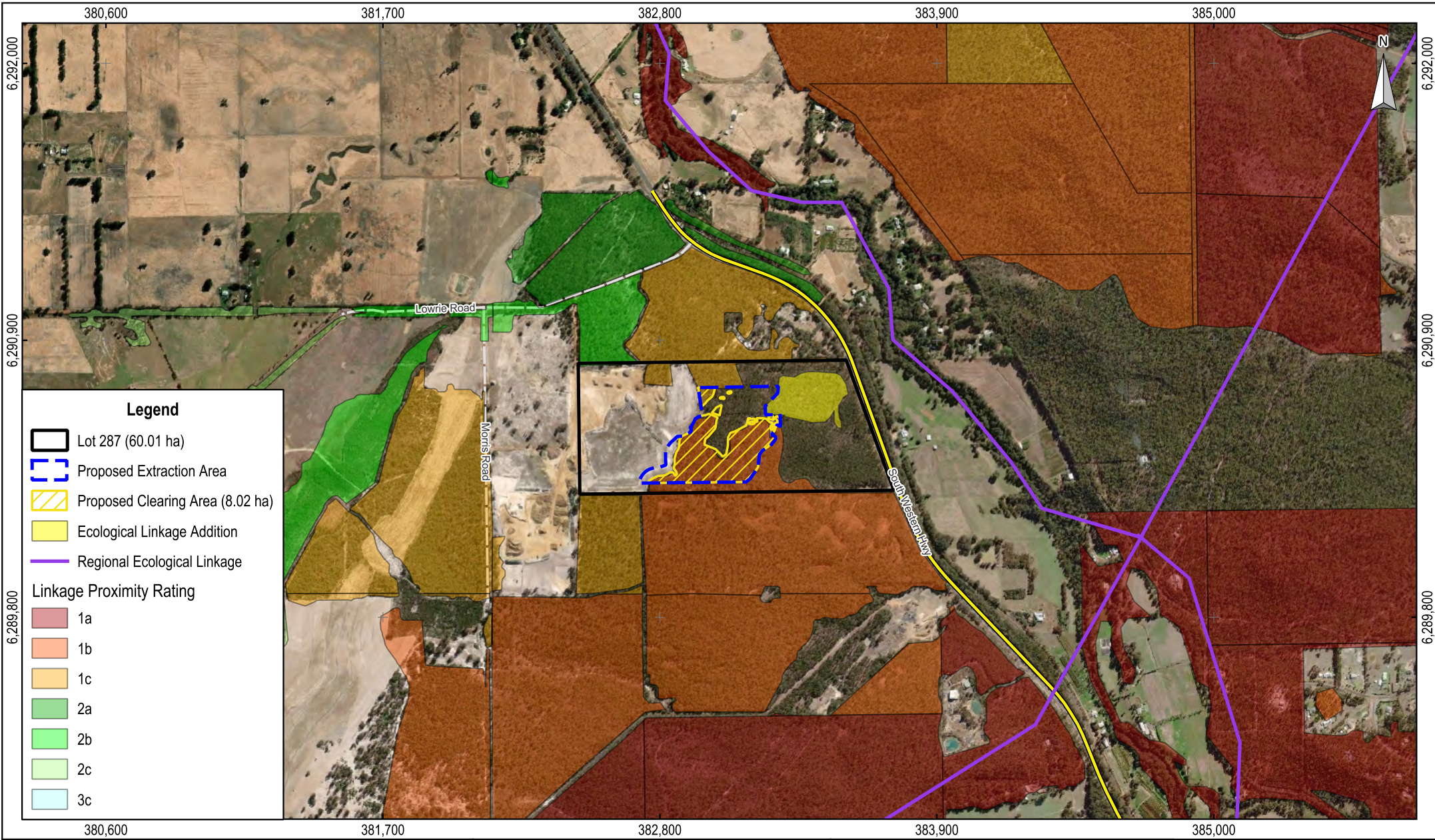
5.10 ENVIRONMENTALLY SENSITIVE AREA

There are no Environmentally Sensitive Areas (ESA) mapped within the proposed clearing or more broadly on the property (DWER-046). The nearest ESA – a waterway with ID 9747 – is approximately 2 km to the north of the proposed clearing area (Figure 7) and will not be impacted by the proposed extraction activities.

5.11 CONSERVATION AREAS

The proposed clearing area is not within a conservation reserve or any DBCA Managed Land and Water. The closest DBCA managed land is the Boyanup State Forest (Forest No. 27) classified as Class A Reserve and vested with the Conservation Commission of Western Australia. At its closest point Boyanup State Forest is located approximately 800 m southwest of the proposed clearing area.

The northern boundary of Lot 287 abuts Reserve 2307 (Lot 477) and Reserve 25500 (Lot 31) reserved for "Public Purposes and "Recreation" and support remnant native vegetation. Reserve 18237 (Lot 478, "Public Purposes and Recreation") is located immediately to the south of Lot 287 and supports remnant native vegetation. The proposed operations will maintain a setback of 40 m from the property boundaries to minimise the potential for indirect impacts on the reserves. Proposed rehabilitation will enhance ecological connectivity between Reserve 2307 and Reserve 25500, which is detailed further in Section 6.



Scale: 1: 20,000
 Original Size: A4
 ESRI Satellite
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

0 0.5 1 km

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 11
Ecological Linkages

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au

MBS
 ENVIRONMENTAL

5.12 FAUNA

5.12.1 Fauna Habitat

Harewood (2019) notes that the remnant native vegetation remaining within the proposed clearing area is comprised of various densities of Jarrah, Marri, and *Banksia* sp. over shrubland on pisolitic gravel or sandy pisolitic gravel. The majority of the survey area was identified as having been subject to historical logging, with most trees relatively young in age. Groundcover is generally sparse, which suggests historical clearing, grazing, and/or frequent fires.

Four main fauna habitats were identified within the proposed clearing area by Harewood (2019). The fauna habitats were mapped utilising the Marsh (2019) reconnaissance level flora and vegetation survey. This is still largely consistent with the finding of the updated flora and vegetation survey by Ecoedge (2024), however due to improvements in aerial imagery and the more detailed level of survey effort by Ecoedge (2024) compared with the Marsh (2019) survey, fauna habitat types will not match exactly with the latest native vegetation types and extents of Section 5.8, such as total native vegetation within the proposed clearing area.

A summary of fauna habitat is detailed below in Table 8 and presented in Figure 12. The full report is provided in Appendix 2.

Table 8: Fauna Habitat Summary

Unit	Fauna Habitat Description	Survey Area (ha)	Proposed Clearing Area (ha)	% Impacted
VT1	Tall woodland of Jarrah and Marri over low woodland of <i>Banksia grandis</i> over all sparse shrubland of <i>Kunzea glabrescens</i> over low sparse shrubland of <i>Xanthorrhoea preissii</i> .	0.79	Nil	0%
VT2	Tall woodland of Jarrah and Marri over tall sparse shrubland of <i>Kunzea glabrescens</i> over low sparse shrubland of <i>Xanthorrhoea preissii</i> and <i>Xanthorrhoea gracilis</i> .	0.84	Nil	0%
VT3	Tall woodland of Jarrah and Marri over low sparse shrubland of <i>Xanthorrhoea preissii</i> and <i>Hibbertia hypericoides</i> .	17.40	7.87	45.23%
D	Disturbed: Bluegum plantations, tracks, and clearings.	27.06	5.46	20.12%
Total		46.09	13.33	28.92%

Overall, fauna habitat quality was assessed as being good and it was expected that a high percentage of the predicted species would utilise the survey area along with native vegetation in the surrounding landscape. Based on native vegetation extent mapping (DPIRD-005) it is estimated that there is approximately 14,670 ha of native vegetation within 12 km of the proposed clearing area (Figure 13). The proposed clearing of native vegetation will therefore only impact approximately 0.05% of available fauna habitat within 12 km of the proposed clearing area.

5.12.2 Fauna Assemblage

Harewood (2019), identified 29 mammals (including nine bat species), 92 bird, 36 reptile and three frog species as having a pre-survey likelihood to occur or have potential habitat present within the proposed clearing area. A total of 25 native fauna species were observed (or positively identified from foraging evidence, scats, tracks skeletons or calls) within the survey area during the course of the site assessment. Most of the fauna species recorded were common widespread bird species.

5.12.3 Conservation Significant Fauna

Evidence of three listed threatened species was observed in the survey area by Harewood (2019):

- *Zanda banksii naso* (Forest red-tailed Black Cockatoo) - Vulnerable
- *Zanda baudinii* (Baudin's Black Cockatoo) - Endangered
- *Pseudocheirus occidentalis* (Western Ringtail Possum) - Critically Endangered

No evidence of any listed migratory or Priority fauna species was found during the survey. However, based on habitat available on site, nine additional species of conservation significance were classified as 'possibly occurring' in the post-survey likelihood of occurrence assessment, including:

- *Zanda latirostris* (Carnaby's Cockatoo) - (State - Endangered, Federal - Endangered)
- *Dasyurus geoffroii* (Chuditch) - (State - Schedule 3, Federal - Vulnerable)
- *Ctenotus ora* (Coastal Plains Skink) - (State - Priority 3)
- *Tyto n. novaehollandiae* (Masked owl) - (State - Priority 3)
- *Isoodon fusciventer* (Quenda) - (State - Priority 4)
- *Notamacropus irma* (Western Brush wallaby) - (State - Priority 4)
- *Falsistrellus mackenziei* (Western False Pipistrelle) - (State - Priority 4)
- *Phascogale tapoatafa wambenger* (South-western Brush-tailed Phascogale) - (Schedule 6)
- *Falco peregrinus* (Peregrine Falcon) - (Schedule 7)

Although the above vertebrate species have potential habitat with the proposed clearing area and may be occasional visitors to the proposed clearing area, the habitat does not reflect any core denning, breeding or roosting/nesting habitat, critical for any local populations of the species. The vegetation proposed to be cleared is not considered necessary for the maintenance of the species or their habitat in the local area, given the insignificant portion (0.05%) proposed for removal.

It is assumed for the purposes of this assessment that although Carnaby's Cockatoo was not recorded during the field assessment by Harewood (2019), that the potential impacts are comparable to the two black cockatoo species that were recorded (see Section 5.12.3.1 for further information).

One additional invertebrate fauna species of conservation significance was identified as having potential habitat within the proposed clearing area. Western Pygmy Trapdoor Spider was identified from two records, more than 1 km away from the proposed clearing area from the DBCA database search (Harewood 2019). Although this species may have suitable habitat within the proposed clearing area, there is extensive suitable habitat available for the species in the local area.

5.12.3.1 Black Cockatoos

Foraging habitat

Baudin's Cockatoo and Forest Red-tail Black Cockatoo were recorded within the survey area both from direct observations and evidence from chewed *Corymbia* nuts. All 20.18 ha of remnant vegetation with the survey area is foraging habitat for black cockatoos with approximately 39.8% of the available vegetation proposed for removal.

Based on native vegetation extent mapping (DPIRD-005), it is estimated that there is approximately 14,670 ha of native vegetation that presents as potential black cockatoo foraging habitat, within 12 km of the proposed clearing area. The proposed clearing of native vegetation will therefore only impact approximately 0.05% of available black cockatoo foraging habitat within 12 km of the proposed clearing area.

Breeding habitat

Black cockatoo breeding habitat, broadly referred to as habitat trees, as defined by DAWE (2022) includes:

- Known nesting trees: trees currently or recently used for breeding.
- Suitable nesting trees: trees with a suitable hollow(s).
- Potential nesting trees: trees have a suitable diameter at breast height (DBH) to develop a nest hollow, but do not have hollows. Standard DAWE (2022) definition for potential nesting trees has been amended to also include trees with a hollow(s) which is currently unsuitable for use.
- Future nesting trees: DAWE (2022) specifies that trees suitable to develop a nest hollow in the future: are 300 to 500 mm DBH. Given the impracticability of identifying each tree within the survey area of these parameters, the future nesting habitat was assessed as the vegetated extent of the survey area ie. all areas mapped in Degraded condition or better.

The black cockatoo habitat assessment undertaken by Harewood (2019) identified 405 trees with a diameter at breast height (DBH) >50 cm. No known nesting trees were recorded within the proposed clearing area or the broader Lot 287 boundary. Of the 405 habitat trees recorded, 26 trees were assessed as suitable nesting trees. Of the remaining 379 potential nesting trees, 49 trees had unsuitable hollows and 330 trees were without hollows. All of the 20.18 ha of native vegetation within the survey area is future nesting habitat. Details of the habitat trees recorded with the proposed clearing area and the calculated percentage of total habitat within the survey area, is presented in Table 9.

Table 9: Breeding Habitat within the Proposed Clearing Area

Habitat Tree Type	Description of Habitat	Proposed Impact	Total in Survey Area	% Impact
Known Nesting Tree	Trees currently or recently used for breeding.	0	0	0
Suitable Nesting Tree*	Trees with a suitable hollow(s).	5	26	19.2%
Potential Nesting Tree	Trees have a suitable DBH to develop a nest hollow, do have a hollow, however the hollow is not suitable	20	49	40.8%
	Trees have a suitable DBH to develop a nest hollow, but do not have hollows.	106	330	32.1%
Total		131	405	32.3%

* This assessment was based on approximate size of hollow entrance only, no conclusive evidence of use by black cockatoos was recorded (Harewood 2019).

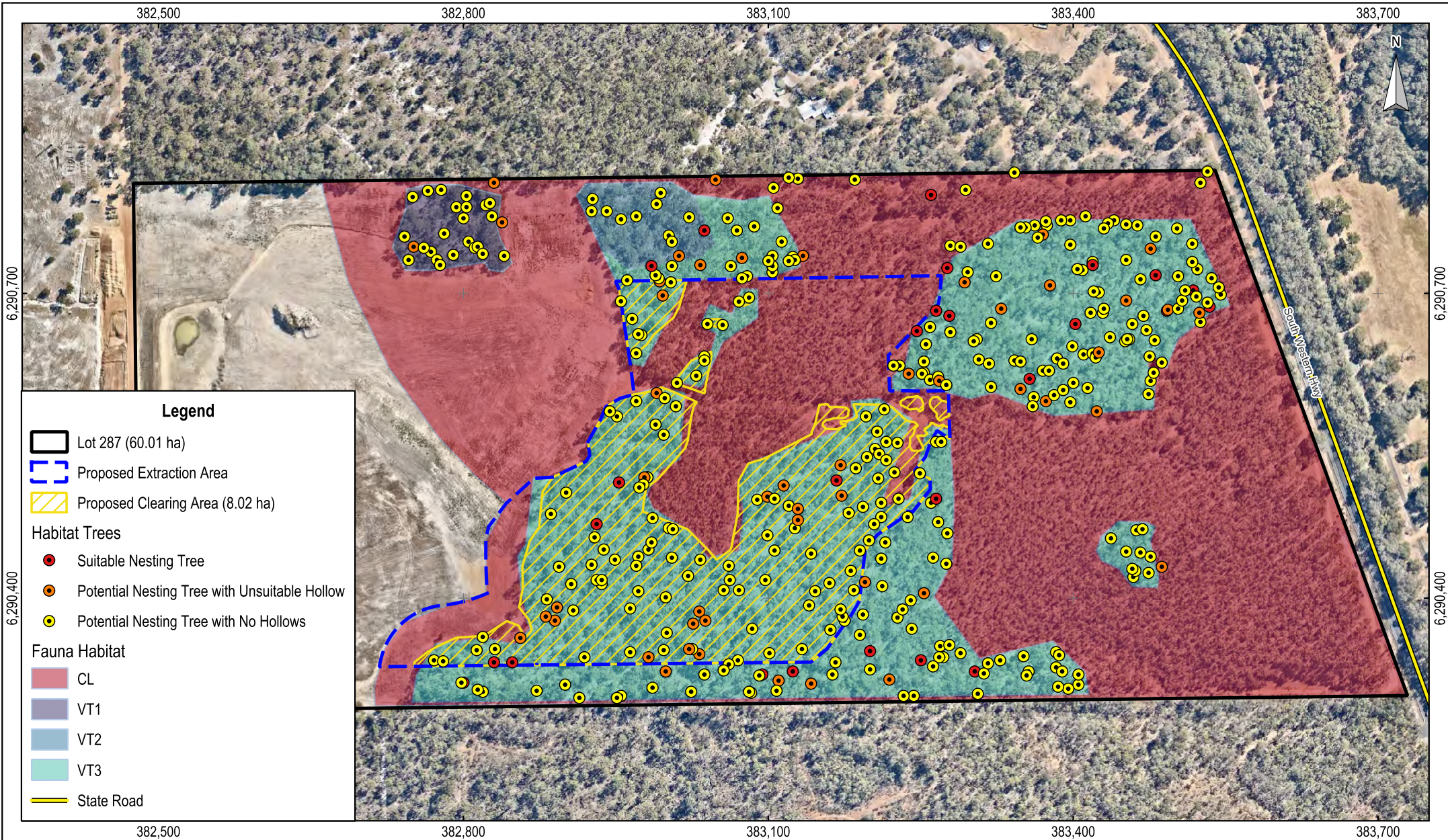
Roosting habitat

No evidence of black cockatoo roosting trees was positively identified within the survey area by Harewood (2019). The closest active roost site is located approximately 500 m north east of the proposed cleared area, along with two additional roosting sites, all of which are located along the Preston River. In total, there are six roost sites documented within 12 km of the proposed clearing area (DBCA-064). The proposed clearing area is likely to include suitable foraging habitat associated with the roost sites, however the proposed clearing will only remove 0.05% of the remnant vegetation within 12 km of the proposed clearing area.

5.12.3.2 Western Ringtail Possum

Western Ringtail Possum was observed from scats and an unoccupied drey at one location, however, overall habitat is likely marginal due to the sparse nature of the midstorey vegetation and a lack of canopy connectivity (Harewood 2019).

The results of a nearby south west fauna study by BCE (2023) found that over a 1,400 ha area of habitat on Swan Coastal Plain and fringing the Whicher Scarp, that Western Ringtail Possum records were almost entirely limited to the Swan Coastal Plain, reducing rapidly in abundance into the Whicher Scarp land system. These findings align with assumptions that can be drawn from comparing Harewood (2019) findings with DBCA data (DBCA 2023). Numerous records of Western Ringtail Possum have been identified from surveys of Lot 395 and 458 Lowrie Road (approximately 500 m west and north of the proposed clearing area). These properties are mostly located on the Swan Coastal Plain and fringe the escarpment. In contrast, Harewood found minimal evidence of the species in the survey area. Therefore, although the species has been recorded in the survey area, it is assumed to be present in low densities.



Scale: 1: 5,000
 Original Size: A4
 Air Photo Date: June 2024
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

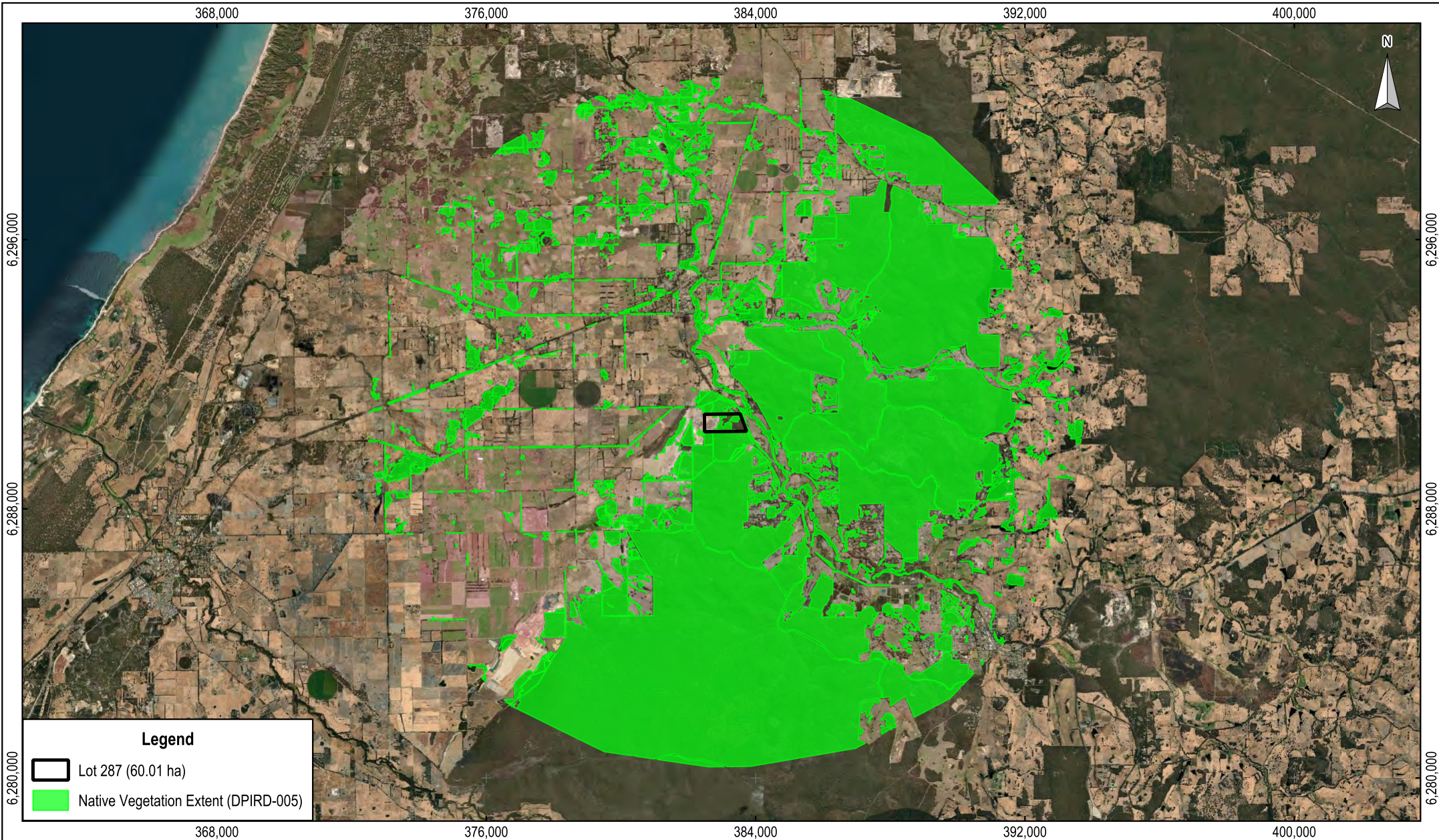
Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 12

Fauna Habitat

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au





Legend

- Lot 287 (60.01 ha)
- Native Vegetation Extent (DPIRD-005)

Scale: 1: 150,000
 Original Size: A4
 ESRI Satellite
 Grid: GDA94 / MGA zone 50 (EPSG:28350)

Mario Michele Giacci
 Lot 287 South Western Highway, Gwindinup

Figure 13
Potential Fauna Habitat (12 km)

Martinick Bosch Sell Pty Ltd
 4 Cook St
 West Perth WA 6005
 Australia
 t: +61 8 9226 3166
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au



6. MEASURES TO AVOID, MINIMISE AND MITIGATE

The project requires clearing of up to 8.02 ha of native vegetation within the proposed clearing area as shown in Figure 3. Project planning and the design of the proposed clearing area have considered the impact mitigation sequence of avoidance, minimisation, rehabilitation and offsetting, as detailed in Table 10.

Table 10: Implementation of Mitigation Hierarchy Sequence

Mitigation Hierarchy Sequency	Implementation of Mitigation Hierarchy in Project Design
Avoid	<ul style="list-style-type: none"> • The proposed extraction area has been located to avoid the majority (97.53%) of vegetation mapped by Ecoedge (2024) in Excellent condition. • The proposed clearing of 8.02 ha out of the 20.18 ha of native vegetation present, avoids 60.20% of the native vegetation remaining within the property. • The need for vegetation clearing has been further minimised by utilising existing access tracks and other cleared areas. • The proposed clearing area avoids the following black cockatoo habitat within Lot 287: <ul style="list-style-type: none"> — Avoidance of 13.15 ha (65.29%) of black cockatoo foraging habitat. — Avoidance of 274 possible nesting trees (67.65%). — Avoidance of 21 suitable nesting trees (80.77%).
Minimise	<ul style="list-style-type: none"> • Clearing is proposed in <2 ha stages (see Section 2.2), which will minimise the area of disturbance at any one time and reduce the duration of habitat loss. • A range of environmental management measures will be implemented to minimise potential environmental impacts of undertaking clearing activities for aspects such as dust, dieback, weeds and stormwater drainage. The measures include but are not limited to: <ul style="list-style-type: none"> — Clearing will be minimised where possible through placement of assets in existing cleared or areas of minimal vegetation where possible, along with utilising the existing access track. — Clearing will be clearly demarcated prior to clearing activities commencing for a stage, including demarcation of any vegetation or trees to be avoided. — Licenced fauna handler will be engaged for all native vegetation clearing. — Clearing will be undertaken slowly and in a one-way direction to allow fauna to move offsite if present. — Control of Declared Pest identified within the proposed extraction area. — Standard weed and hygiene management practices will be applied to the operations including clean on entry and exit, clean imported material, topsoil and stockpile management, and weed control and monitoring in operational areas. — Standard dust management will be implemented including restrictions on the level of dust generation, maximum stockpile heights, speed limits, minimum distances of crushing and screening plant from residences, covering haulage loads and use of water cart for preventative watering. — Stormwater will be managed through the construction of retention ponds and settling pits, catch drains, site inspections following significant rainfall events and retention of vegetation in strategic areas to minimise the potential risk of erosion.

Mitigation Hierarchy Sequencey	Implementation of Mitigation Hierarchy in Project Design
Rehabilitate	<ul style="list-style-type: none"> • At least 8.02 ha of native revegetation is proposed within the proposed clearing area, following extraction within Phases 1 and 2. • Phase 1 and 2 comprise the majority of native revegetation to maximise the benefits of reconnecting native vegetation remaining on Lot 287, prior to the proposed clearing of native vegetation in Phase 3, which currently provides some level of native vegetation connectivity between Reserves north and south of Lot 287. • Revegetation will commence upon completion of each extractive Stage (2 ha at a time), to maximise the timeframe of revegetation benefits to habitat and connectivity within the local area.
Offset	<ul style="list-style-type: none"> • It is acknowledged that the 8.02 ha of native revegetation committed to in the DA/ EIL will likely be insufficient to mitigate the proposed impacts and offsets will be required to address residual impacts. Offsets will be discussed with DWER as the NVCP process progresses.

7. STAKEHOLDER ENGAGEMENT

The applicant has undertaken consultation with the local community and regulators through the Shire of Capel's DA and EIL submissions and approvals process. The proposed extraction area and clearing area is reflective of this consultation.

8. ASSESSMENT AGAINST CLEARING PRINCIPLES

Clearing applications are assessed against 10 principles outlined in Schedule 5 of the *Environmental Protection Act 1986* (EP Act). These principles aim to ensure that all potential impacts resulting from removal of native vegetation are assessed in an integrated way and apply to all lands throughout Western Australia.

The following sections provide an assessment against the 10 Clearing Principles, which only legislates the impacts to native vegetation (8.02 ha). Areas within the proposed extraction area that are mapped as plantation (3.96 ha) and cleared areas (1.37 ha) are not discussed in Section 8, apart from the four native trees (0.03 ha) in the blue gum plantation that have been included in the NVCP application. Where relevant, reference is made to the state *Biodiversity Conservation Act 2016* (BC Act) and the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

8.1 SUMMARY

A summary of the outcomes of the assessment against the 10 Clearing Principles is provided in Table 11.

Table 11: Summary of Assessment Against the 10 Clearing Principles

Principle	Clearing Principle	Outcome
a	Native vegetation should not be cleared if it comprises a high level of biological diversity.	May be at variance
b	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	At variance
c	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	Not likely to be at variance
d	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a Threatened Ecological Community (TEC).	Not at variance
e	Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	Not at variance
f	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Not at variance
g	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Not likely to be at variance
h	Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation areas.	Not likely to be at variance
i	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	Not likely to be at variance
j	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.	Not likely to be at variance

8.2 CLEARING PRINCIPLE A – BIODIVERSITY

Clearing principle (a): Native vegetation should not be cleared if it comprises a high level of biological diversity.
Assessment: Proposed clearing may be at variance to this principle.

The proposed clearing area contains 8.02 ha of native vegetation, approximately 39.80% of the native vegetation remaining on Lot 287. The native vegetation within the proposed clearing area is comprised of three native vegetation units, all mid open forests dominated by *Eucalyptus marginata* (Jarrah), with either *Corymbia calophylla*

(Marri) or *C. haematoxylon* (Mountain Marri), (or both) as co-dominants (refer to Section 5.8 for more details). No vegetation representative of a TEC or a PEC is present within Lot 287 and therefore none is within the proposed clearing area (Ecoedge 2024).

Native vegetation within the survey area was recorded as primarily in Very Good to Excellent condition. Vegetation within the proposed clearing area is largely in Very Good condition or lesser condition, as areas in Excellent condition were specifically avoided where possible in designing the extraction area. Vegetation condition within the proposed clearing area and survey area, including percentage proposed for removal, is detailed below in Table 12.

Table 12: Proposed Impact to Native Vegetation within Lot 287

Vegetation Condition	Proposed Clearing Area (ha)	Survey Area (ha)	Proposed for Removal (%)
Excellent	0.12	4.9	2.45
Very Good	6.62	12.3	53.82
Good	0.50	1.3	38.46
Degraded	0.75	1.3	57.69
Completely Degraded (4 trees)*	0.03	0.03	100
Total	8.02	20.18	39.8

*Ecoedge (2024) data does not map four (4) isolated trees (0.03 ha) within the vegetation unit 'PL' as native vegetation due to the scale of the vegetation mapping. These four trees were identified during the fauna survey (Harewood 2019) and as such have been included in the proposed clearing area. An additional vegetation condition rating 'Completely Degraded' has therefore been included to account for the additional four (4) trees.

During the targeted and detailed flora and vegetation survey, Ecoedge (2024) identified 101 native vascular flora taxa. No state or federally listed Threatened flora species or DBCA listed Priority flora species were found in the survey area (Ecoedge 2024, Marsh 2019). Of the 75 significant flora species identified within 10 km of the survey area, the pre-survey likelihood of occurrence assessment determined that it was 'possible' that 27 flora taxa of conservation significance may occur within the survey area. The post-survey likelihood of occurrence determined that all flora taxa of conservation significance were 'unlikely' to occur. Eleven introduced flora taxa were identified within the survey area, including one individual of the Declared Pest plant *Asparagus asparagoides* (Bridal Creeper). The singular record of Bridal Creeper is located within the proposed clearing area.

A basic (level 1) fauna survey was undertaken by Harewood (2019) of vegetated areas within Lot 287, which included a targeted component for Threatened black cockatoo species. A pre-survey desktop assessment identified 29 mammal (including nine bat species), 92 bird, 36 reptile and three frog species, as having been previously recorded within the vicinity of the survey area (Harewood 2019). It was noted from the survey that overall fauna habitat quality appears to be good and that a high percentage of the predicted species would likely have suitable habitat within the survey area.

The black cockatoo habitat assessment recorded foraging, breeding and roosting habitat within the survey area. Baudin's Cockatoo (*Zanda baudinii*) and Forest Red-tailed Black Cockatoo (*Zanda banksii naso*) were positively identified within the survey area from chewed Marri nuts and Baudin's Cockatoo was observed foraging during the survey. Based on known records in the local area (DBCA 2023b), Carnaby's Black Cockatoo (*Zanda latirostris*) is also considered to have potential to forage on the property. All 20.18 ha of native vegetation recorded within the survey area, 8.02 ha of which is located within the proposed clearing footprint (39.8%), is high quality foraging habitat for black cockatoos due to the presence of marri, jarrah and banksia species.

Potential impacts from the removal of black cockatoo breeding habitat within the proposed clearing area, in comparison to all breeding habitat recorded within the survey area, is detailed below in Table 13.

Table 13: Potential Impact to Black Cockatoo Breeding Habitat within Lot 287

Habitat Tree Type	Description of Habitat	Proposed Impact	Total in Survey Area	% Impact
Known Nesting Tree	Trees currently or recently used for breeding.	0	0	0
Suitable Nesting Tree	Trees with a suitable hollow(s).	5	26	19.23
Potential Nesting Tree	Trees have a suitable DBH to develop a nest hollow, but do not have hollows.	126	379	33.25

Based on native vegetation extent mapping (DPIRD-005) it is estimated that there is approximately 14,670 ha of native vegetation within 12 km of the proposed clearing area., much of which is likely to represent potential black cockatoo breeding, foraging and roosting habitat. The proposed clearing would remove only 0.05% of this vegetation and there are several patches in better condition than that proposed to be cleared.

No evidence of black cockatoo roosting trees was positively identified within the survey area by Harewood (2019). The closest active roost site is located approximately 500 m north east of the proposed cleared area, along with two additional roosting sites, all of which are located along the Preston River. In total, there are six roost sites documented within 12 km of the proposed clearing area (DBCA-064). The proposed clearing area is likely to include suitable foraging habitat associated with the roost sites, however the proposed clearing will only remove 0.05% of the remnant vegetation within 12 km of the proposed clearing area.

Western Ringtail Possum was observed from scats and an unoccupied drey at one location, however, overall habitat is likely marginal due to the sparse nature of the midstorey vegetation and a lack of canopy connectivity (Harewood 2019). The results of a nearby south west fauna study by BCE (2021) found that over a 1,400 ha area of habitat on Swan Coastal Plain and fringing the Whicher Scarp, the Western Ringtail Possum records were almost entirely limited to the Swan Coastal Plain, reducing rapidly in abundance into the Whicher Scarp land system. These findings align with assumptions that can be drawn from comparing Harewood (2019) findings with DBCA data (DBCA 2023b). Numerous records of Western Ringtail Possum have been identified from surveys of Lot 395 and 458 Lowrie Road (approximately 500 m west and north of the proposed clearing area). These properties are mostly located on the Swan Coastal Plain and fringe the escarpment. In contrast, Harewood found minimal evidence of the species in the survey area. Therefore, although the species has been recorded in the survey area, it is assumed to be present in low densities.

No direct evidence of any other species of conservation significance was found, however an additional seven species may potentially occur, as suitable habitat for the species was identified. Although these species may have suitable habitat within the proposed clearing footprint, there is approximately 14,670 ha of native vegetation within 12 km of the proposed clearing area that is also likely to provide suitable habitat.

The proposed operations are subject to a range of environmental management measures, the most substantial of which is the staged (≤ 2 ha) clearing and native revegetation of land within the proposed extraction area, which will minimise the potential impacts on biodiversity within the local area within a given timeframe.

The 8.02 ha of native vegetation proposed to be cleared has largely excluded excellent condition vegetation within the property, and is not likely to impact any conservation significant vegetation or flora species. Given the highly vegetated local landscape (14,670 ha within 12 km radius), including 9,100 ha secured in the nearby Boyanup State Forest, the scale of the proposed removal of habitat for Threatened black cockatoos and Western Ringtail Possum, is not locally significant.

It is considered likely that the native vegetation within the proposed clearing area is of poorer ecological value, as it is a mosaic of blue gum plantation and native vegetation that has been previously disturbed by forestry and extractive activities. Revegetation with native species is proposed in a location that will maximise the connectivity

of remnant native vegetation in adjacent Reserves to create a north to south corridor through the centre of Lot 287. In addition to this, the proposed staging and therefore timing of the revegetation will enable native revegetation to have commenced in Phases 1 and 2, prior to the clearing of Phase 3, which currently provides connectivity between the adjacent Reserves to the north and south of the property. Revegetation will be aligned with the extractive staging and undertaken progressively, to mitigate the impacts of native vegetation clearing associated with the proposed extraction activities.

The vegetation proposed to be cleared is not considered to be comprised of a uniquely high level of biological diversity in the local context, however due to the proposed removal of native vegetation containing black cockatoo habitat, the proposed clearing may be at variance with the clearing principle.

8.3 CLEARING PRINCIPLE B – SIGNIFICANT FAUNA HABITAT

Clearing principle (b): Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Assessment: Proposed clearing is at variance to this principle.

The 8.02 ha native vegetation within the proposed clearing area is comprised of three native vegetation units, all mid open forests dominated by *Eucalyptus marginata* (Jarrah), with either *Corymbia calophylla* (Marri) or *C. haematoxylon* (Mountain Marri), (or both) as co-dominants (refer to Section 5.8 for more details).

A basic (level 1) fauna survey was undertaken by Harewood (2019) of vegetated areas within Lot 287, which included a targeted component for Threatened black cockatoo species and Western Ringtail Possum. A pre-survey desktop assessment identified 29 mammal (including nine bat species), 92 bird, 36 reptile and three frog species, as having been previously recorded within the vicinity of the survey area (Harewood 2019). It was noted from the survey that overall fauna habitat quality appears to be good and that a high percentage of the predicted species would likely have suitable habitat within the survey area.

The black cockatoo habitat assessment recorded foraging, breeding and roosting habitat within the survey area. *Zanda baudinii* (Baudin's Cockatoo) and *Zanda banksii naso* (Forest Red-tailed Black Cockatoo) were positively identified within the survey area from chewed marri nuts and Baudin's Cockatoo was observed foraging during the survey. Based on known records in the local area (DBCA 2023b), Carnaby's Black Cockatoo (*Zanda latirostris*) is also considered to have potential to forage on the property, and is therefore also considered as part of the following assessment.

All 20.18 ha of native vegetation recorded within the survey area, 8.02 ha of which is located within the proposed clearing footprint (39.8%), is high quality foraging habitat due to the presence of marri, jarrah and banksia species. Impacts to black cockatoo breeding habitat, when compared to habitat present within Lot 287, has previously been detailed in Table 13. Based on available vegetation mapping it is estimated that there is approximately 14,670 ha of native vegetation within 12 km the survey area, much of which is very likely to represent potential black cockatoo breeding, foraging and roosting habitat (Harewood 2019). The proposed clearing would remove only 0.05% of this vegetation and there are several patches remaining within Lot 287, in better condition than that proposed to be cleared.

No evidence of black cockatoo roosting trees was positively identified within the survey area by Harewood (2019). The closest active roost site is located approximately 500 m north east of the proposed cleared area, along with two additional roosting sites, all of which are located along the Preston River. In total, there are six roost sites documented within 12 km of the proposed clearing area (DBCA-064). The proposed clearing area is likely to include suitable foraging habitat associated with the roost sites, however the proposed clearing will only remove 0.05% of the remnant vegetation within 12 km of the proposed clearing area.

Overall, while the proposed clearing area likely supports the presence of black cockatoo species, the vegetation proposed to be cleared is not considered necessary for the maintenance of the species or their habitat in the local area, given the insignificant portion (0.05%) proposed for removal.

Western Ringtail Possum was observed from scats and an unoccupied drey at one location, however, overall habitat is likely marginal due to the sparse nature of the midstorey vegetation and a lack of canopy connectivity (Harewood 2019). The results of a nearby south west fauna study by BCE (2023) found that over a 1,400 ha area of habitat on Swan Coastal Plain and fringing the Whicher Scarp, that Western Ringtail Possum records were almost entirely limited to the Swan Coastal Plain, reducing rapidly in abundance into the Whicher Scarp land system. These findings align with assumptions that can be drawn from comparing Harewood (2019) findings with DBCA data (DBCA 2023). Numerous records of Western Ringtail Possum have been identified from surveys of Lot 395 and 458 Lowrie Road (approximately 500 m west and north of the proposed clearing area). These properties are mostly located on the Swan Coastal Plain and fringe the escarpment. In contrast, Harewood found minimal evidence of the species in the survey area. Therefore, although the species has been recorded in the survey area, it is assumed to be present in low densities.

No direct evidence of any other species of conservation significance was found, however an additional eight vertebrate species may potentially occur, as suitable habitat for the species was identified (Harewood 2019):

- Chuditch (State - Schedule 3, Federal - Vulnerable)
- Coastal Plains Skink (State - Priority 3)
- Masked Owl (State - Priority 3)
- Quenda (State - Priority 4)
- Western Brush Wallaby (State - Priority 4)
- Western False Pipistrelle (State - Priority 4)
- South-western Brush-tailed Phascogale (Schedule 6)
- Peregrine Falcon (Schedule 7)

Although the above vertebrate species have potential habitat with the proposed clearing area and may be occasional visitors to the proposed clearing area, the habitat does not reflect any core denning, breeding or roosting/nesting habitat, critical for any local populations of the species. The vegetation proposed to be cleared is not considered necessary for the maintenance of the species or their habitat in the local area, given the insignificant portion (0.05%) proposed for removal.

One additional invertebrate fauna species of conservation significance was identified as having potential habitat within the proposed clearing area. Western Pygmy Trapdoor Spider was identified from two records, more than 1 km away from the proposed clearing area from the DBCA database search (Harewood 2019). Although this species may have suitable habitat within the proposed clearing area, there is extensive suitable habitat available for the species in the local area.

The South West Regional Ecological Linkages (SWREL) axis lines data (WALGA 2009), maps two axis lines in the vicinity of Lot 287 as having regional significance for ecological connectivity (Figure 11). A linkage axis line to the east is associated with the Preston River and another linkage axis line to the south is associated with state forest along the escarpment. The proximity ratings of native vegetation parcels to the mapped axis lines of the linkages are shown in Figure 6 with explanation for the proximity values provided in Section 5.9. The majority of the vegetation proposed to be cleared has been mapped as proximity rating 1b with the rest as 1c. No clearing of core linkage (rating 1a) is being proposed. The proposed clearing would also not result in level 1 patch being downgraded to level 2. Therefore, the proposed clearing is not expected to have significant impact on regional ecological connectivity, particularly considering the proposed native revegetation post extraction.

On a local scale, remnant native vegetation within Lot 287 may provide habitat connectivity for native fauna species dispersing from native vegetation immediately north of Lot 287, to an extensive corridor of vegetation associated with state forest and other reserves along the escarpment. This local connectivity is proposed to be maintained in the long term through the post-extraction revegetation.

Revegetation with native species is proposed in a location that will maximise the connectivity of remnant native vegetation in adjacent Reserves to create a north to south corridor through the centre of Lot 287. In addition to this, the proposed staging and therefore timing of the revegetation will enable native revegetation to have commenced in Phases 1 and 2, prior to the clearing of Phase 3, which is an existing corridor that currently connects the adjacent Reserves to the north and south of the property. Revegetation will be aligned with the extractive staging and undertaken progressively, to mitigate the impacts of native vegetation clearing associated with the proposed extraction activities.

The proposed operations are subject to a range of environmental management measures, the most substantial of which is the staged (≤ 2 ha) clearing and rehabilitation of land within the proposed extraction area, which will minimise the potential impacts on fauna within the local area within a given timeframe.

While the vegetation proposed to be cleared is likely to be in poorer condition and therefore reduced habitat value than the surrounding vegetation, the clearing area does include 8.02 ha of vegetation with habitat value for the Threatened black cockatoo species, Western Ringtail Possum and potentially eight other vertebrate and invertebrate fauna species of conservation significance.

Given the values of the proposed clearing area, the clearing is at variance to clearing principle B.

8.4 CLEARING PRINCIPLE C – THREATENED FLORA

Clearing principle (c): Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Assessment: Proposed clearing is not likely to be at variance to this principle.

Database searches identified 24 taxa of state listed Threatened flora species as occurring within 10 km of the survey area. Three of these Threatened taxa had a pre-survey likelihood of occurrence of 'possible', with no previous records within the survey area. No threatened flora species were recorded during the flora and vegetation surveys (Ecoedge 2024, Marsh 2019) and the post-survey likelihood of occurrence assessment deemed that it was 'unlikely' any species of conservation significance would occur within the survey area (Ecoedge 2024).

Due to the lack of known Threatened flora within the proposed clearing area and the level of survey effort, the proposed clearing is not likely to be at variance to this clearing principle.

8.5 CLEARING PRINCIPLE D – THREATENED ECOLOGICAL COMMUNITIES

Clearing principle (d): Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.

Assessment: Proposed clearing is not at variance to this principle.

Review of available databases indicated that no state listed Threatened Ecological Communities (TECs) have been previously identified within the proposed clearing area or the surrounds (Ecoedge 2024, Marsh 2019). Further to this, the vegetation types recorded in flora and vegetation surveys (Ecoedge 2024, Marsh 2019) were not representative of any state or federally listed TECs. Comparison of data from three quadrats placed within the survey area with the Whicher Scarp dataset showed that the quadrats are closest to floristic community type (FCT) D which is not a TEC or PEC (Ecoedge 2024).

According to DBCA paid database search (DBCA 2023a), there is no State listed TEC, or the buffer for a State listed TEC within 10 km of the proposed clearing area. There are two buffered, federally listed TECs within 10 km of the proposed clearing area; 'Southern Banksia attenuata woodlands SCP21b' and 'Banksia Woodlands of the Swan Coastal Plain ecological community'. The nearest mapped occurrence of a Federally listed TEC is the 'Banksia Woodlands of the Swan Coastal Plain ecological community', which is located more than 400 m west of the proposed clearing area. Given the distance and scale of activities proposed, no direct or indirect impacts to this TEC are anticipated.

Based on above, the proposed clearing area is not likely to comprise the whole or part of, or be necessary for the maintenance of, a TEC, and is not at variance to clearing principle D.

8.6 CLEARING PRINCIPLE E – REMNANT VEGETATION

Clearing principle (e): Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Assessment: Proposed clearing is not at variance to this principle.

The national objectives and targets for biodiversity conservation in Australia have a target to prevent clearance of ecological communities with an extent below 30 % of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). The proposed clearing area has been mapped as Vegetation Associations 1017 and 1181 (DPIRD-006, DBCA 2018) and Vegetation Complexes Rosa, Kingia and Which Scarp (DBCA-046, DBCA 2019). As indicated in Table 14, these associations and complexes are well above the 30% threshold and the local and regional areas also retain >30% of pre-European vegetation extent.

Table 14: Vegetation Extents

Area Type	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	Current Extent in DBCA Managed Lands (%)
IBRA Bioregion: Jarrah Forest	4,506,660.25	2,399,838.15	53.25	37.14
IBRA Sub-Region: Southern Jarrah Forest	2,607,879.52	1,291,457.94	49.52	34.67
Local Government Authority: Shire of Capel	55,945.03	18,585.28	33.22	15.15
Vegetation association: 1017	17,528.01	11,550.51	65.90	47.96
Vegetation association: 1181	19,217.13	8,915.02	46.39	26.83
Vegetation complex: Rosa	17,240.71	12,979.04	75.28	66.40
Vegetation complex: Whicher Scarp	4,509.59	3,129.06	69.39	53.60
Vegetation complex: Kingia	102,026.18	96,173.78	94.26	92.60

The properties to the north and south of Lot 287 contain remnant native vegetation and form part of a larger patch of native vegetation that includes Boyanup State Forest (approximately 9,100 ha in total). Approximately 43.6% of the 10 km radius of the project area remains vegetated (remnant or regrowth).

Based on the above, the vegetation proposed to be cleared is not considered significant as a remnant of native vegetation in an area that has been extensively cleared. The proposed clearing is not at variance to this clearing principle.

8.7 CLEARING PRINCIPLE F - WATERCOURSE OR WETLAND ENVIRONMENTS

Clearing principle (f): Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Assessment: Proposed clearing is not at variance to this principle.

There are no wetlands, watercourses or distinct drainage lines within the proposed clearing area and no vegetation that could be described as growing in association with such systems. The proposed clearing area, at its closest points, is located approximately 500 m north east to 1 km west of a large multiple-use palusplain wetland totalling approximately 42,000 ha (DBCA-019). Additionally, the associated Preston River is located approximately 480 m east of the proposed clearing area (Figure 7, DWER-031).

Flora and vegetation surveys undertaken over the site have not identified any riparian vegetation or groundwater dependent vegetation (Ecoedge 2024, Marsh 2019).

Based on the above, the vegetation proposed to be cleared is not growing in or in association with an environment associated with a watercourse or wetland and therefore the proposed clearing is not at variance to this principle.

8.8 CLEARING PRINCIPLE G - LAND DEGRADATION

Clearing principle (g): Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Assessment: Proposed clearing is not likely to be at variance to this principle (g).

The proposed clearing area has a relatively high risk of wind erosion (DPIRD-016), moderate risk of nutrient export (DPIRD-010) and water erosion (DPIRD-013) and a low risk of land degradation in the form of waterlogging (DPIRD-015), flooding (DPIRD-007) and salinity (DPIRD-009) (Government of Western Australia 2020).

The clearing of native vegetation is proposed in Stages of no greater than 2 ha, with rehabilitation proposed immediately after extraction has been completed within each stage. Designing the staged extraction in this manner has significantly reduced the risk of land degradation and allows for any identified improvement actions to be implemented in subsequent stages of rehabilitation. In addition to avoiding land degradation through the staged clearing of native vegetation, the remaining potential risks for water and wind erosion can be adequately managed through the finalised Stormwater Management Plan (MBS 2024a) and a Dust Management Plan (MBS 2024b).

The risk of phosphorus and other nutrients being exported as a result of native vegetation clearing is not considered a significant risk due to the type of operations being proposed, the staged nature of operations and the subsequent revegetation of the site.

Although Lot 287 is located outside of DWER's ASS mapping (DWER-055), the property is away from wetlands and waterways on well-draining, sandy soils, with a low watertable. According to Department of Environment Regulation (DER) the property is not located in an area of concern for ASS formation (DER 2015) and it is therefore assumed this is the reason why the area is unmapped on DWER's ASS mapping. As ASS have not been encountered during previous extractive operations at Lot 287, it is assumed that the risk of ASS is low.

There are no known contaminated sites within project area or in the vicinity (DWER-059).

Given the 2 ha staging of clearing, extractive and rehabilitative processes and the proposed environmental management measures, the proposed clearing is unlikely to cause appreciable land degradation. The proposed clearing is therefore not likely to be at variance to this clearing principle.

8.9 CLEARING PRINCIPLE H - CONSERVATION ESTATE

Clearing principle (h): Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
Assessment: Proposed clearing is not likely to be at variance to this principle.

The closest DBCA managed land is the Boyanup State Forest (Forest No. 27) that at its closest point is located approximately 800 m south west of the proposed clearing area. The northern boundary of Lot 287 abuts Reserve 2307 (Lot 477) and Reserve 25500 (Lot 31) reserved for "Public Purposes and "Recreation" and support remnant native vegetation. Reserve 18237 (Lot 478, "Public Purposes and Recreation") is located immediately to the south of Lot 287 and supports remnant native vegetation. The proposed operations will maintain a setback of at least 40 m from the property boundaries and no direct impacts on any adjacent or nearby conservation areas are expected. Sand and gravel extraction has been undertaken on the property since 2013 without significant adverse impacts on the adjacent reserves.

The existing remnant native vegetation on Lot 287 provides some, but relatively limited, ecological connectivity between the areas of native vegetation to the north and south of the property and the associated reserves and state forest. Complete connectivity across Lot 287 was largely removed by historical clearing prior to blue gum plantation, with only a fragmented connection currently remaining. As the proposed project involves gradual re-establishment of a more substantial north-south corridor than currently present (Figure 5 and Figure 11), the project is likely to have a net benefit to the ecological connectivity within Lot 287, the surrounding Reserves and Boyanup State Forest.

Without mitigation and management measures potential indirect impacts on the adjacent conservation areas could occur via spread of weeds and dieback during the native vegetation clearing process. The flora and vegetation survey undertaken by Ecoedge (2024) identified eleven weed taxa, one of which is a Declared pest plants (*Asparagus asparagoides*) and all of which are likely to occur on neighbouring properties.

The Dieback survey found that the great majority of the native vegetation left on Lot 287 was dieback infested (Bark 2020). The remainder of the native vegetation, the blue gum plantation areas, and cleared areas are mapped as 'excluded' due to the lack of indicator species to determine the occurrence of dieback. The presence of dieback in these areas cannot be ruled out and, because of this, the areas will be treated as if they are dieback infested. In addition to this, the areas of bushland surrounding Lot 287 are considered dieback infested with moderate confidence based on publicly available dieback mapping (Project Dieback 2024). Dieback can therefore be effectively managed with standard management measures that will be specified in a Weed and Disease Management Plan.

All potential indirect impacts from weed and disease spread can be effectively managed through a Weed and Disease Management Plan (MBS 2024b). As a minimum, all machinery and vehicles will be required to arrive to site clean and remain within the project area. A setback of at least 40 m will be maintained from northern and southern property boundaries, which will also aid in the management of the potential indirect impacts on adjacent reserves and the nearby conservation area. Further, a Stormwater Management Plan (MBS 2024a) is in place and addresses containment of stormwater from the project area, including the clearing area.

Overall, the proposed clearing is not considered likely to have an impact on the environmental values of any adjacent or nearby conservation area and therefore, the proposed clearing is not likely to be at variance to this clearing principle.

8.10 CLEARING PRINCIPLE I - SURFACE AND GROUNDWATER QUALITY

Clearing principle (i): Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Assessment: Proposed clearing is not likely to be at variance to this principle.

No wetlands, watercourses or other surface water features are present within the proposed clearing area or the wider property. There are also no Public Drinking Water Source Areas within or in immediate vicinity of the proposed clearing area. The nearest mapped surface water feature is a large multiple-use palusplain wetland totalling approximately 42,000 ha, that at its closest points is located approximately 500 m north east to 1 km west of the proposed clearing area (DBCA-019). Additionally, the associated Preston River is located approximately 480 m east of the proposed clearing area (DWER-031).

The proposed clearing area has been mapped as having a moderate risk of water erosion, however this can be effectively managed with the Stormwater Management Plan (MBS 2024a) (part of local government approval processes) that will ensure any impacts on local surface water quality remain negligible. Gradual revegetation of the proposed clearing area will ensure any impacts remain temporary.

The clearing area is within proclaimed Busselton-Capel groundwater area (DWER-034). No groundwater abstraction will be undertaken on site and the operations will remain more than 2 m above the maximum groundwater table.

Groundwater salinity within the application area is mapped at 500 to 1,000 mg/L total dissolved solids, milligrams per litre (DWER-026). Given this low level of existing salinity, the relatively small scale of the proposed clearing and the largely vegetated local area, the proposed clearing is not likely to increase groundwater salinity.

The scale of clearing is relatively small and is located in a largely vegetated setting and thus impacts on groundwater are expected to be negligible.

As noted earlier, the risk of acid sulfate soils has not been mapped for the proposed clearing area. The risk of acid sulfate soils is considered low, due to the elevation within the landscape, gravelly to sandy soils, and the lack of surface water features within the proposed clearing area.

Overall, the proposed clearing of vegetation is not considered likely to cause deterioration in the quality of surface or underground water and therefore, the proposed clearing is not likely to be at variance to this clearing principle.

8.11 CLEARING PRINCIPLE J - FLOODING POTENTIAL

Clearing principle (j): Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

Assessment: Proposed clearing is not likely to be at variance to this principle.

Land within the proposed clearing area is considered at low risk of flooding (DPIRD-007). The proposed scale of the clearing is relatively small (8.02 ha) in the context of approximately 14,670 ha of native vegetation within 12 km of the proposed clearing area (0.05%). The proposed clearing will be undertaken in stages of less than 2 ha, and the stages will be progressively revegetated once extraction within that stage is completed.

There will be no significant changes to natural drainage patterns or volumes and stormwater management has been addressed as part of the Shire of Capel approval processes (DA/ EIL), by the preparation of a Stormwater Management Plan (MBS 2024a).

Given the above, the proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding and therefore, the proposed clearing is not likely to be at variance to this clearing principle.

9. OTHER APPROVALS, LICENCES AND PERMITS

Other approvals, licences and permits relevant to the proposed extraction is summarised in Table 15 below.

Table 15: Other Relevant Approvals, Licences and Permits

Other Approvals	Relevant Legislation	Summary
DA/ EIL	<ul style="list-style-type: none"> • <i>Local Government Act 1995</i> • <i>Planning and Development Act 2005</i> 	The applicant, who is also the landowner, has held DA and EIL for the previous extractive operations on the property. New DA and EIL applications were submitted to Shire of Capel in March 2024 that proposed a 15.31 ha extension to the previously approved EIL area. In response to public and regulatory submissions the proposed expansion area was reduced to 13.36 ha and resubmitted in October 2024. Outcome of this application is pending.
Referral to Department of Climate Change, Energy, the Environment and Water (DCCEEW)	<ul style="list-style-type: none"> • <i>Environment Protection and Biodiversity Conservation Act 1999</i> 	Referral to DCCEEW under the <i>Environment Protection and Biodiversity Conservation Act, 1999</i> is likely to be required due to potential impacts to Black Cockatoo and Western Ringtail Possum.
State and Municipal Heritage	<ul style="list-style-type: none"> • <i>Local Government Act 1995 Planning</i> • <i>Development Act 2005</i> • <i>Heritage Act 2018</i> 	None required.
Native Title	<ul style="list-style-type: none"> • <i>Native Title Act 1993</i> 	The property falls within the South West Native Title Settlement Area. However, this does not preclude development from taking place given the site is privately owned property.
Aboriginal Sites of Significance	<ul style="list-style-type: none"> • <i>Aboriginal Heritage Act 1972</i> 	There are no registered Aboriginal Heritage Sites or Other Heritage Places within the application area or immediate surrounds (DPLH 2024).
Groundwater Abstraction	<ul style="list-style-type: none"> • <i>Rights in Water and Irrigation Act 1914</i> 	Abstraction of groundwater, if necessary, will be subject to a licence from DWER. The operations so far, have not required groundwater abstraction on the property.

10. CONCLUSION

Demand for sand and gravel within the south west is well understood, and the immense quantities of sand and gravel required for state priority projects has left the region's sand and gravel resource supplies in deficit. The expansion of extractive activities at Lot 287 is necessary to provide critical resources for various projects of public benefit ranging from road safety upgrades to public infrastructure such as hospitals, schools, recreational areas and housing.

Expansion of the proposed extraction area will require the clearing of 8.02 ha of native vegetation. The proposed clearing has been assessed as 'may be at variance' to clearing principle A, 'at variance' to clearing principle B, and either 'not at variance' or 'not likely to be at variance' to the remaining clearing principles.

The scale of the proposed staged clearing is relatively small in the highly vegetated local context, and the potential impacts can be effectively managed, mitigated and offset appropriately. A range of environmental management measures will be implemented to target the management of clearing activities, dust, dieback, weeds and drainage. These will further minimise potential environmental impacts associated with the clearing.

Lot 287 and land owned by the applicant in the vicinity of the proposed clearing area, provides a range of possibilities for achieving net environmentally beneficial outcomes, on a localised scale, through mitigation, rehabilitation and offsetting activities.

11. REFERENCES

Bark Environmental. 2020. *Phytophthora Dieback Assessment Report Lot 287 Gwindinup*. Unpublished report for MGM.

Bamford Consulting Ecologists (BCE). 2021. Iluka Tutunup Project Detailed Fauna Assessment Tutunup Mineral Sand Project. Unpublished report for Iluka Resources.

https://www.epa.wa.gov.au/sites/default/files/Referral_Documentation/Appendix%20%20-%20Bamford%20Consulting%20Ecologists%20Detailed%20Fauna%20Assessment.PDF. Accessed October 2024.

Bureau of Meteorology 2020. Climate Statistics for Australian Locations. http://www.bom.gov.au/climate/averages/tables/cw_009965.shtml. Accessed June 2020.

Commonwealth of Australia 2001. National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Commonwealth Scientific and Industrial Research Organisation (CSIRO). 2014. *Australian Soil Resource Information System*. <https://www.asris.csiro.au/> (accessed August 2023).

Daniel Marsh Botanical Consulting (Marsh). 2019. Desktop Study and Reconnaissance Flora and Vegetation Survey. Lot 287 South Western Highway Gwindinup. Unpublished report for MGM.

Department of Agriculture, Water, and the Environment (DAWE). 2022. Referral guideline for 3 WA threatened black cockatoo species. Available from <https://www.dcceew.gov.au/sites/default/files/documents/referral-guideline-3-wa-threatened-black-cockatoo-species-2022.pdf> Canberra: Department of Agriculture, Water, and the Environment. (Accessed July 2024)

Department of Biodiversity, Conservation and Attractions (DBCA). 2018. *Vegetation Complexes - Swan Coastal Plain (DBCA-046)*. <https://catalogue.data.wa.gov.au/dataset/vegetation-complexes-swan-coastal-plain> (accessed October 2024).

Department of Biodiversity, Conservation and Attractions (DBCA). 2018. *Vegetation Complexes - South West forest region of Western Australia (DBCA-047)*. <https://catalogue.data.wa.gov.au/dataset/vegetation-complexes-swf-50k> (accessed August 2023).

Department of Biodiversity, Conservation and Attractions (DBCA). 2018 *Statewide Vegetation Statistics Dataset*. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics/resource/0fc225fa-b06b-4da4-b5ed-62a146842389> (accessed August 2023).

Department of Biodiversity, Conservation and Attractions (DBCA). 2019. *2018 South West Vegetation Complex Statistics Dataset*. <https://catalogue.data.wa.gov.au/dataset/dbca/resource/3d067960-2896-42fd-ba52-1aa46b2edf13> (accessed August 2023).

Department of Biodiversity, Conservation and Attractions (DBCA). 2019. *Black Cockatoo Roosting Sites - Buffered (DBCA-064)*. <https://catalogue.data.wa.gov.au/dataset/black-cockatoo-roosting-sites-buffered> (accessed October 2024).

Department of Biodiversity, Conservation and Attractions (DBCA). 2023. *Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*. <https://catalogue.data.wa.gov.au/dataset/geomorphic-wetlands-swan-coastal-plain> (accessed October 2024).

Department of Biodiversity, Conservation and Attractions (DBCA). 2023a. Threatened and Priority Ecological Communities Search. Provided by DBCA on 23 May 2023.

Department of Biodiversity, Conservation and Attractions (DBCA). 2023b. Threatened Fauna Search. Provided by DBCA on 23 May 2023.

Department of Conservation and Land Management (CALM). 2003. *A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002*. Relevant section written by Hearn, R., Williams, K., Comer, S., and Beecham, B. titled *Jarrah Forest 2 (JAF02 – Southern Jarrah Forest Subregion)*. <https://library.dbca.wa.gov.au/static/FullTextFiles/021927.pdf>. Accessed August 2023).

Department of Environment Regulation (DER). 2015. Identification and investigation of acid sulfate soils and acidic landscapes. <https://www.wa.gov.au/system/files/2023-04/identification-and-investigation-of-acid-sulfate-soils-and-acidic-landscapes.pdf>. Access October 2024).

Department of Planning, Lands and Heritage 2024. Aboriginal Heritage Inquiry System. <https://espatial.dplh.wa.gov.au/ACHIS/index.html?viewer=ACHIS> Accessed October 2024

Department of Primary Industries and Regional Development (DPIRD). 2023. *Soil landscape land quality - Flood Risk (DPIRD-007)*. <https://catalogue.data.wa.gov.au/dataset/soil-landscape-land-quality-flood-risk> (accessed October 2024).

Department of Primary Industries and Regional Development (DPIRD). 2023. *Soil landscape land quality - Salinity Risk (DPIRD-009)*. <https://catalogue.data.wa.gov.au/dataset/soil-landscape-land-quality-salinity-risk> (accessed October 2024).

Department of Primary Industries and Regional Development (DPIRD). 2023. *Soil landscape land quality - Phosphorus Export Risk (DPIRD-010)*. <https://catalogue.data.wa.gov.au/dataset/soil-landscape-land-quality-phosphorus-export-risk> (accessed October 2024).

Department of Primary Industries and Regional Development (DPIRD). 2023. *Soil landscape land quality - Water Erosion Risk (DPIRD-013)*. <https://catalogue.data.wa.gov.au/dataset/soil-landscape-land-quality-water-erosion> (accessed October 2024).

Department of Primary Industries and Regional Development (DPIRD). 2023. *Soil landscape land quality - Waterlogging Risk (DPIRD-015)*. <https://catalogue.data.wa.gov.au/dataset/soil-landscape-land-quality-waterlogging-risk> (accessed October 2024).

Department of Primary Industries and Regional Development (DPIRD). 2023. *Soil landscape land quality - Wind Erosion Risk (DPIRD-016)*. <https://catalogue.data.wa.gov.au/dataset/soil-landscape-land-quality-wind-erosion-risk> (accessed October 2024).

Department of Primary Industries and Regional Development (DPIRD). 2019. *Pre-European Vegetation (DPIRD-006)*. <https://catalogue.data.wa.gov.au/dataset/pre-european-dpird-006> (accessed October 2024).

Department of Primary Industries and Regional Development (DPIRD). 2023. *Native Vegetation Extent (DPIRD-005)*. <https://catalogue.data.wa.gov.au/dataset/native-vegetation-extent> (accessed October 2024).

Department of Water and Environmental Regulation (DWER). 2017. *Acid Sulphate 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> (accessed August 2023).

Department of Water and Environmental Regulation (DWER). 2018. *RIWI Act, Groundwater Areas (DWER-034)*. <https://catalogue.data.wa.gov.au/dataset/riwi-act-groundwater-areas>. (accessed October 2024)

Department of Water and Environmental Regulation (DWER). 2018. *Hydrography, Linear (Hierarchy) (DWER-031)*. <https://catalogue.data.wa.gov.au/dataset/hydrography-linear-hierarchy> (accessed October 2024).

Department of Water and Environmental Regulation (DWER). 2018. *Contaminated Sites Database (DWER-059)*. <https://catalogue.data.wa.gov.au/dataset/hydrography-linear-hierarchy> (accessed October 2024).

Department of Water and Environmental Regulation (DWER) (2019). *Water Quality Protection Note no. 15*. <https://catalogue.data.wa.gov.au/dataset/contaminated-reported-sites-dwer-059> (accessed August 2023).

Ecoedge Environmental Services. 2024. Detailed and Targeted Flora and Vegetation Survey Lot 287 South Western Highway, Gwindinup, Western Australia. Unpublished report for MBS Environmental.

Government of Western Australia (WA Gov). 2023. *Biosecurity and Agriculture Management Act 2007*. Administered by the Department of Primary Industries and Regional Development, current as of 5 April 2023. https://www.legislation.wa.gov.au/legislation/statutes.nsf/main_mrtitle_2736_homepage.html (accessed August 2023).

Harewood, G. 2019. Fauna Assessment Lot 287 South Western Highway - Gwindinup. Unpublished report prepared for MBS Environmental. March 2019.

Keighery, B.J. 1994. Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Martinick Bosch Sell Pty Ltd (MBS). 2024a. *Stormwater Management Plan Lot 393 Lowrie Road and Lot 287 South Western Highway, Gwindinup (Rev 8)*. Unpublished plan for Mario Michele Giacci, October 2024.

Martinick Bosch Sell Pty Ltd (MBS). 2024b. *Weed and Disease Management Plan Lot 287 South Western Highway, Gwindinup*. Unpublished plan for Mario Michele Giacci, October 2024

Project Dieback. 2024. Dieback Information and Delivery Management System. <https://dieback.net.au/mapping/>. Accessed 2024.

Thackway, R and Cresswell, I D (Thackway and Cresswell). 1995. An Interim Biogeographic Regionalisation for Australia: A framework for establishing the national system of reserves, Version 4.0 Australian Nature Conservation Agency, Canberra. <https://www.dcceew.gov.au/sites/default/files/documents/ibra-framework-setting-priorities-nrs-cooperative-program.pdf>. Accessed October 2024.

Western Australian Local Government Association (WALGA). 2009. South West Regional Ecological Linkages Axis Lines. <https://catalogue.data.wa.gov.au/dataset/south-west-regional-ecological-linkages-axis-lines> (accessed October 2024).

APPENDICES

APPENDIX 1: FLORA AND VEGETATION SURVEY 2024

Detailed and Targeted Flora and Vegetation Survey
Lot 287 South Western Highway, Gwindinup
Western Australia



Prepared for MBS
October 2024



Ecoedge Environmental Services
PO Box 9179, Picton WA 6229
0484 771 825 | enquiries@ecoedge.com.au

MBS Environmental Services
4 Cook Street, West Perth
+61 8 9226-3166 |
info@mbsenvironmental.com.au

Version	Origin	Review	Review date	Release approval	Issue date
V1	R. Smith	C. Spencer	19/08/2024		
V2	MBS	Ecoedge			
Final draft	R. Smith	Ecoedge	15/08/2024	Ecoedge	20/8/2024
Final	MBS	Ecoedge	1/10/2024	Ecoedge	3/10/2024

Executive Summary

A targeted and detailed flora and vegetation survey was carried out on a 46.2hectare site which included both native vegetation and blue gum plantation, on Lot 287, South West Highway, Gwindinup. MBS required the survey to inform project planning and environmental approvals that may be required on behalf of their proponent.

One hundred and one native vascular flora taxa and 11 introduced taxa were recorded in the 21.36 ha of native vegetation within the survey area. However, no Threatened or Priority flora was found in the survey area.

An individual of the Declared Pest plant **Asparagus asparagoides* (Bridal creeper), was recorded in the survey area.

All 75 Threatened or Priority taxa potentially occurring in the survey area were assigned a post-survey residual likelihood of “unlikely”. In the case of 47 taxa this was because they were not seen, and suitable habitat was not present. The remainder were assigned “unlikely” because they were not found even though they were thoroughly searched for at an appropriate time of year.

Four vegetation units, including one that consists of **Eucalyptus globulus* plantations were identified and mapped in the survey area. All the native vegetation units were mid open forests dominated by *Eucalyptus marginata* (Jarrah), with either *Corymbia calophylla* (Marri) or *C. haematoxylon* (Mountain Marri), (or both) as co-dominants.

- **Vegetation unit A.** *Eucalyptus marginata* mid open forest over *Corymbia haematoxylon*, (*Banksia grandis*, *Xylomelum occidentale*) low woodland on grey-brown gravelly loamy sand (11.48ha).
- **Vegetation unit B.** *Eucalyptus marginata*, *Corymbia calophylla* mid open forest over *Corymbia haematoxylon* scattered low trees on grey-brown loamy sand (8.14ha).
- **Vegetation unit C.** *Eucalyptus marginata* mid open forest over *Corymbia haematoxylon*, *Xylomelum occidentale* low woodland on grey sand (0.53ha).
- **Vegetation unit PL.** *Eucalyptus globulus* plantation (17.50ha).

Statistical comparison of the three floristic quadrats placed within the survey area showed the vegetation was more like the vegetation on the Darling Scarp near Harvey than it was to that of the Whicher Scarp adjacent to and south of the survey area. The survey area vegetation did not align with any TEC or PEC.

Contents

Executive Summary.....	3
Statement of limitations	8
Reliance on data.....	8
Report for the benefit of the Client	8
1 Introduction.....	9
2 Scope and objectives	10
3 Methods.....	13
3.1 Desktop assessment	13
3.1.1 Significant flora likelihood of occurrence	13
3.2 Field survey	14
3.3 Multivariate analysis.....	14
3.4 Survey limitations	15
4 Results desktop assessment.....	16
4.1 Biogeographic region and location	16
4.2 Threatened and Priority ecological communities.....	16
4.3 Threatened and Priority flora	19
5 Survey results	22
5.1 Flora	22
5.2 Declared pest plants and environmental weeds	22
5.3 Post likelihood of occurrence	24
5.4 Assessment of pre-survey 'possibly occurring' taxa.....	25
5.5 Vegetation units.....	26
5.6 Plant counts	26
5.7 Multivariate analysis.....	30
5.8 Vegetation condition	32
5.9 Threatened and Priority Ecological Communities	34
6 Discussion and conclusions	35
6.1 Significance of flora.....	35
6.2 Significance of vegetation.....	35
7 References.....	36
8 Appendix.....	39

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

Appendix 2. Vegetation condition scale (EPA, 2016).....

Appendix 3. Track log and quadrat locations points.

Appendix 4. Categories of threatened and priority ecological communities under the BC Act.

Appendix 5. Categories of Threatened ecological communities under the EPBC Act.....

Appendix 6. State Categories of Threatened and Priority list flora.....

Appendix 7. Categories of Threatened species under the EPBC Act.....

Appendix 8. Protected Matters Search Tool and NatureMap reports.

Appendix 9. Pre and post likelihood of occurrence.....

Appendix 10. List of vascular flora found within the survey area.

Appendix 11. Quadrat details.

Table of Tables

Table 1. Limitations of the field survey with regard to assessment adequacy and accuracy. 15

Table 2. Threatened and Priority ecological communities occurring within study area (DBCA 2023a, DCCEEW 2024).17

Table 3. Conservation significant flora possibly occurring within the survey area.20

Table 4. Likelihood of occurrence according to conservation status.20

Table 5. Vascular flora post survey likelihood of occurrence according to conservation status.24

Table 6. Detailed description of the four vegetation units.27

Table 7. Results from MVA showing single site insertion statistics for the three survey area quadrats.31

Table 8. Vegetation condition within the survey area.32

Table 9. Area and condition classes for the various vegetation unit within the survey area. 32

Table of Figures

Figure 1. Aerial photograph showing the location of the survey area in a regional context..	11
Figure 2. Aerial photograph showing the location of the survey area.....	12
Figure 3. Threatened and Priority ecological communities within 5 km of the survey area (DBCA 2023a).	18
Figure 4. Threatened and Priority flora within the 5 km study area (DBCA 2023d).....	21
Figure 5. Declared Pest plant (<i>Asparagus asparagoides</i>) location recorded within the survey area.	23
Figure 6. Vegetation units within the survey area.....	29
Figure 7. Part of the dendrogram produced by the MVA of quadrat floristic data showing the three survey area quadrats, GWIN01, GWIN02 and GWIN03.....	30
Figure 8. Vegetation condition within the survey area.	33

Statement of limitations

Reliance on data

In the preparation of 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 referred to 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.

Report for the benefit of the Client

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 and should make their own enquiries and obtain independent advice in relation to such matters.

1 Introduction

Ecoedge Environmental Services (Ecoedge) was engaged by MBS Environmental (MBS) in August 2023, to undertake a spring Targeted and Detailed flora and vegetation survey of Lot 287 South Western Highway Gwindinup, within the Shire of Capel (**Figure 1** and **Figure 2**). MBS require the survey to inform project planning and environmental approvals that may be required on behalf of their proponent.

The survey area is 46.22 hectares (ha) in size with approximately 19 ha of remnant vegetation and is located 10 kilometres (km) northwest from the town of Donnybrook. Nearby land use is mainly agricultural, and the Boyanup State Forest is located approximately 1 km to the east and south of the survey area.

The flora and vegetation survey was undertaken on 1 and 29 of September 2024 by R. Smith and C. Spencer in accordance with the Environmental Protection Authority (EPA) (2016) Technical Guidance, Flora and Vegetation Surveys for Environmental Impact Assessment.

This report compiles findings of the survey.

2 Scope and objectives

MBS 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), The desktop assessment area (study area) encompassed a five-kilometre (km) buffer to the survey area.

The field survey was required to ground-truth the desktop assessment findings and delineate all significant flora and vegetation components within the survey area, including TECs and 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 *Environmental Protection and Biodiversity Act 1999* (EPBC Act 1999) threatened species and communities.

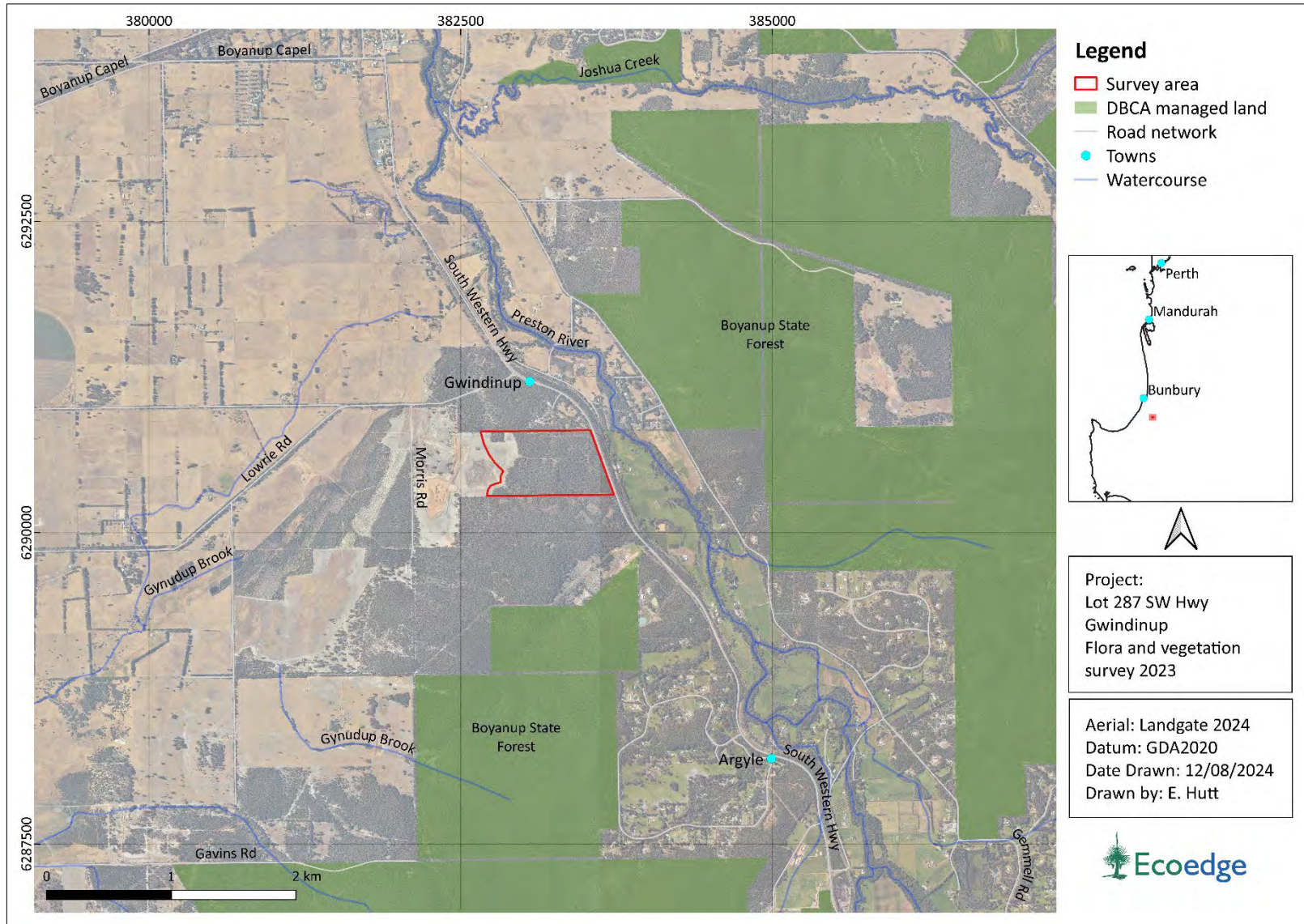


Figure 1. Aerial photograph showing the location of the survey area in a regional context.



Figure 2. Aerial photograph showing the location of the survey area.

3 Methods

3.1 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.

- WA Threatened and Priority Ecological Communities DBCA database extracts from the Department of Biodiversity, Conservation and Attractions (DBCA 2023a) and TEC and PEC listings (DBCA 2023b, DBCA 2023c).
- Federal Protected Matters Search Tool results (DCCEEW 2024).
- Atlas of Living Australia 5 km area report (ALA 2024).
- Extract from the Department's Threatened Flora database and the Western Australian Herbarium database (DBCA 2023e).

3.1.1 Significant flora likelihood of occurrence

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

3.2 Field survey

The flora and vegetation survey was undertaken on 1 September and 29 September 2023, by Russell Smith (flora permit FB62000500) and Colin Spencer (flora permit FB62000169-3) in accordance with the Environmental Protection Authority (EPA) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016).

Flora species not identified in the field were either photographed or collected for later identification (as per WA Herbarium guidelines (DBCA 2020)).

Vegetation mapping notes were collected at nineteen locations in the survey area and vegetation condition was recorded at 90 points. In addition, three floristic quadrats (10 m x 10 m) (GWIN01, 02, 03) were installed within the survey area. The numbers of shrubs, sedges and forbs within these quadrats was also counted to assist with revegetation plans. Numbers of tree species were counted within a 20 m x 20 m quadrat at the same location.

Vegetation units were described using the National Vegetation Information System (NVIS) (Level 5; NVIS 2017) from information collected at mapping notes, vegetation condition points and quadrats. This information together with the support of recent aerial photography was used to map the spatial boundary of the vegetation units.

Vegetation condition was assessed using the method of the EPA (2016) (**Appendix 2**).

The location of all sample sites including trackfiles for the survey are shown in **Appendix 3**.

3.3 Multivariate analysis

The floristic quadrat data from the three quadrats placed within the survey area (was subjected to multivariate analysis (MVA) using the software PATN (Belbin 2003) to determine the relationship of the vegetation units described and mapped within the survey area to the floristic community types derived for the Whicher Scarp by Keighery et al (2008). This is the recommended way of establishing whether they resemble any TEC or PEC (DBCA 2023e).

A comparison of the three survey area quadrats was made with the Whicher Scarp dataset, rather than the Swan Coastal Plain datasets (Gibson et al 1994, Keighery et al. 2012) because the survey area is on the slope of the Whicher Scarp and Darling Plateau (Sub-section 4.1). The following totals for flora taxa and floristic quadrats were involved in the MVA: 114 quadrats x 555 taxa. Singletons were removed from the data before analysis.

There two main outputs from the MVA were dendrograms and a table of coefficients of similarity between individual quadrats. Because of the size and complexity of the dendrogram and table of coefficients they are not reproduced in this report, however the results are

presented as a summary in **Section 5.7**, below. During the analysis single site insertions¹ of new quadrat data into the existing datasets are recommended because they minimise disruption of the original datasets.

3.4 Survey limitations

Limitations with regards to the assessment are addressed in **Table 1**.

Table 1. Limitations of the field survey with regard to assessment adequacy and accuracy.

Aspect	Constraint	Comment
Scope	Not a constraint	The survey scope was prepared in consultation with the Client and was designed to comply with EPA requirements.
Proportion of flora identified	Not a constraint	The survey was carried out in September, which is within the optimal survey time for the high rainfall in the south-west, and most taxa were identifiable. Approx. 95-98% of species were identified in the survey area.
Climatic and seasonal effects	Minor constraint	Rainfall for the period till the end of September for Boyanup North, the nearest station, was 80% of the long-term mean. However, germination and flowering appear to have been minimally affected.
Availability of contextual information	Not a constraint	Regional surveys of remnant vegetation, and more localised surveys, have been carried out on the Whicher Scarp and Darling Scarp
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 botanists have a combined total 40 years' experience in flora surveys in the south-west of W.A.
Disturbance (fire, grazing, clearing etc.)	Minor	A portion of the vegetation has been subject to physical disturbance and invasion by weeds, particularly adjacent to the paths through the survey area. These disturbances did not affect the outcome of survey.

¹ Whereby each of the survey quadrats were analyzed, one at a time.

4 Results desktop assessment

4.1 Biogeographic region and location

The survey area is situated within the Southern Jarrah Forest (JAF02) subregion of the Jarrah Forest (JAF) biogeographic region just to the west of the Perth (SWA02) subregion of the Swan Coastal Plain (SWA) biogeographic region as defined in the Interim Biogeographical Regionalisation for Australia (IBRA) (Commonwealth of Australia 2016).

4.2 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 TEC. These TECs can be listed under one of three conservation categories. These categories are Critically Endangered (CR), Endangered (EN), Vulnerable (VU). The BC Act also provides for listing communities as collapsed ecological communities.

Possible TECs that do not meet survey criteria are added to the DBCA's Priority ecological community lists under Priorities 1, 2 or 3 (referred to as P1, P2, P3). Ecological communities that are adequately known, are rare but not Threatened, that meet criteria for near Threatened, or that have been recently removed from the Threatened list, are placed in Priority 4 (P4). These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5 (P5) (DEC 2013).

The current listing of Threatened and Priority ecological communities is specified in DBCA (2023b, 2023c). The conservation categories for these Threatened and Priority ecological communities are defined in **Appendix 4**.

TECs can also be listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). There are three categories of TEC under the EPBC Act: Critically Endangered (CR), Endangered (EN) and Vulnerable (VU) (Department of Agriculture, Water and the Environment) (DCCEEW 2022). These are defined in **Appendix 5**.

The desktop assessment, which included a Protected Matters Search (DCCEEW 2024) and review of DBCA TEC and PEC database extracts (DBCA 2023a), one BC Act listed TEC, and four State listed PECs within the 5 km study area.

Outcomes of these searches are presented in **Table 2**. The results of the DBCA records are shown in **Figure 3**.

Table 2. Threatened and Priority ecological communities occurring within study area (DBCA 2023a, DCCEEW 2024).

Community name and description	Status (WA)	Status (EPBC Act)
'Banksia Woodlands of the Swan Coastal Plain' – a federally listed TEC consisting of numerous State-listed communities, one of which occurs within the 5 km study area: SCP21b – Southern <i>Banksia attenuata</i> woodlands	P3	T (EN)
West Whicher Scarp <i>Banksia attenuata</i> woodland: Whicher Scarp B2	P1	na
Whicher Scarp Jarrah woodland of deep coloured sands: Whicher Scarp C2	P1	na
Swan Coastal Plain Paluslope Wetlands: Whicher Scarp Paluslope Wetlands	P1	na

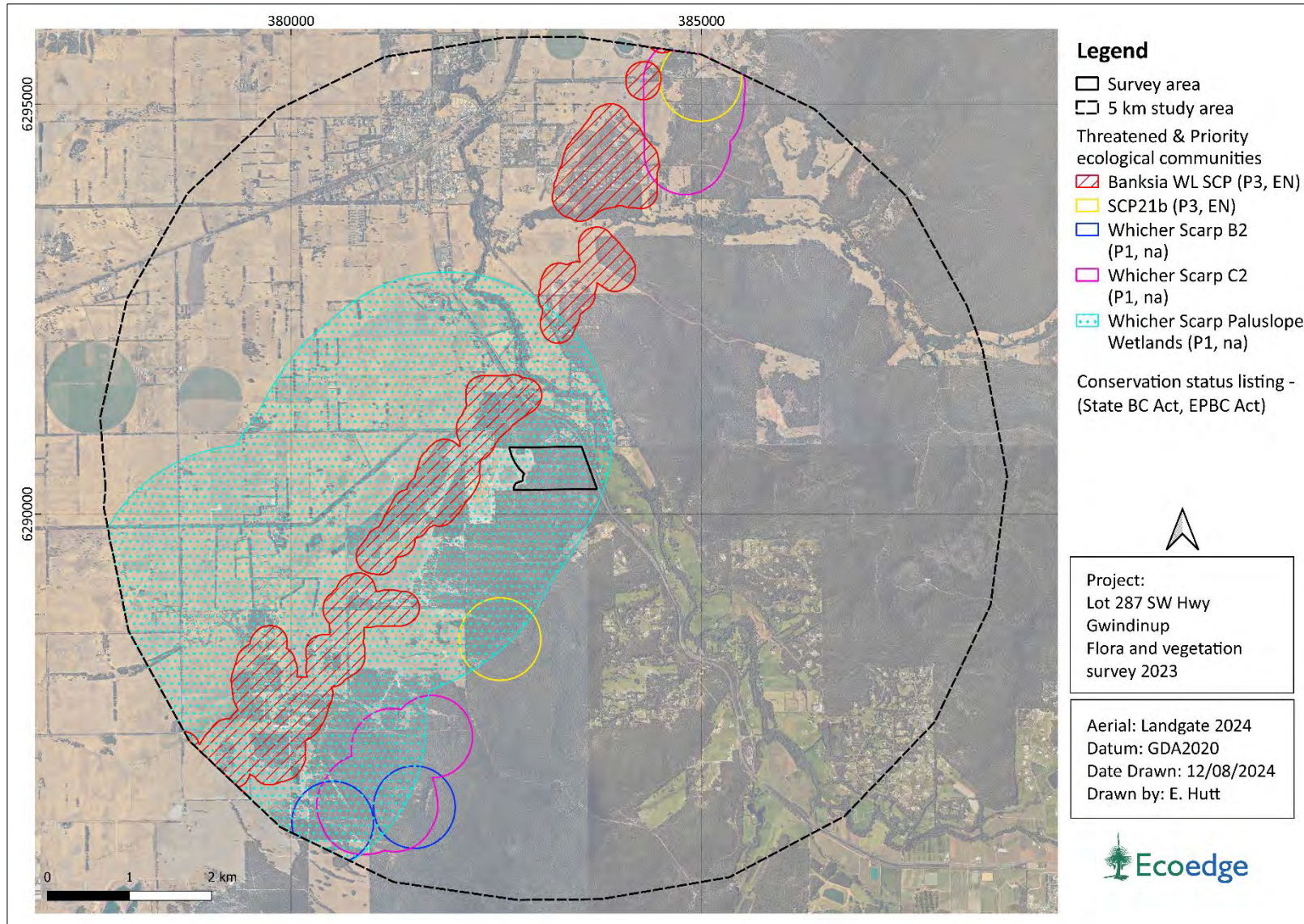


Figure 3. Threatened and Priority ecological communities within 5 km of the survey area (DBCA 2023a).

4.3 Threatened and Priority flora

Species of flora and fauna 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 towards population and species protection.

Threatened extant flora species are listed under Section 19 of the BC Act. They are ranked according to their level of threat using the International Union for Conservation of Nature (IUCN) Red List categories and criteria. The categories are Critically Endangered (CR), Endangered (EN), 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.

Threatened flora lists are formally reviewed annually with the current listing updated on 1 August 2024 (DBCA 2024). The Priority flora list is subject to ongoing review and update 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 6** (DBCA 2019).

Threatened flora may also be protected under the Commonwealth EPBC Act and be listed in one of six categories. Definitions of these categories are summarised in **Appendix 7** (DCCEEW 2020).

Threatened or Priority flora occurring within 5 km of the survey area generated from an Atlas of Living Australia search (Atlas of Living Australia 2024) and a Protected Matters Search Tool query (DCCEEW 2024). DBCA and WA Herbarium Threatened and Priority flora data downloads (DBCA 2023d) are provided in **Appendix 8**.

Seventy-five conservation significant species were identified within this search area. Of these, none were considered ‘likely’ to occur. Twenty-seven taxa were considered to ‘possibly’ occur within the survey area and the remaining 48 taxa were considered ‘unlikely’ to occur. There were no known populations of Threatened or Priority flora within the survey area. The forty-three taxa possibly occurring within the survey area are listed in **Table 3**. The locations of these significant flora are shown in **Figure 4** (DBCA 2023d).

A breakdown of the likelihood of occurrence (LoO) of all potential species according to conservation status is provided in **Table 4**, with the complete likelihood of occurrence assessment provided in **Appendix 9**.

Table 3. Conservation significant flora possibly occurring within the survey area.

Species	Conservation Status	Pre - LoO
<i>Caladenia hoffmanii</i>	T (EN)	Possible
<i>Drakaea micrantha</i>	T (EN)	Possible
<i>Daviesia elongata</i> subsp. <i>elongata</i>	T (VU)	Possible
<i>Drakaea elastica</i>	T (CR)	Possible
<i>Boronia humifusa</i>	P1	Possible
<i>Caladenia uliginosa</i> subsp. <i>patulens</i>	P1	Possible
<i>Dillwynia</i> sp. Capel (P.A. Jurjevich 1771)	P1	Possible
<i>Gastrolobium</i> sp. Yoongarillup (S. Dilkes s.n. 1/9/1969)	P1	Possible
<i>Orianthera wendyae</i>	P1	Possible
<i>Stylidium acuminatum</i> subsp. <i>acuminatum</i>	P1	Possible
<i>Stylidium nitidum</i>	P1	Possible
<i>Stylidium perplexum</i>	P1	Possible
<i>Gastrolobium whicherense</i>	P2	Possible
<i>Leucopogon</i> sp. Busselton (D. Cooper 243)	P2	Possible
<i>Platytheca anasima</i>	P2	Possible
<i>Thelymitra variegata</i>	P2	Possible
<i>Adelphacme minima</i>	P3	Possible
<i>Cyathochaeta teretifolia</i>	P3	Possible
<i>Grevillea bronwenae</i>	P3	Possible
<i>Isopogon formosus</i> subsp. <i>dasylepis</i>	P3	Possible
<i>Jacksonia gracillima</i>	P3	Possible
<i>Lasiopetalum laxiflorum</i>	P3	Possible
<i>Lomandra whicherensis</i>	P3	Possible
<i>Synaphea hians</i>	P3	Possible
<i>Tetratheca parvifolia</i>	P3	Possible
<i>Caustis</i> sp. Boyanup (G.S. McCutcheon 1706)	P3	Possible
<i>Chamelaucium</i> sp. S coastal plain (R.D.Royce 4872)	P4	Possible
<i>Franklandia triaristata</i>	P4	Possible

Table 4. Likelihood of occurrence according to conservation status.

Likelihood of occurrence	Total number	Priority 1	Priority 2	Priority 3	Priority 4	Threatened
Likely	0	-	-	-	-	-
Possible	28	8	4	10	2	4
Unlikely	48	4	4	11	8	21
Total	76	12	8	21	10	25

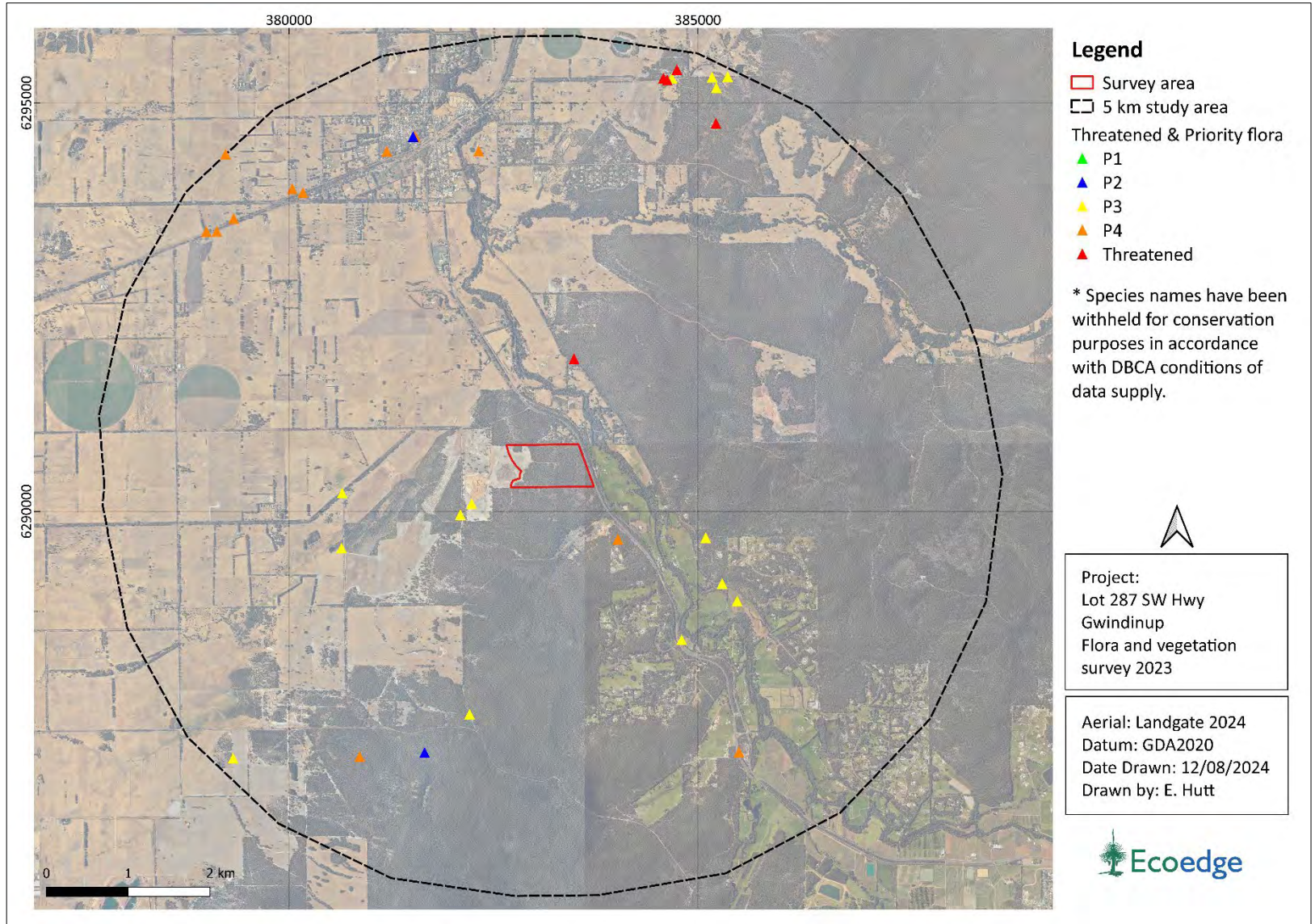


Figure 4. Threatened and Priority flora within the 5 km study area (DBCA 2023d).

5 Survey results

5.1 Flora

One hundred and one native vascular flora taxa and 11 introduced taxa were recorded in the 21.3 ha of native vegetation within the survey area.

The dominant taxa within the survey were Asteraceae ten species (including four weed taxa), Fabaceae (ten species, one weed), Proteaceae (nine species), and Orchidaceae (eight species) in the survey area.

No Threatened Flora or Priority taxa was found in the survey area.

Drakaea species were identified as Possible pre-survey - occurring on similar soils as survey area Northwest of survey area. Ecoedge did do a search for them in possible habitat along the northern boundary in sand under *Kunzea glabrescens*. None of the Possible species identified in the pre-survey LoO were found including *Gastrolobium whicherense* which has been found within 1 km of survey area on similar soils.

A list of species found during this survey is provided in **Appendix 10**.

5.2 Declared pest plants and environmental weeds

One of the eleven weed taxa recorded was the Declared Pest plant **Asparagus asparagoides* (Bridal creeper), which is a declared pest plant listed under the *Biosecurity and Agriculture Management Act 2007*. A single plant was recorded in the survey area. Bridal creeper is not assigned a control category meaning that there is no obligation on the landowner for its control unless under the directive of an endorsed management plan. The location of the plant is shown in **Figure 5**.

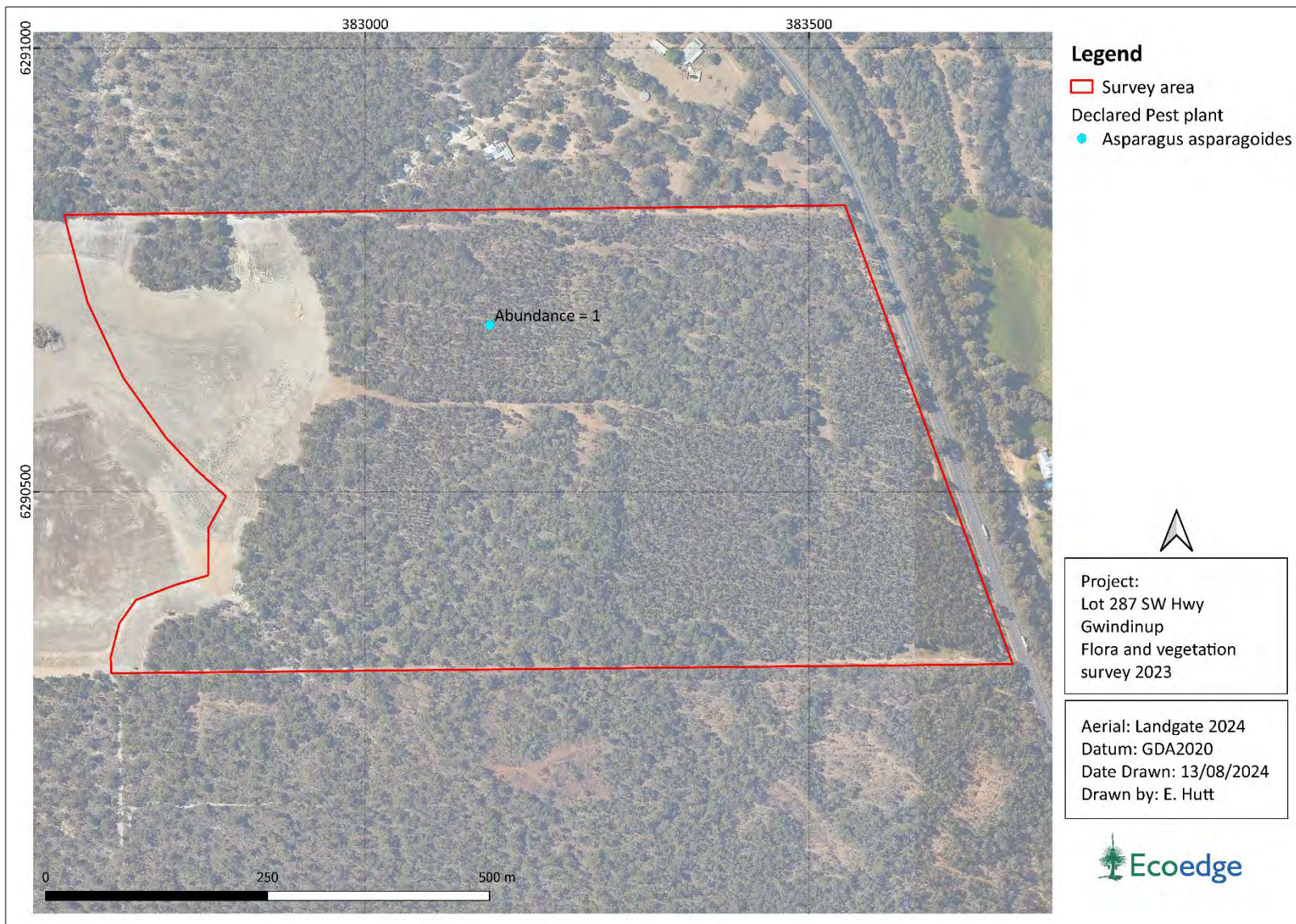


Figure 5. Declared Pest plant (*Asparagus asparagoides*) location recorded within the survey area.

5.3 Post likelihood of occurrence

All 75 Threatened or Priority taxa potentially occurring in the survey area were assigned a post-survey residual likelihood of “unlikely”. In the case of 47 taxa this was because they were not seen, and suitable habitat was not present. The remainder were assigned “unlikely” because they were not found even though they were thoroughly searched for at an appropriate time of year.

A summary of the post survey likelihood of occurrence according to conservation status is provided in **Table 5**.

Table 5. Vascular flora post survey likelihood of occurrence according to conservation status.

Likelihood of occurrence	Total No.	Priority 1	Priority 2	Priority 3	Priority 4	Threatened
Recorded	0	-	-	-	-	-
Unlikely	75	12	8	21	10	24
Total	75	12	8	21	10	24

5.4 Assessment of pre-survey 'possibly occurring' taxa

Twenty-eight taxa were assessed as having a pre-survey likelihood of occurrence of 'possible'. Of these, three were Threatened orchid species. And one was a P1 taxon.

These orchids, *Caladenia hoffmanii*, *Drakaea elastica*, *D. micrantha* and *Caladenia uliginosa* subsp. *patulens* would have been flowering at the time of survey and visible, had they been present.

Flowering was good for orchids at the time of survey and a total of eight species were identified within the survey area, including three *Caladenia* spp. and one *Thelymitra* sp. However, after a careful inspection of the survey area, it was concluded that none of the Threatened orchids (or other possibly occurring taxa), were present.

5.5 Vegetation units

Four vegetation units were recognized within the survey area, three of them native vegetation and one unit representing a *Eucalyptus globulus* plantation, and are described below using their structurally dominant species:

- **Vegetation unit A.** *Eucalyptus marginata* mid open forest over *Corymbia haematoxylon*, (*Banksia grandis*, *Xylomelum occidentale*) low woodland on grey-brown gravelly loamy sand.
- **Vegetation unit B.** *Eucalyptus marginata*, *Corymbia calophylla* mid open forest over *Corymbia haematoxylon* scattered low trees on grey-brown loamy sand.
- **Vegetation unit C.** *Eucalyptus marginata* mid open forest over *Corymbia haematoxylon*, *Xylomelum occidentale* low woodland on grey sand.
- **Vegetation unit PL.** *Eucalyptus globulus* plantation.

Except in a general sense, there was little overlap between the vegetation unit descriptions and mapping in a previous report (DMC 2019) and that of the current survey.



A full description of each of the units together with the area they cover is provided in **Table 6**. Maps showing the occurrence of the units is shown in **Figure 6**.

The conservation status of the vegetation units is discussed in **Sub-section 5.9**.

5.6 Plant counts

Numbers of tree stems within a 20 m x 20 m quadrat and shrubs, sedges and forbs in the three floristic is provided in the quadrat details provided in **Appendix 11**.

Table 6. Detailed description of the four vegetation units.

Code	Description	Photograph	Area
Unit A	<p><i>Eucalyptus marginata</i> mid open forest over <i>Corymbia haematoxylon</i>, (<i>Banksia grandis</i>, <i>Xylomelum occidentale</i>) low woodland with occasional patches of <i>Kunzea glabrescens</i> tall shrubs over <i>Hakea amplexicaulis</i> mid very open shrubland over <i>Hibbertia hypericoides</i>, <i>Xanthorrhoea gracilis</i> low very open shrubland including <i>Banksia bipinnatifida</i>, <i>B. dallanneyi</i>, <i>Hibbertia amplexicaulis</i>, <i>Labichea punctata</i> and <i>Scaevola calliptera</i> over very open forbland including <i>Desmocladius fasciculatus</i>, <i>Lagenophora huegelii</i>, <i>Lomandra</i> spp. and <i>Stylidium</i> spp. and <i>Morelotia octandra</i> and <i>Netrostylis</i> sp. Jarrah Forest (R. Davis 7391) low very open sedgeland on grey-brown gravelly loamy sand.</p>		11.48 ha
Unit B	<p><i>Eucalyptus marginata</i>, <i>Corymbia calophylla</i> open forest over <i>Corymbia haematoxylon</i> scattered low trees over (<i>Boronia spathulata</i>), <i>Hibbertia hypericoides</i>, <i>Hypocalymma robustum</i>, <i>Xanthorrhoea gracilis</i> mid open shrubland over <i>Banksia dallanneyi</i>, <i>Hibbertia amplexicaulis</i> very open low shrubland over <i>Lagenophora huegelii</i>, <i>Trichocline spathulata</i> very open forbland and <i>Netrostylis</i> sp. Jarrah Forest (R. Davis 7391) low very open sedgeland on grey-brown loamy sand.</p>		8.135 ha

Unit C	<p><i>Eucalyptus marginata</i> mid open forest over <i>Corymbia haematoxylon</i>, <i>Xylomelum occidentale</i> low woodland over <i>Jacksonia furcellata</i> open tall shrubland over <i>Boronia spathulata</i>, <i>Hibbertia vaginata</i>, <i>Melaleuca thymoides</i> mid open shrubland over <i>Chamaescilla versicolor</i>, *<i>Hypochaeris glabra</i>, *<i>Ursinia anthemoides</i> open forbland on grey sand.</p>		0.53 ha
Unit PL	Eucalypt plantation		17.50 ha

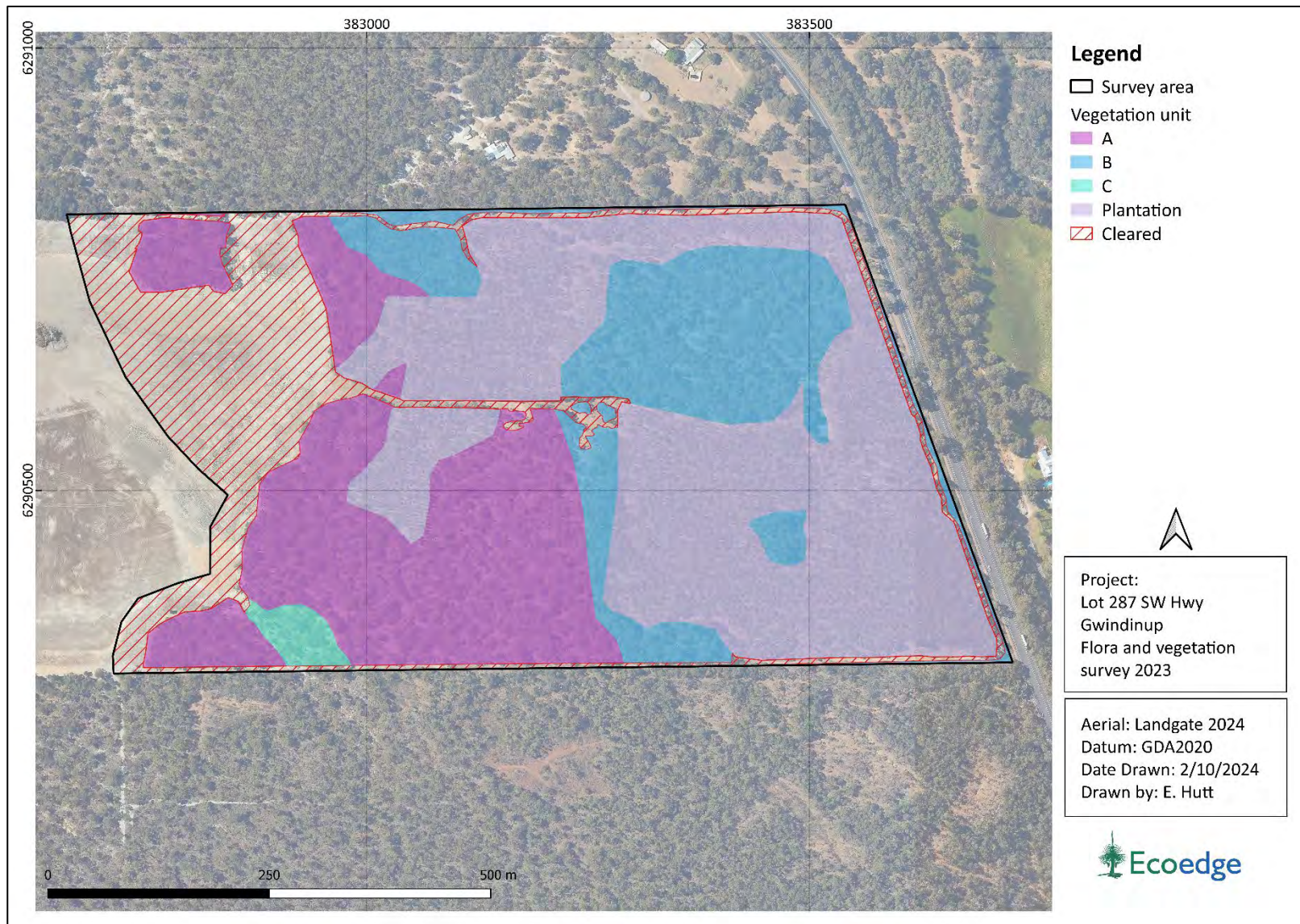


Figure 6. Vegetation units within the survey area.

5.7 Multivariate analysis

The results of the MVA, presented in the dendrogram below (**Figure 7**), demonstrated that the three survey area quadrats were grouped within a larger group containing Whicher Scarp survey quadrats assigned to FCT D. However, the three survey quadrats split from the larger group at an early branching of the dendrogram which indicates that floristically they are not very similar to FCT D. FCT D is represented by 10 quadrats located in the Korijekup Reserve in Harvey 50 km north of the survey area.

Further insight into the floristic affinities of the survey area quadrats is provided in **Table 7** where the results of the single site (quadrat) insertions are given. The similarity coefficients demonstrate that the three survey area quadrats were not particularly alike to any of the comparison quadrats (all were below 0.5²). Quadrat GWIN01, which unlike the other two quadrats occurs on the Whicher Scarp landform had some similarity to the two Whicher Scarp FCTs, C1 and C2 as evidenced in **Table 7** – but its coefficient of similarity a quadrat designated FCT D was substantially higher. It should be noted that most of the comparison database quadrats (apart from the Korijekup quadrats of FCT D) are situated on the Whicher Scarp landform which has different geology and soils to most of the survey area.

However, on balance, considering landform position and common species FCT D is the most likely match for the Gwindinup quadrats.

Quadrat data is provided in **Appendix 11**.

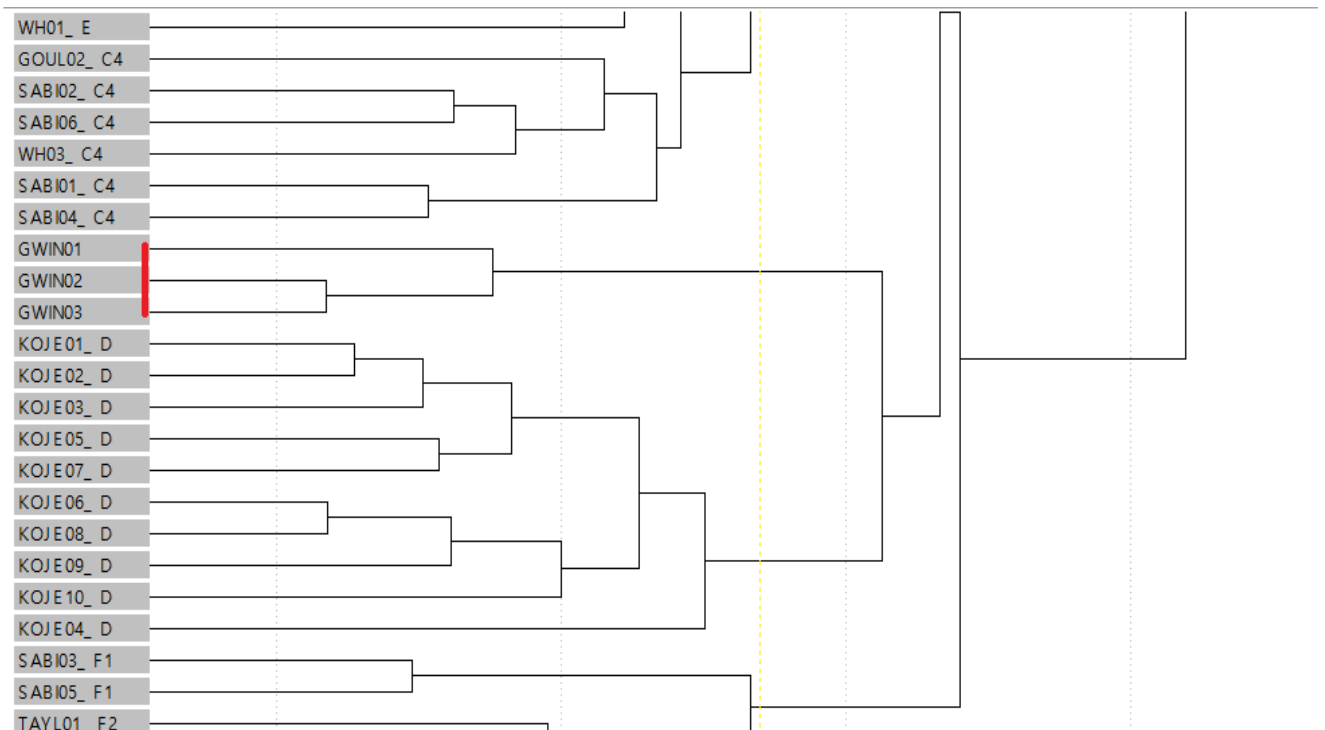


Figure 7. Part of the dendrogram produced by the MVA of quadrat floristic data showing the three survey area quadrats, GWIN01, GWIN02 and GWIN03.

² That is less than 50% of species in common.

Table 7. Results from MVA showing single site insertion statistics for the three survey area quadrats.

Survey Quadrat	Quadrat	FCT	Similarity	Dendrogram	Likely FCTs	Likely FCT Landform	Comparison of typical and other common species.	Recommended FCT
GWIN01	KOJE06	D	0.347	Clusters close to, but separate from 10 quadrats designated FCT D	FCT D	Occurs on the Darling Scarp landform	Shares taxa such as <i>Lagenophora huegelii</i> , <i>Lomandra purpurea</i> and <i>Xanthorrhoea gracilis</i> with FCT D. has similarities with some Whicher Scarp FCTs but the weight of evidence indicates it is closer to FCT D.	FCT D
	DAVE02	C2	0.300					
	gibson02	C2	0.300					
	KOJE01	D	0.300					
	ACTN02	C1	0.297					
GWIN02	KOJE05	D	0.457	Clusters close to, but separate from 10 quadrats designated FCT D	FCT D	Both the Rosa system on which the survey quadrats are situated and the Lowden Valley system on which FCT D is found are soils derived from the Darling Scarp	Shares taxa such as <i>Banksia bipinnatifida</i> , <i>Lagenophora huegelii</i> , <i>Lomandra purpurea</i> , <i>Trichocline spathulata</i> and <i>Xanthorrhoea gracilis</i> with FCT D	FCT D
	KOJE01	D	0.422					
	KOJE06	D	0.400					
	DAVE05	C3	0.388					
	DARPO3	C4	0.375					
GWIN03	KOJE06	D	0.405	Clusters close to, but separate from 10 quadrats designated FCT D	FCT D	Both the Rosa system on which the survey quadrats are situated and the Lowden Valley system on which FCT D is found are soils derived from the Darling Scarp	Shares taxa such as <i>Lagenophora huegelii</i> , <i>Lomandra purpurea</i> , <i>Tetrarrhena laevis</i> and <i>Xanthorrhoea gracilis</i> with FCT D	FCT D
	KOJE01	D	0.360					
	GAV02	C3	0.356					
	KOJE05	D	0.352					
	DARPO4	C4	0.351					

5.8 Vegetation condition

Half of the vegetation within the survey area was in Very Good or Excellent condition (**Table 8** and **Table 9**). If the plantation areas are excluded, over 90% of the native vegetation is in Excellent or Very Good condition.

The area and condition of the vegetation units are shown in **Table 9** and shown in **Figure 8**.

Table 8. Vegetation condition within the survey area.

Condition	Area (ha)	%
Excellent	4.86	12.91
Very Good	12.32	32.72
Good	1.28	3.40
Degraded	1.33	3.53
Completely Degraded	17.87	47.44
Total	37.67	100.00
Cleared	8.55	

Table 9. Area and condition classes for the various vegetation unit within the survey area.

Vegetation Unit	Condition	Area (ha)	%
A	Excellent	1.94	16.91
	Very Good	8.35	72.70
	Good	0.53	4.63
	Degraded	0.66	5.76
	Total	11.48	100.00
B	Excellent	2.92	35.87
	Very Good	3.97	48.75
	Good	0.39	4.78
	Degraded	0.5	6.16
	Completely Degraded	0.36	4.44
Total	8.14	100	
C	Good	0.36	68.25
	Degraded	0.17	31.75
	Total	0.53	100.00
PL	Completely Degraded	17.50	100
Cleared	Cleared	8.55	100
Grand total		46.20	

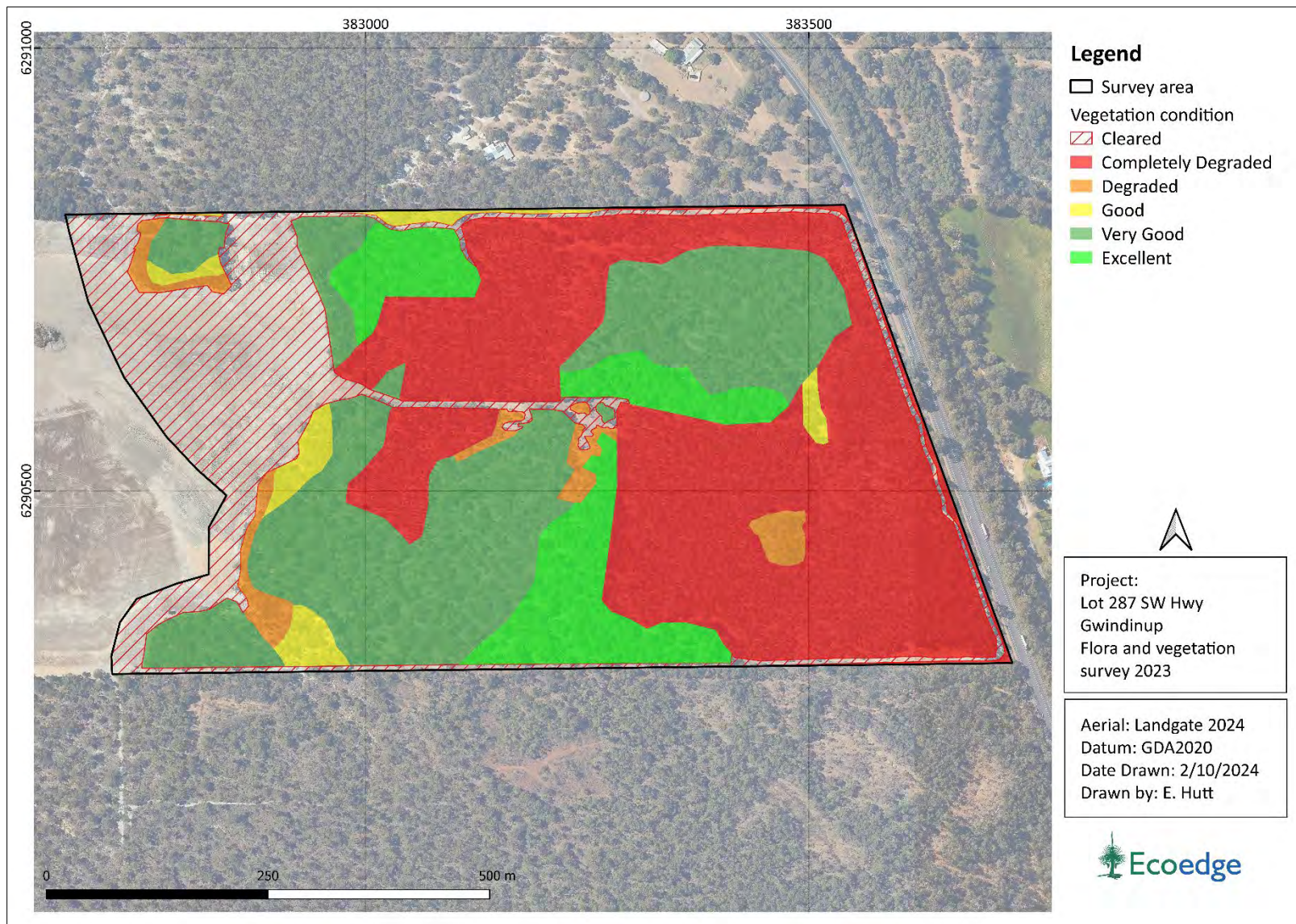


Figure 8. Vegetation condition within the survey area.

5.9 Threatened and Priority Ecological Communities

Comparison of the three quadrats placed within the survey area with the Whicher Scarp dataset (Keighery et al. 2008) showed that they are closest to FCT D, which is not a Threatened or Priority ecological community. Keighery et al. (2008) reported that FCT D was a diverse group, with a relatively high species richness. The authors stated at delineation of different sub-communities within this FCT would need to await the results of further surveys along the Darling Scarp.

6 Discussion and conclusions

6.1 Significance of flora

No Threatened Flora or Priority-listed taxa were found in the survey area and no other flora of conservation significance were found.

6.2 Significance of vegetation

Most of the survey area occurs off the Whicher Scarp and within the Rosa phase of the Goodwood Valleys soil-landscape system. The Whicher Scarp, which is known to be a landscape of high floristic richness and diversity (EPA 2013), forms a minor component of the west and southwest of the survey area.

Nevertheless, the three survey quadrats established within the survey area (including GWIN01 which was on the Whicher Scarp landform) most closely matched quadrats from Korijekup Nature Reserve situated 50 km north of the survey area, rather than quadrats from the Whicher Scarp.

It is considered that none of the vegetation within the survey area represents a Threatened or Priority ecological community.

7 References

- Atlas of Living Australia. (2024). 5 km Area Report for T142. Generated 12 August 2024. <https://spatial.ala.org.au/>
- Belbin, L. (2003). PATN - A Revised User's Guide. Blatant Fabrications Pty Ltd.
- Commonwealth of Australia. (2016). *Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 (Regions)*. Department of the Environment and Energy. <https://data.gov.au/data/dataset/e5a6d60a-009c-4fc3-b27d-67ed108b38ba>
- Daniel Marsh Consulting (DMC). (2019). Desktop study and reconnaissance flora and vegetation survey, Lot 287, South West Hwy, Gwindinup, WA, for Mario Michele Giacci.
- Department of Biodiversity, Conservation and Attractions (DBCA). (2019). Conservation codes for Western Australian Flora and Fauna 3 January 2019.
- Department of Biodiversity, Conservation and Attractions (DBCA). (2020). How to Collect Herbarium Vascular Plant Specimens. Western Australian Herbarium. <https://www.dbca.wa.gov.au/science/research-tools-and-repositories/wa-herbarium>
- Department of Biodiversity, Conservation and Attractions (DBCA). (2023a). Extract from the Department's Threatened and Priority Ecological Community database, prepared, prepared by the DBCA Species and Communities Branch, 19 May 2023, for MBS Environmental for the Lot 287 Southwest Hwy Gwindinup flora and vegetation survey (32-0523EC).
- Department of Biodiversity, Conservation and Attractions (DBCA). (2023b). Priority ecological communities for Western Australia, Version 38. Species and Communities Program, Department of Biodiversity, Conservation and Attractions (19 June 2023). <https://www.dbca.wa.gov.au/media/1730/download>
- Department of Biodiversity, Conservation and Attractions (DBCA). (2023c). Threatened ecological communities endorsed by the Minister for the Environment (23 November 2023). <https://www.dbca.wa.gov.au/wildlife-and-ecosystems/threatened-ecological-communities/list-threatened-ecological-communities>
- Department of Biodiversity, Conservation and Attractions (DBCA). (2023d). Extract from the Department's and Western Australian Herbarium Threatened and Priority Flora database, 17 May 2023, for MBS Environmental for the Lot 287 Southwest Hwy Gwindinup flora and vegetation survey (52-0523FL).

Department of Biodiversity, Conservation and Attractions (DBCA). (2023e). Methods for survey and identification of Western Australian threatened ecological communities. Draft version 4.

Department of Biodiversity, Conservation and Attractions (DBCA). (2024). Threatened and Priority Flora list (1 August 2024). <https://www.dbca.wa.gov.au/wildlife-and-ecosystems/plants/list-threatened-and-priority-flora>.

Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2020). Categories of Threatened species under the EPBC Act. <https://www.environment.gov.au/biodiversity/threatened/species>

Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2022). Categories of Threatened ecological communities under the EPBC Act. <https://www.dcceew.gov.au/environment/biodiversity/threatened/communities/about#What is a threatened ecological community TEC>

Department of Climate Change, Energy, the Environment and Water (DCCEEW). (2024). Protected Matters Search Tool 5 km query for T142. Generated 12 August 2024.

Department of Environment and Conservation (DEC). (2013). Definitions, categories and criteria for threatened and priority ecological communities. Department of Environment and Conservation, Perth, Western Australia

Environmental Protection Authority (EPA). (2013). The Natural Values of the Whicher Scarp, EPA, Western Australia.

Environmental Protection Authority (EPA). (2016). *Technical Guidance Flora and Vegetation Surveys for Environmental Impact*. EPA, Perth, Western Australia. http://www.epa.wa.gov.au/sites/default/files/Policies and Guidance/EPA/Technical/Guidance/FloraandVegetationsurvey_Dec13.pdf

Gibson, N., Keighery, B.J., Keighery, G.J., Burbidge, A.H. and Lyons, M.N. (1994). A floristic survey of the southern Swan Coastal Plain: report to Heritage Council of W.A. and Australian Heritage Commission. Department of Conservation and Land Management, Western Australia.

Keighery, B.J., Keighery, G.J., Webb, A., Longman, V.M., Griffin E.A. (2008). A floristic survey of the Whicher Scarp. Department of Environment and Conservation, Perth. 272 p.

Keighery, B., Keighery, G., Longman, V.M., and Clarke, K.A. (2012). Weed and native flora quadrat data compiled between 1990 – 1996 for the Swan Coastal Plain. Data compiled for the Departments of Environmental Protection and Conservation and Land Management

NVIS Technical Working Group. (2017). Australian Vegetation Attribute Manual: National Vegetation Information System, Version 7.0. Department of the Environment and Energy, Canberra. Prep by Bolton, M.P., deLacey, C. and Bossard, K.B. (Eds).

8 Appendix

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

- P1Rating	Presurvey rationale	Post survey rationale
Recorded		Taxon was or has been recorded in the survey area.
Likely	Known to occur within 1 kilometre (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 survey area is challenging to survey. The taxon is non- descript and difficult to find because, for example, it occurs in large areas of rocky granite outcrops, or within an expanse of open water.
Possible	Known to occur within 1 -10 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 five to ten 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 habitat was compromised, for example, due to a recent fire. P3. The survey area is challenging to survey. The taxon is non- descript and difficult to find because, for example, it occurs in large areas of rocky granite outcrops, or within an expanse of open water.
Unlikely	Known or predicted to occur within 10 km of the survey area, 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> <ul style="list-style-type: none"> U1. No suitable habitat was observed, and the taxon is known to be restricted to a narrow and clearly defined habitat type. U2. Suitable or potential habitat (e.g., soil type, hydrology) was present and appropriately searched, but the taxon was not observed. U3. Suitable habitat present (e.g., soil type, hydrology), but these areas were too degraded for the taxon to occur, for example, due to weed invasion and/or clearing.

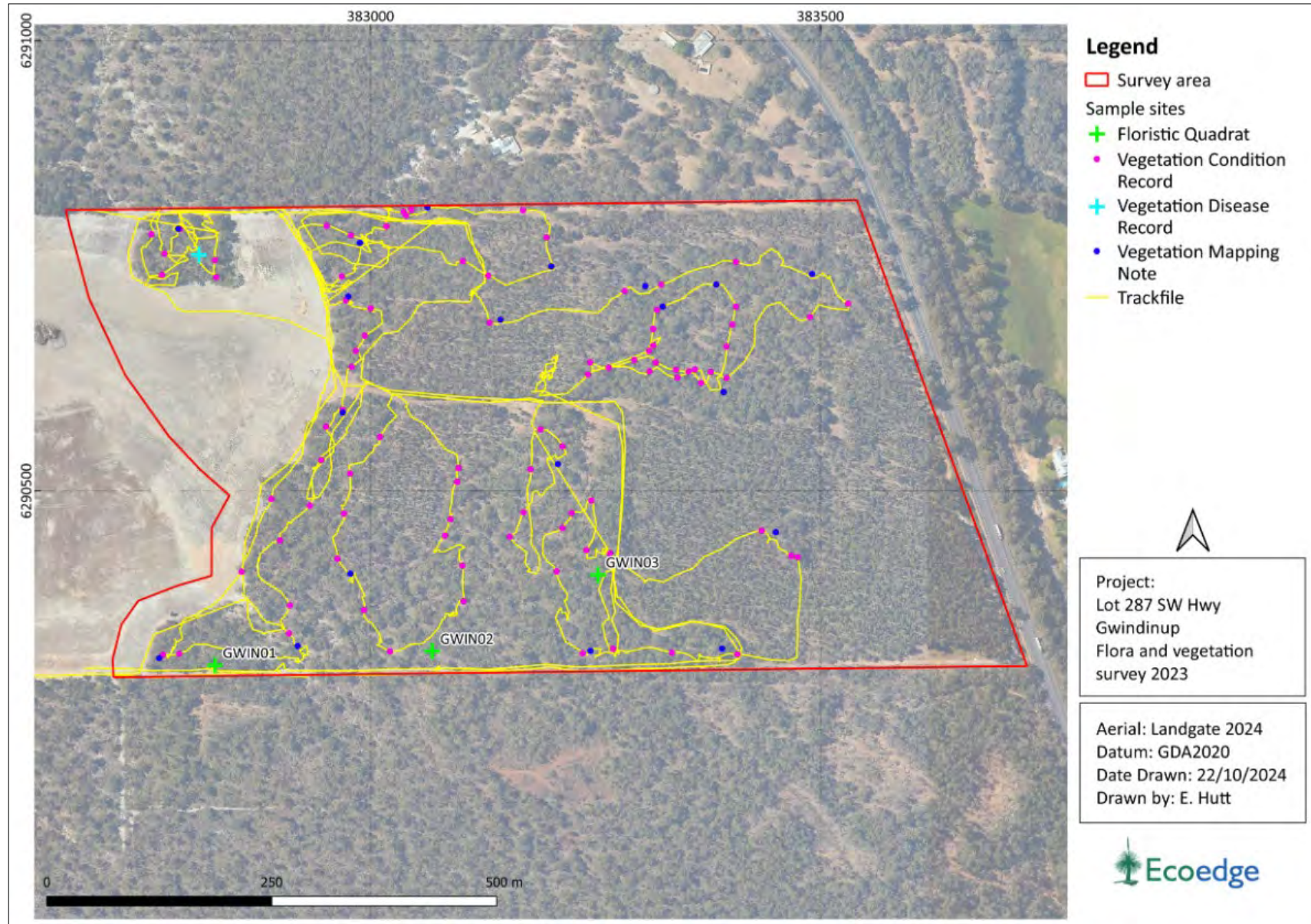
Example of application of pre and post-survey likelihood of occurrence

Taxon	Cons Status	Flowering	Description	Pre survey likelihood	Post Survey Likelihood
<i>Drakaea elastica</i>	T (EN)	Aug-Sept	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 (U2)

Appendix 2. 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 3. Location of sample sites and track logs within the survey area.



Appendix 4. 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 5. 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 6. 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 7. 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 8. Protected Matters Search Tool data and Atlas of Australia data.

AREA REPORT



Area: 93.81 sq km	Species: 825	Occurrences: 2839
Endemic species: 1	All threatened species: 64	Migratory species: 0
All invasive species: 7	Iconic species: 10	JournalMap Articles: 0
Animals: 245	Plants: 514	Birds: 112

Table of Contents

5 km study area.zip	3
National Dynamic Land Cover	4
Global Context Ecoregions	5
Freshwater Ecoregions of the World (FEOW)	6
Occurrences	7
Species	8
Endemic Species	23
All threatened species	24
All invasive species	26
Iconic species	27
Migratory species	28
Lifeform - Algae	29
Lifeform - Amphibians	30
Lifeform - Angiosperms	31
Lifeform - Animals	32
Lifeform - Arthropods	37
Lifeform - Bacteria	40
Lifeform - Birds	41
Lifeform - Bryophytes	44
Lifeform - Chromista	45
Lifeform - Crustaceans	46
Lifeform - Dicots	47
Lifeform - FernsAndAllies	54
Lifeform - Fishes	55
Lifeform - Fungi	56
Lifeform - Gymnosperms	58
Lifeform - Insects	59
Lifeform - Mammals	61
Lifeform - Molluscs	62
Lifeform - Monocots	63
Lifeform - Plants	67
Lifeform - Protozoa	77
Lifeform - Reptiles	78
Expert Distributions	79
Checklist Areas	96
JournalMap Articles	97
Further Links	98
References	99

5 km study area.zip

Area: 93.81 sq km

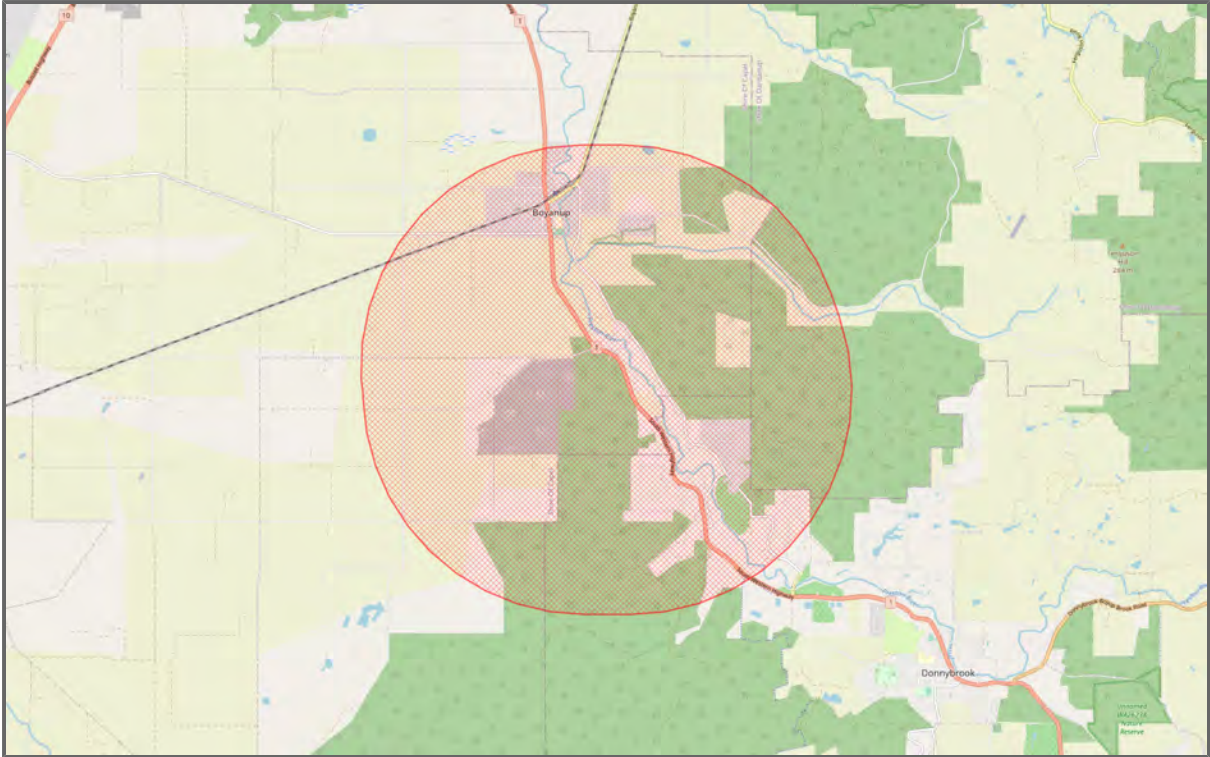
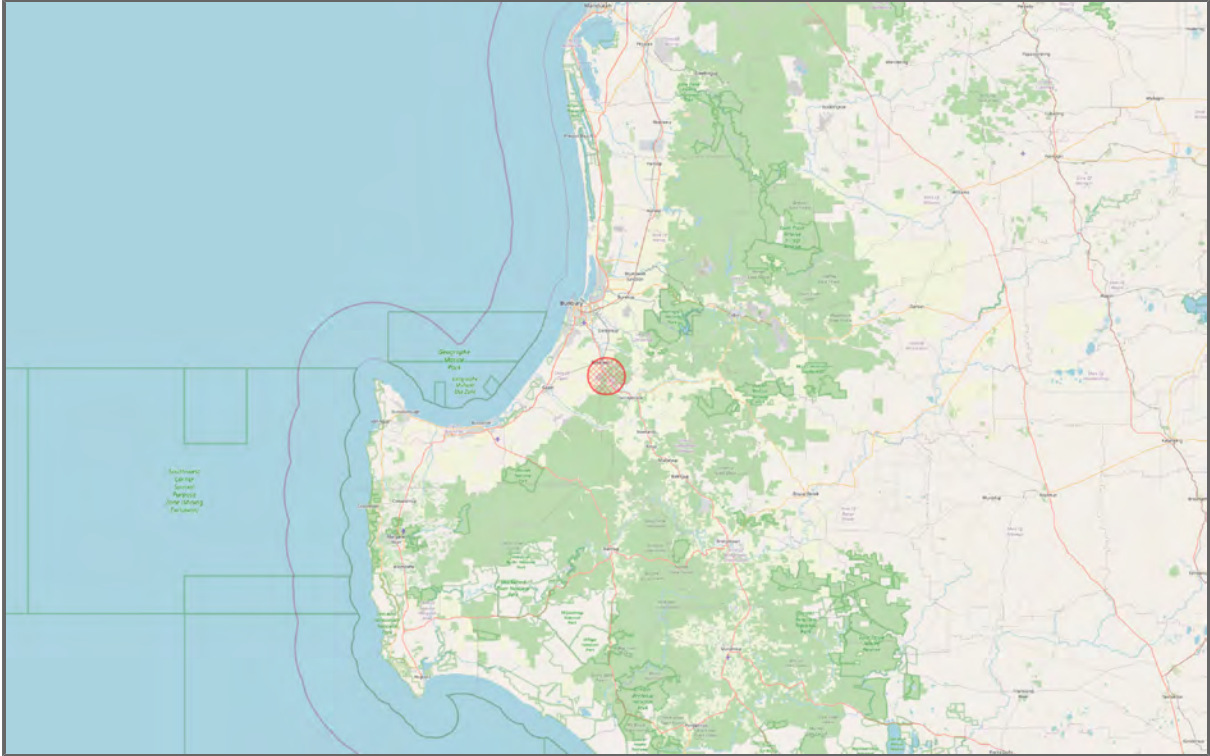


Figure 1 : Map of 5 km study area.zip

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>

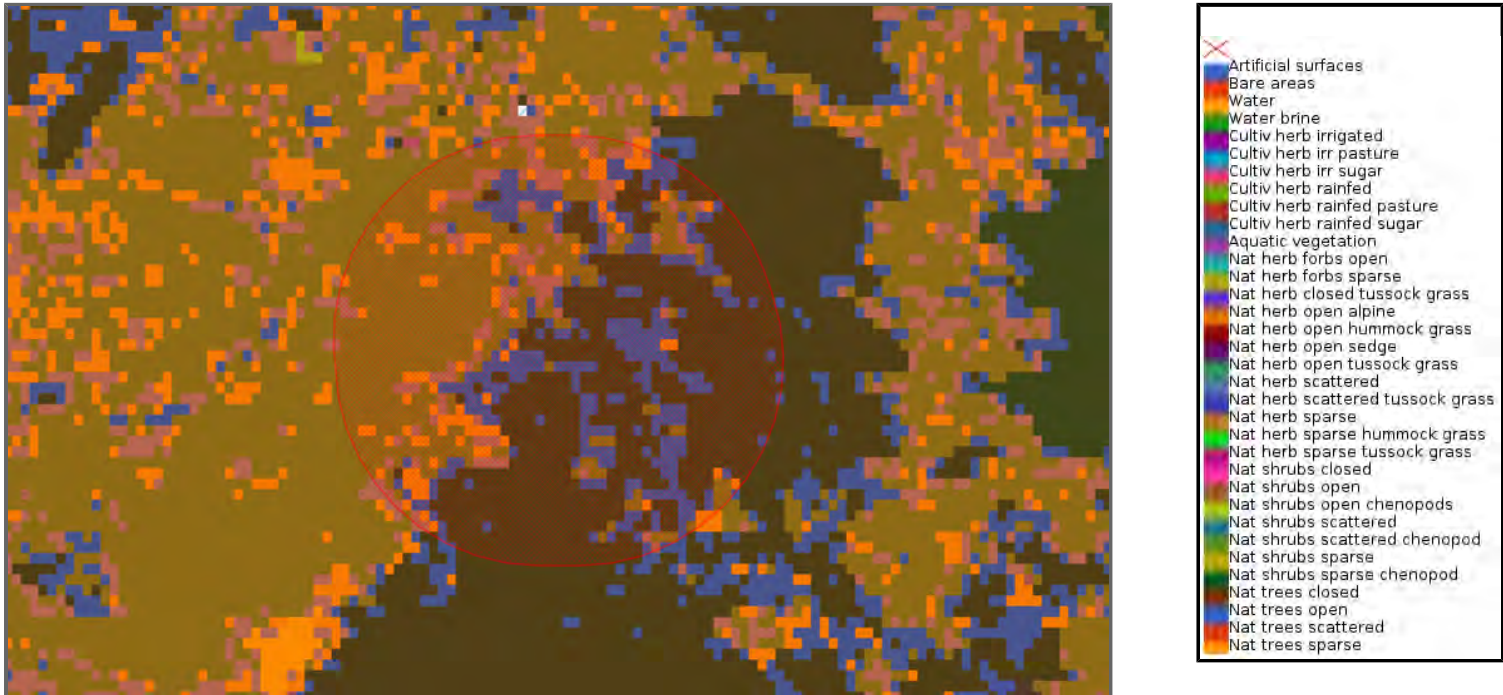


Figure 2 : Map of National Dynamic Land Cover

Table 1: National Dynamic Land Cover

Class/Region	Area (sq km)	% of total area
Primarily Vegetated Cultivated & Managed Lands Herbaceous Graminoids Rainfed	7.52	6.70
Primarily Vegetated Cultivated & Managed Lands Herbaceous Graminoids Rainfed Pasture	32.75	29.19
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Open	18.74	16.70
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Closed	46.29	41.26
Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Sparse	6.91	6.15

Global Context Ecoregions

Terrestrial Ecoregions of the World (TEOW)

Terrestrial Ecoregions of the World (TEOW) is a biogeographic regionalisation of the Earth's terrestrial biodiversity. Our biogeographic units are ecoregions, which are defined as relatively large units of land or water containing a distinct assemblage of natural communities sharing a large majority of species, dynamics, and environmental conditions. There are 867 terrestrial ecoregions, classified into 14 different biomes such as forests, grasslands, or deserts. Ecoregions represent the original distribution of distinct assemblages of species and communities. [Ref2]

TEOW: <https://worldwildlife.org/biome-categories/terrestrial-ecoregions>

Terrestrial Ecoregional Boundaries layer: Classification: Biodiversity - Region; Type: Contextual (polygonal); Metadata contact organisation: The Nature Conservancy (TNC). <https://spatial.ala.org.au/ws/layers/view/more/1053>

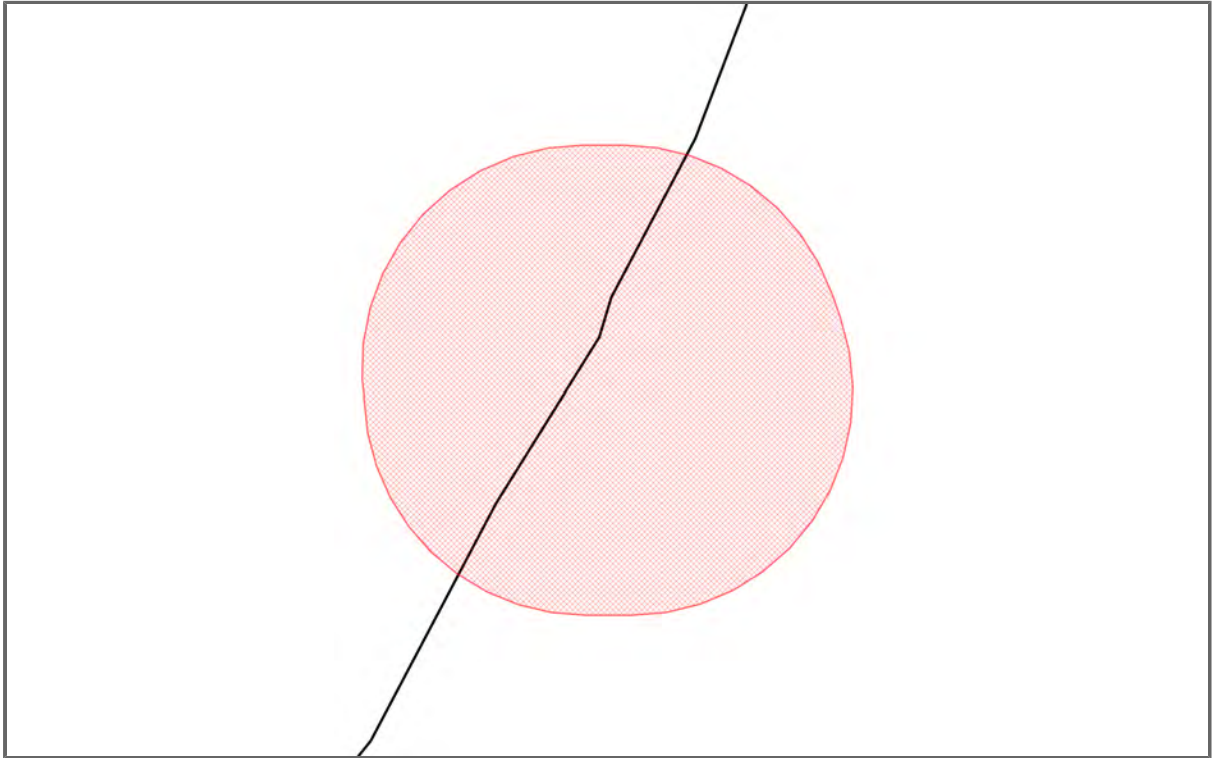


Figure 3 : Map of Global Context Ecoregions

Freshwater Ecoregions of the World (FEOW)

Freshwater Ecoregions of the World (FEOW) is a collaborative project providing the first global biogeographic regionalization of the Earth's freshwater biodiversity, and synthesizing biodiversity and threat data for the resulting ecoregions. We define a freshwater ecoregion as a large area encompassing one or more freshwater systems that contains a distinct assemblage of natural freshwater communities and species. The freshwater species, dynamics, and environmental conditions within a given ecoregion are more similar to each other than to those of surrounding ecoregions and together form a conservation unit. [Ref5]

FEOW: <https://worldwildlife.org/biome-categories/freshwater-ecoregions>

Freshwater Ecoregions of the World layer: Classification: Biodiversity - Region; Type: Contextual (polygonal); Metadata contact organisation: TNC.
<https://spatial.ala.org.au/ws/layers/view/more/1052>

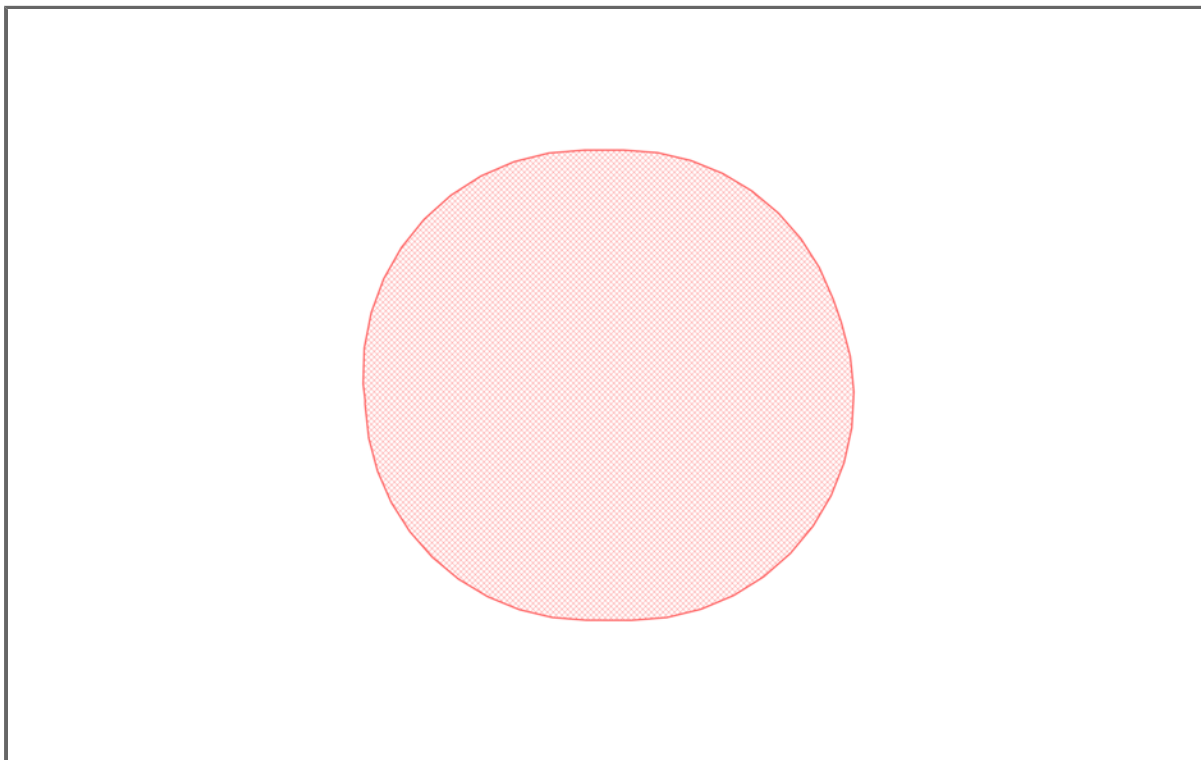


Figure 4 : Map of Freshwater Ecoregions of the World (FEOW)

Occurrences

Occurrences: **2839**

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): **2839**

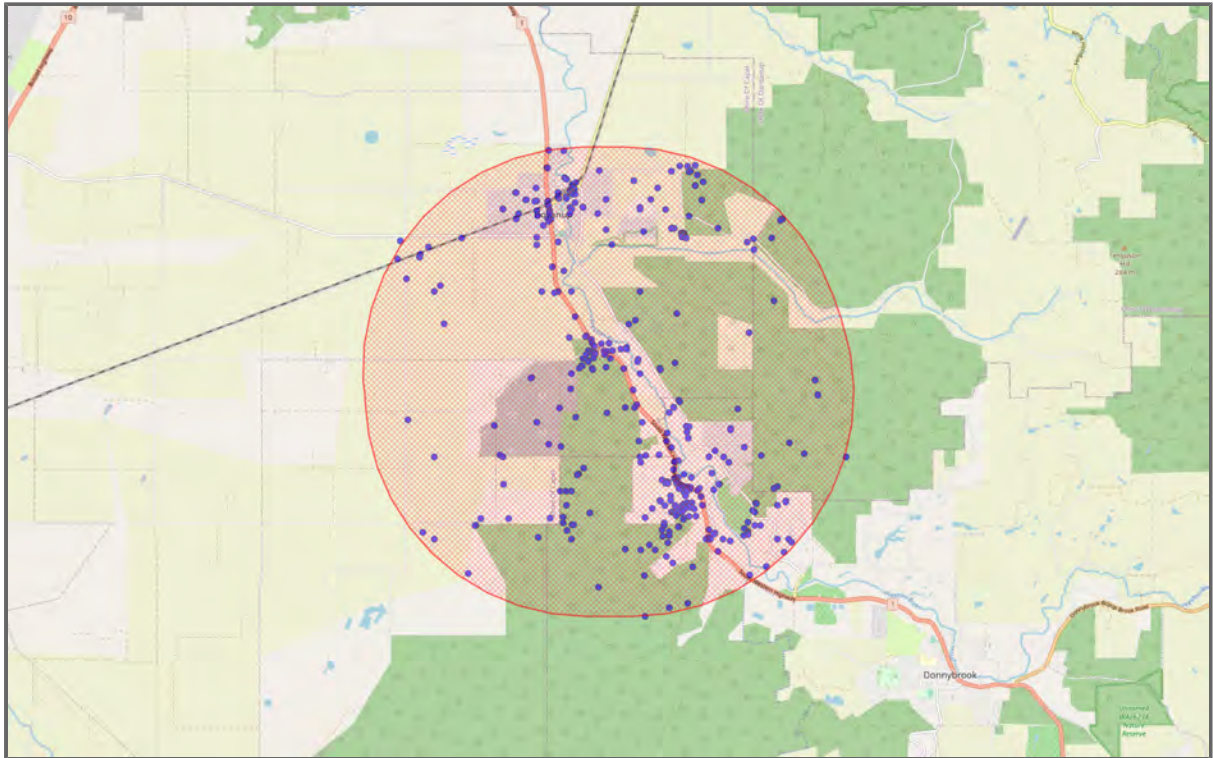


Figure 5 : Map of Occurrences

Species

Species: **825**

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): **825**

Table 4: Species

Family	Scientific Name	Common Name	No. Occurrences
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck	45
Zosteropidae	<i>Zosterops lateralis</i>	Silvereye	45
Rhipiduridae	<i>Rhipidura (Rhipidura) albiscapa</i>	Grey Fantail	44
Meliphagidae	<i>Phylidonyris (Meliornis) novaehollandiae</i>	New Holland Honeyeater	40
Corvidae	<i>Corvus coronoides</i>	Australian Raven	36
Artamidae	<i>Gymnorhina tibicen</i>	Australian Magpie	35
Meliphagidae	<i>Anthochaera (Anthochaera) carunculata</i>	Red Wattlebird	33
Canidae	<i>Vulpes vulpes</i>	Fox	30
Meliphagidae	<i>Lichmera (Lichmera) indistincta</i>	Brown Honeyeater	29
Anatidae	<i>Anas (Anas) superciliosa</i>	Pacific Black Duck	27
Rhipiduridae	<i>Rhipidura (Sauloprocta) leucophrys</i>	Willie Wagtail	27
Acanthizidae	<i>Gerygone fusca</i>	Western Gerygone	23
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah	21
Maluridae	<i>Malurus (Malurus) splendens</i>	Splendid Fairy-wren	21
Alcedinidae	<i>Dacelo (Dacelo) novaeguineae</i>	Laughing Kookaburra	19
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	18
Fabaceae	<i>Kennedia coccinea</i>	Coral Vine	18
Psittacidae	<i>Purpureicephalus spurius</i>	Red-capped Parrot	18
Acanthizidae	<i>Acanthiza (Geobasileus) chrysorrhoa</i>	Yellow-rumped Thornbill	17
Cacatuidae	<i>Calyptorhynchus (Calyptorhynchus) banksii</i>	Red-tailed Black Cockatoo	17
Rallidae	<i>Porphyrio (Porphyrio) porphyrio</i>	Purple Swamphen	17
Threskiornithidae	<i>Threskiornis moluccus</i>	Australian White Ibis	17
Laelapidae	<i>Gaeolaelaps</i>		16
Columbidae	<i>Phaps (Phaps) chalcoptera</i>	Common Bronzewing	16
Anatidae	<i>Chenonetta jubata</i>	Australian Wood Duck	15
Dilleniaceae	<i>Hibbertia hypericoides</i>	Yellow Buttercups	15
Myrtaceae	<i>Hypocalymma robustum</i>	Swan River Myrtle	15
Pardalotidae	<i>Pardalotus (Pardalotinus) striatus</i>	Striated Pardalote	15
Proteaceae	<i>Petrophile linearis</i>	Pixie Mops	15
Rutaceae	<i>Boronia dichotoma</i>		14
Campephagidae	<i>Coracina (Coracina) novaehollandiae</i>	Black-faced Cuckoo-shrike	14
Restionaceae	<i>Hypolaena exsulca</i>		14
Fabaceae	<i>Acacia extensa</i>	Wiry Wattle	13
Dasypogonaceae	<i>Dasypogon bromeliifolius</i>	Pineapple Bush	13
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	13
Asteraceae	<i>Hypochoeris glabra</i>	Smooth Cat's Ear	13
Fabaceae	<i>Kennedia carinata</i>		13
Pachycephalidae	<i>Pachycephala (Alisterornis) rufiventris</i>	Rufous Whistler	13
Apiaceae	<i>Xanthosia huegellii</i>	Hairy Xanthosia	13
Meliphagidae	<i>Acanthorhynchus superciliosus</i>	Western Spinebill	12
Fabaceae	<i>Bossiaea eriocarpa</i>	Common Brown Pea	12
Scincidae	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink	12
Dilleniaceae	<i>Hibbertia racemosa</i>	Stalked Guinea Flower	12
Ericaceae	<i>Leucopogon conostephioides</i>		12

Proteaceae	Synaphea odocoileops		12
Proteaceae	Xylomelum occidentale	Woody Pear	12
Acanthizidae	Acanthiza (Acanthiza) apicalis	Red-rumped Tit	11
Poaceae	Austrostipa compressa		11
Proteaceae	Banksia attenuata	Coast Banksia	11
Limnodynastidae	Heleioporus eyrei	Moaning Frog	11
Asparagaceae	Lomandra hermaphrodita		11
Myrtaceae	Melaleuca thymoides		11
Rutaceae	Philotheca spicata	Pepper And Salt	11
Proteaceae	Stirlingia latifolia	Blueboy	11
Araliaceae	Trachymene pilosa	Dwarf Trachymene	11
Proteaceae	Adenanthos meisneri		10
Orchidaceae	Caladenia flava	Cowslip Orchid	10
Asparagaceae	Chamaescilla corymbosa var. corymbosa	Blue Stars	10
Haemodoraceae	Conostylis aculeata	Prickly Conostylis	10
Restionaceae	Desmocladus fasciculatus		10
Cyperaceae	Lepidosperma squamatum		10
Zamiaceae	Macrozamia riedlei	Zamia Palm	10
Loranthaceae	Nuytsia floribunda	Western Australian Christmas Tree	10
Iridaceae	Patersonia occidentalis	Long Purple-flag	10
Psittacidae	Platycercus (Violania) icterotis	Western Rosella	10
Cyperaceae	Tetraria octandra		10
Rutaceae	Boronia spathulata	Boronia	9
Myrtaceae	Calytrix flavescens	Summer Starflower	9
Fabaceae	Gompholobium tomentosum	Hairy Yellow Pea	9
Dilleniaceae	Hibbertia vaginata		9
Hirundinidae	Hirundo (Hirundo) neoxena	Welcome Swallow	9
Asparagaceae	Lomandra sericea	Silky Mat Rush	9
Leporidae	Oryctolagus cuniculus	Rabbit	9
Thymelaeaceae	Pimelea rosea subsp. rosea	Rose Banjine	9
Rosaceae	Pyrus communis	Pear	9
Fabaceae	Acacia pulchella	Prickly Moses	8
Casuarinaceae	Allocasuarina humilis	Dwarf Sheoak	8
Ericaceae	Andersonia caerulea	Foxtails	8
Proteaceae	Banksia dallaneyi		8
Colchicaceae	Burchardia congesta	Milkmaids	8
Droseraceae	Drosera collina		8
Droseraceae	Drosera erythrorhiza	Red Ink Sundew	8
Rallidae	Fulica atra	Eurasian Coot	8
Scincidae	Hemiergis initialis	Southwestern Earless Skink	8
Scincidae	Hemiergis quadrilineata	Two-toed Earless Skink	8
Dilleniaceae	Hibbertia huegelii		8
Goodeniaceae	Lechenaultia biloba	Blue Leschenaultia	8
Orchidaceae	Leporella fimbriata	Fringed Hare-orchid	8
Stylidiaceae	Levenhookia pusilla	Tiny Stylewort	8
Asparagaceae	Lomandra caespitosa	Tufted Mat-rush	8
Anarthriaceae	Lyginia barbata		8
Phalacrocoracidae	Microcarbo melanoleucos	Little Pied Cormorant	8
Percichthyidae	Nannoperca vittata	Western Pygmy Perch	8
Petroicidae	Petroica (Petroica) boodang	Scarlet Robin	8
Haemodoraceae	Phlebocarya ciliata		8
Orchidaceae	Pyrorchis nigricans	Black Fire-orchid	8
Proteaceae	Adenanthos barbiger	Hairy Glandflower	7
Anarthriaceae	Anarthria prolifera		7
Haemodoraceae	Anigozanthos manglesii subsp. manglesii	Mangles' Kangaroo Paw	7
Proteaceae	Banksia grandis	Giant Banksia	7

Coccidae	Coccus synapheae		7
Artamidae	Cracticus torquatus	Grey Butcherbird	7
Goodeniaceae	Dampiera linearis	Wedge-leaved Dampiera	7
Droseraceae	Drosera drummondii		7
Myobatrachidae	Geocrinia leai	Lea's Frog	7
Haloragaceae	Gonocarpus paniculatus		7
Fabaceae	Hovea trisperma var. grandiflora		7
Pelodyridae	Litoria moorei	Western Green And Golden Bell Frog	7
Ericaceae	Lysinema ciliatum	Curry Flower	7
Pachycephalidae	Pachycephala (Pachycephala) pectoralis fuliginosa	South Australian Golden Whistler	7
Iridaceae	Patersonia umbrosa var. xanthina	Yellow Flags	7
Apiaceae	Platysace tenuissima		7
Stylidiaceae	Stylidium piliferum	Common Butterfly Triggerplant	7
Podicipedidae	Tachybaptus novaehollandiae	Australasian Grebe	7
Alcedinidae	Todiramphus (Todiramphus) sanctus	Sacred Kingfisher	7
Fabaceae	Acacia stenoptera	Narrow-winged Wattle	6
	Agaricales		6
Poaceae	Amphipogon turbinatus		6
Anatidae	Anas gracilis	Grey Teal	6
Aponogetonaceae	Aponogeton hexatepalus	Stalked Water Ribbons	6
Poaceae	Briza maxima	Large Quaking-grass	6
Lauraceae	Cassytha glabella	Slender Dodder-laurel	6
Lauraceae	Cassytha racemosa	Dodder Laurel	6
Centrolepidaceae	Centrolepis drummondiana	Drummond's Centrolepis	6
Myobatrachidae	Crinia insignifera	Sign-bearing Froglet	6
Dilleniaceae	Hibbertia cunninghamii		6
Pittosporaceae	Marianthus tenuis		6
Meropidae	Merops (Merops) ornatus	Rainbow Bee-eater	6
Loganiaceae	Phyllangium paradoxum	Wiry Mitrewort	6
Gobiidae	Pseudogobius olorum	Bluespot Goby	6
Cyperaceae	Schoenus curvifolius		6
Stylidiaceae	Stylidium brunonianum	Pink Fountain Triggerplant	6
Myrtaceae	Taxandria linearifolia		6
Threskiornithidae	Threskiornis spinicollis	Straw-necked Ibis	6
Hemerocallidaceae	Tricoryne tenella	Tufted Yellow Rush-lily	6
Asteraceae	Ursinia anthemoides	Ursinia	6
Apiaceae	Xanthosia ciliata		6
Fabaceae	Acacia pulchella var. pulchella	Prickly Moses	5
Haemodoraceae	Conostylis laxiflora		5
Myrtaceae	Corymbia calophylla	Marri	5
Fabaceae	Daviesia physodes		5
Droseraceae	Drosera marchantii	Bridal Rainbow	5
Droseraceae	Drosera pallida	Pale Rainbow	5
Orchidaceae	Eriochilus dilatatus subsp. dilatatus	White Bunny Orchid	5
Myrtaceae	Eucalyptus marginata subsp. marginata	Jarrah	5
Fabaceae	Gompholobium knightianum	Knight's Wedge-pea	5
Fabaceae	Hovea chorizemifolia	Holly-leaved Hovea	5
Fabaceae	Jacksonia horrida		5
Hemerocallidaceae	Johnsonia acaulis		5
Asteraceae	Lagenophora huegelii	Coarse Bottle-daisy	5
Asparagaceae	Lomandra nigricans		5
Asparagaceae	Lomandra preissii	Preiss' Mat Rush	5
Psittacidae	Neophema (Neonanodes) elegans	Elegant Parrot	5
Hirundinidae	Petrochelidon (Hylochelidon) nigricans	Tree Martin	5
Psittacidae	Polytelis anthopeplus	Regent Parrot	5
Anamidae	Proshermacha		5

Goodeniaceae	<i>Scaevola calliptera</i>	Royal Robe	5
Acanthizidae	<i>Sericornis (Sericornis) frontalis maculatus</i>	South-western Spotted Scrubwren	5
Stylidiaceae	<i>Stylidium repens</i>	Matted Triggerplant	5
Asparagaceae	<i>Thysanotus tenellus</i>	Grassy Fringe-lily	5
Polyporaceae	<i>Trametes</i>		5
Poaceae	<i>Vulpia myuros</i>	Fescue	5
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>	Grasstree	5
Cacatuidae	<i>Zanda baudinii</i>	Long-billed Black-cockatoo	5
Fabaceae	<i>Acacia huegelii</i>	Huegel's Wattle	4
Fabaceae	<i>Acacia pulchella</i> var. <i>glaberrima</i>	Western Prickly Moses	4
Fabaceae	<i>Acacia urophylla</i>	Pointed Leaved Acacia	4
Ericaceae	<i>Astroloma ciliatum</i>	Candle Cranberry	4
Anatidae	<i>Aythya (Nyroca) australis</i>	Hardhead	4
Pittosporaceae	<i>Billardiera variifolia</i>		4
Anatidae	<i>Biziura lobata</i>	Musk Duck	4
Orchidaceae	<i>Caladenia attingens</i> subsp. <i>attingens</i>	Forest Mantis Orchid	4
Orchidaceae	<i>Caladenia longicauda</i>	White Spider Orchid	4
Cacatuidae	<i>Calyptorhynchus</i>		4
Cuculidae	<i>Chalcites</i>		4
Asparagaceae	<i>Chamaescilla corymbosa</i>	Blue Stars	4
Ericaceae	<i>Conostephium pendulum</i>	Pearl Flower	4
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>	Bristly Cottonhead	4
Scolopendridae	<i>Cormocephalus</i>		4
Myobatrachidae	<i>Crinia georgiana</i>	Tschudi's Froglet	4
Anatidae	<i>Cygnus atratus</i>	Black Swan	4
Petroicidae	<i>Eopsaltria</i>		4
Scincidae	<i>Hemiergis peronii</i>	Lowlands Earless Skink	4
Dilleniaceae	<i>Hibbertia diamesogenos</i>		4
Fabaceae	<i>Hovea trisperma</i> var. <i>trisperma</i>	Common Hovea	4
Fabaceae	<i>Hovea trisperma</i>	Common Hovea	4
Cyperaceae	<i>Lepidosperma pubisquamum</i>		4
Scincidae	<i>Lerista distinguenda</i>	South-western Orange-tailed Slider	4
Ericaceae	<i>Leucopogon capitellatus</i>		4
Macropodidae	<i>Macropus fuliginosus melanops</i>	[black-faced Kangaroo]	4
Maluridae	<i>Malurus (Leggeornis) elegans</i>	Red-winged Fairy-wren	4
Meliphagidae	<i>Melithreptus (Melithreptus) chloropsis</i>	Gilbert's Honeyeater	4
Asteraceae	<i>Millotia tenuifolia</i>	Soft Millotia	4
Rubiaceae	<i>Opercularia apiciflora</i>		4
Loganiaceae	<i>Orianthera serpyllifolia</i> subsp. <i>angustifolia</i>		4
Asparagaceae	<i>Ornithogalum arabicum</i>	Star Of Africa	4
Pardalotidae	<i>Pardalotus (Pardalotus) punctatus</i>	Spotted Pardalote	4
Orchidaceae	<i>Pterostylis vittata</i>	Banded Greenhood	4
Scarabaeidae	SCARABAEIDAE		4
Poaceae	<i>Sorghum halepense</i>	Johnson Grass	4
Fabaceae	<i>Sphaerolobium scabriusculum</i>		4
Estrildidae	<i>Stagonopleura (Zonaeginthus) oculata</i>	Red-eared Firetail	4
Artamidae	<i>Strepera (Neostrepera) versicolor</i>	Grey Currawong	4
Stylidiaceae	<i>Stylidium calcaratum</i>	Spurred Trigger-plant	4
Ericaceae	<i>Styphelia tenuiflora</i>	Common Pinheath	4
Proteaceae	<i>Synaphea</i> sp. Pinjarra Plain (A.S.George 17182)		4
Anatidae	<i>Tadorna (Casarca) tadornoides</i>	Australian Shelduck	4
Asparagaceae	<i>Thysanotus arenarius</i>	Sand-dune Fringed Lily	4
Asparagaceae	<i>Thysanotus multiflorus</i>	Many-flowered Fringe	4
Celastraceae	<i>Tripterococcus brunonis</i>	Winged Stackhousia	4
Fabaceae	<i>Acacia semitrullata</i>		3
Fabaceae	<i>Acacia willdenowiana</i>	Grass Wattle	3

Acrocephalidae	<i>Acrocephalus (Acrocephalus) australis</i>	Australian Reed Warbler	3
	<i>Agaricomycetes</i>		3
Hemerocallidaceae	<i>Agrostocrinum hirsutum</i>	Grass Lily	3
Poaceae	<i>Aira caryophyllea</i>	Silvery Hairgrass	3
Haemodoraceae	<i>Anigozanthos manglesii</i>	Red And Green Kangaroo Paw	3
Accipitridae	<i>Aquila (Uroaetus) audax</i>	Wedge-tailed Eagle	3
Asteraceae	<i>Arctotheca calendula</i>	Cape Weed	3
Fabaceae	<i>Bossiaea angustifolia</i>		3
Fabaceae	<i>Bossiaea ornata</i>	Broad-leaved Brown Pea	3
Percichthyidae	<i>Bostockia porosa</i>	Nightfish	3
Poaceae	<i>Briza minor</i>	Lesser Quaking-grass	3
Coccidae	COCCIDAE		3
Myrtaceae	<i>Calothamnus sanguineus</i>	Silky-leaved Bloodflower	3
Asparagaceae	<i>Chamaexeros serra</i>		3
Gekkonidae	<i>Christinus marmoratus</i>	Marbled Gecko	3
Agaricaceae	<i>Coprinus</i>		3
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>	Dense Crassula	3
Fabaceae	<i>Daviesia rhombifolia</i>		3
Fabaceae	<i>Dillwynia uncinata</i>	Silky Parrot-pea	3
Droseraceae	<i>Drosera menziesii</i>	Pink Rainbow	3
Cyperaceae	<i>Eleocharis keigheryi</i>	Keighery's Eleocharis	3
Orchidaceae	<i>Elythranthera brunonis</i>	Purple Enamel Orchid	3
Myrtaceae	<i>Eremaea pauciflora</i> var. <i>pauciflora</i>		3
Fabaceae	<i>Gastrolobium praemorsum</i>		3
Fabaceae	<i>Gompholobium confertum</i>		3
Fabaceae	<i>Gompholobium marginatum</i>		3
Fabaceae	<i>Gompholobium preissii</i>		3
Goodeniaceae	<i>Goodenia eatoniana</i>		3
Proteaceae	<i>Grevillea diversifolia</i> subsp. <i>diversifolia</i>		3
Proteaceae	<i>Hakea lissocarpha</i>	Honey Bush	3
Dilleniaceae	<i>Hibbertia commutata</i>		3
Formicidae	<i>Iridomyrmex discors</i>	Ant	3
Proteaceae	<i>Isopogon sphaerocephalus</i>	Drumstick Isopogon	3
Fabaceae	<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	Granny Bonnets	3
Iridaceae	<i>Ixia paniculata</i>	Long-tube Ixia	3
Asparagaceae	<i>Laxmannia sessiliflora</i> subsp. <i>australis</i>		3
Goodeniaceae	<i>Lechenaultia floribunda</i>	Free-flowering Leschenaultia	3
Cyperaceae	<i>Lepidosperma scabrum</i>	Scabrid Sword-sedge	3
Santalaceae	<i>Leptomeria cunninghamii</i>		3
Stylidiaceae	<i>Levenhookia stipitata</i>	Common Stylewort	3
Campanulaceae	<i>Lobelia rhytidosperra</i>	Wrinkle-seeded Lobelia	3
Campanulaceae	<i>Lobelia tenuior</i>	Slender Lobelia	3
Asparagaceae	<i>Lomandra purpurea</i>	Purple Mat Rush	3
Asparagaceae	<i>Lomandra suaveolens</i>		3
Cyperaceae	<i>Machaerina arthropphylla</i>	Baumea	3
Maluridae	<i>Malurus</i>		3
Actinopodidae	<i>Missulena granulosa</i>		3
Euphorbiaceae	<i>Monotaxis grandiflora</i>	Diamond Of The Desert	3
Poaceae	<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass	3
Oxalidaceae	<i>Oxalis glabra</i>	Finger-leaf Wood-sorrel	3
Psittacidae	<i>Parvipsitta porphyrocephala</i>	Purple-crowned Lorikeet	3
Haemodoraceae	<i>Phlebocarya filifolia</i>		3
Fabaceae	<i>Pultenaea skinneri</i>	Skinner's Pea	3
Asteraceae	<i>Quinetia urvillei</i>	Quinetia	3
Asteraceae	<i>Rhodanthe citrina</i>	Pale Immortelle	3
Acanthizidae	<i>Smicronis brevirostris</i>	Weebill	3

Columbidae	<i>Spilopelia senegalensis</i>	Laughing Turtle-dove	3
Stylidiaceae	<i>Stylidium carnosum</i>	Fleshy-leaved Triggerplant	3
Elapidae	<i>Suta nigriceps</i>	Mitchell's Short-tailed Snake	3
Proteaceae	<i>Synaphea floribunda</i>		3
Poaceae	<i>Tetrarrhena laevis</i>	Forest Ricegrass	3
Haemodoraceae	<i>Tribonanthes brachypetala</i>	Nodding Tiurndin	3
Hemerocallidaceae	<i>Tricoryne elatior</i>	Yellow Rush Lily	3
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i> subsp. <i>semibarbata</i>		3
Fabaceae	<i>Acacia lateriticola</i>		2
Fabaceae	<i>Acacia preissiana</i>		2
Acanthizidae	<i>Acanthiza (Geobasileus) inornata</i>	Western Thornbill	2
Accipitridae	<i>Accipiter (Leucospiza) fasciatus</i>	Brown Goshawk	2
Apiaceae	<i>Actinotus glomeratus</i>		2
Aegothelidae	<i>Aegotheles (Aegotheles) cristatus cristatus</i>	Mainland Australian Owlet-nightjar	2
Strophariaceae	<i>Agrocybe pediades</i>		2
Casuarinaceae	<i>Allocasuarina fraseriana</i>	Western Sheoak	2
Euphorbiaceae	<i>Amperea simulans</i>		2
Poaceae	<i>Amphipogon laguroides</i>		2
Meliphagidae	<i>Anthochaera (Anellobia) lunulata</i>	Western Wattlebird	2
Paradoxosomatidae	<i>Antichropus</i>		2
Ardeidae	<i>Ardea alba modesta</i>	Great Egret	2
Asparagaceae	<i>Asparagus asparagoides</i>	Western Cape Bridal Creeper	2
Ericaceae	<i>Astroloma pallidum</i>	Kick Bush	2
Araneidae	<i>Austracantha minax</i>	Jewel Spider	2
Boletaceae	<i>Austroboletus</i>		2
Myrtaceae	<i>Babingtonia camphorosmae</i>		2
Scarabaeidae	<i>Bubas bison</i>		2
Cuculidae	<i>Cacomantis (Vidgenia) flabelliformis</i>	Fan-tailed Cuckoo	2
Orchidaceae	<i>Caladenia flava</i> subsp. <i>sylvestris</i>	Karri Cowslip Orchid	2
Orchidaceae	<i>Caladenia reptans</i>	Little Pink Fairies	2
Orchidaceae	<i>Caladenia</i>	Fairy Orchids	2
Centrolepidaceae	<i>Centrolepis aristata</i>	Pointed Centrolepis	2
Cuculidae	<i>Chalcites lucidus</i>	Shining Bronze-cuckoo	2
Scarabaeidae	<i>Colymbomorpha vittata</i>	Spring Beetle	2
Proteaceae	<i>Conospermum flexuosum</i> subsp. <i>laevigatum</i>		2
Myrtaceae	<i>Corymbia haematoxylon</i>	Mountain Marri	2
Artamidae	<i>Cracticus nigrogularis</i>	Pied Butcherbird	2
Asteraceae	<i>Craspedia variabilis</i>	Common Billy-buttons	2
Myobatrachidae	<i>Crinia glauerti</i>	Glauert's Froglet	2
Scincidae	<i>Ctenotus impar</i>	Odd-striped Ctenotus	2
Orchidaceae	<i>Cyanicula sericea</i>	Silky Blue Orchid	2
Agaricaceae	<i>Cyathus stercoreus</i>		2
Dytiscidae	<i>Cybister godeffroyi</i>	Diving Beetle	2
Dasyopogonaceae	<i>Dasyopogon hookeri</i>	Pineapple Bush	2
Fabaceae	<i>Daviesia decurrens</i> subsp. <i>decurrens</i>		2
Poaceae	<i>Digitaria sanguinalis</i>	Summer Grass	2
Orchidaceae	<i>Diuris longifolia</i>	Common Donkey Orchid	2
Droseraceae	<i>Drosera pulchella</i>	Pretty Sundew	2
Chenopodiaceae	<i>Dysphania pumilio</i>	Small Crumbweed	2
Charadriidae	<i>Elseynornis melanops</i>	Black-fronted Dotterel	2
Petroicidae	<i>Eopsaltria (Eopsaltria) griseogularis</i>	Western Yellow Robin	2
Orchidaceae	<i>Eriochilus dilatatus</i>	White Bunny Orchid	2
Fabaceae	<i>Eutaxia virgata</i>		2
Falconidae	<i>Falco (Tinnunculus) cenchroides</i>	Nankeen Kestrel	2
Proteaceae	<i>Franklandia triaristata</i>	Lanoline Bush	2
	Fungi		2

Nectriaceae	Fusarium		2
Galaxiidae	Galaxias occidentalis	Western Galaxias	2
Rallidae	Gallinula (Gallinula) tenebrosa	Dusky Moorhen	2
Meliphagidae	Gavicalis virescens	Singing Honeyeater	2
Fabaceae	Genista linifolia	Flax-leaf Broom	2
Iridaceae	Gladiolus tristis	Evening-flower Gladiolus	2
Apocynaceae	Gomphocarpus fruticosus	Narrow-leaved Cotton Bush	2
Fabaceae	Gompholobium polymorphum		2
Proteaceae	Grevillea quercifolia	Oak-leaf Grevillea	2
Proteaceae	Grevillea		2
Haemodoraceae	Haemodorum laxum	Bloodroot	2
Proteaceae	Hakea amplexicaulis	Prickly Hakea	2
Lamiaceae	Hemiandra pungens	Snakebush	2
Dilleniaceae	Hibbertia glomerata		2
Asparagaceae	Hyacinthoides non-scripta	English Bluebell	2
Violaceae	Hybanthus floribundus	Shrub Spade Flower	2
Araliaceae	Hydrocotyle intertexta	Buttercup Pennywort	2
Myrtaceae	Hypocalymma angustifolium	White Myrtle	2
Idiopidae	Idiosoma		2
Cyperaceae	Isolepis marginata	Little Club-rush	2
Campanulaceae	Isotoma hypocrateriformis	Woodbridge Poison	2
Iridaceae	Ixia maculata	Yellow Ixia	2
Fabaceae	Jacksonia lehmannii		2
Hemerocallidaceae	Johnsonia lupulina	Hooded Lily	2
Fabaceae	Kennedia prostrata	Scarlet Runner	2
Dasypogonaceae	Kingia australis	Drumsticks	2
Myrtaceae	Kunzea rostrata		2
Fabaceae	Labichea punctata	Lance-leaved Cassia	2
Hydnangiaceae	Laccaria fraterna		2
Cyperaceae	Lepidosperma angustatum		2
Ericaceae	Leucopogon australis	Spike Beard-heath	2
Ericaceae	Leucopogon oxycedrus		2
Ericaceae	Leucopogon		2
Dytiscidae	Limbodessus inornatus	Diving Beetle	2
Hydrophilidae	Limnoxenus zealandicus	Water Scavenger Beetle	2
Lindsaeaceae	Lindsaea linearis	Screw Fern	2
Asparagaceae	Lomandra drummondii		2
Orchidaceae	Lyperanthus serratus	Rattle Beaks	2
	MANTODEA	Mantises	2
Micropezidae	MICROPEZIDAE	Stilt Flies	2
Macropodidae	Macropus fuliginosus	Western Grey Kangaroo	2
Myrtaceae	Melaleuca trichophylla		2
Cyperaceae	Mesomelaena tetragona	Semaphore Sedge	2
Asteraceae	Millotia tenuifolia var. tenuifolia	Soft Millotia	2
Portulacaceae	Montia australasica	White Purslane	2
Scincidae	Morethia obscura	Shrubland Morethia Skink	2
Mycosphaerellaceae	Mycosphaerella		2
Dytiscidae	Neobidessodes mjobergi	Diving Beetle	2
Mycosphaerellaceae	Neopseudocercospora brassicae		2
Strigidae	Ninox (Ninox) novaeseelandiae	Southern Boobook	2
Marasmiaceae	Omphalotus nidiformis		2
Scarabaeidae	Onthophagus taurus	Bullhorned Dung Beetle	2
Orchidaceae	Orchidaceae	Orchids	2
Oxalidaceae	Oxalis	Wood Sorrel	2
Pachycephalidae	Pachycephala (Pachycephala) pectoralis	Golden Whistler	2
Iridaceae	Patersonia babianoides		2

Apiaceae	Pentapeltis peltigera		2
Myrtaceae	Pericalymma ellipticum	Swamp Teatree	2
Proteaceae	Persoonia longifolia	Snottygobble	2
Petroicidae	Petroica (Petroica) goodenovii	Red-capped Robin	2
Meliphagidae	Phylidonyris (Meliornis) niger	White-cheeked Honeyeater	2
Phytolaccaceae	Phytolacca octandra	Red-ink Weed	2
Thymelaeaceae	Pimelea lanata		2
Thymelaeaceae	Pimelea rosea	Rose Banjine	2
Threskiornithidae	Platalea (Platibis) flavipes	Yellow-billed Spoonbill	2
Podicipedidae	Poliocephalus poliocephalus	Hoary-headed Grebe	2
Zygaenidae	Pollanisia		2
Russulaceae	Russula		2
Cyperaceae	Schoenus breviculmis	Matted Bog-rush	2
Cyperaceae	Schoenus		2
Anatidae	Spatula rhynchotis	Australasian Shoveler	2
Dytiscidae	Sternopriscus browni	Diving Beetle	2
Stylidiaceae	Stylidium amoenum var. amoenum		2
Stylidiaceae	Stylidium ciliatum	Golden Triggerplant	2
Stylidiaceae	Stylidium neurophyllum	Fan-leaved Triggerplant	2
Stylidiaceae	Stylidium pulchellum	Thumbelina Triggerplant	2
Stylidiaceae	Stylidium spathulatum	Creamy Triggerplant	2
Proteaceae	Synaphea		2
Cyperaceae	Tetraria capillaris	Hair Sedge	2
Elaeocarpaceae	Tetratheca hirsuta	Black-eyed Susan	2
Thaumastocoridae	Thaumastocoris nadelii		2
Asparagaceae	Thysanotus thyrsoideus		2
Asparagaceae	Thysanotus	Fringed Lily	2
Scincidae	Tiliqua rugosa rugosa		2
Dytiscidae	Tiporus giuliani	Diving Beetle	2
Asteraceae	Trichocline spathulata	Native Gerbera	2
Turdidae	Turdus merula	Eurasian Blackbird	2
Goodeniaceae	Velleia trinervis		2
Apocynaceae	Vinca major	Blue Periwinkle	2
Xanthorrhoeaceae	Xanthorrhoea acanthostachya		2
Xanthorrhoeaceae	Xanthorrhoea brunonis subsp. brunonis	Grasstree	2
Xanthorrhoeaceae	Xanthorrhoea brunonis		2
Araneidae	ARANEIDAE		1
	AVES	Birds	1
Fabaceae	Acacia alata	Winged Wattle	1
Fabaceae	Acacia browniana	Brown's Wattle	1
Fabaceae	Acacia drummondii	Drummond's Wattle	1
Fabaceae	Acacia flagelliformis		1
Fabaceae	Acacia mooreana		1
Fabaceae	Acacia nervosa	Rib Wattle	1
Fabaceae	Acacia obovata		1
Fabaceae	Acacia podalyriifolia	Mount Morgan Wattle	1
Fabaceae	Acacia spectabilis	Pilliga Wattle	1
Fabaceae	Acacia teretifolia		1
Fabaceae	Acacia varia var. varia		1
Accipitridae	Accipiter (Paraspizias) cirrocephalus	Collared Sparrowhawk	1
Myrtaceae	Actinodium cunninghamii	Swamp Daisy	1
Scolopacidae	Actitis hypoleucos	Common Sandpiper	1
Proteaceae	Adenanthos obovatus	Basket Flower	1
Violaceae	Afrohybanthus enneaspermus	Ladys Slipper	1
Myrtaceae	Agonis flexuosa var. flexuosa	Willow Myrtle	1
Poaceae	Aira cupaniana	Quicksilver Grass	1

Paradoxosomatidae	Akamptogonus novarae		1
Casuarinaceae	Allocasuarina thuyoides	Horned Sheoak	1
Amanitaceae	Amanita xanthocephala		1
Amanitaceae	Amanita		1
Poaceae	Amphibromus	Swamp Wallaby Grass	1
Poaceae	Amphipogon amphipogonoides		1
Ericaceae	Andersonia		1
Anhingidae	Anhinga novaehollandiae	Australasian Darter	1
Haemodoraceae	Anigozanthos flavidus	Tall Kangaroo Paw	1
Typhlopidae	Anilius australis	Southern Blind Snake	1
Paradoxosomatidae	Antichiropus nanus		1
Fabaceae	Aotus cordifolia		1
Centrolepidaceae	Aphelia cyperoides		1
Araneidae	Arachnura higginsii	Scorpion Tailed Spider	1
Mantidae	Archimantis sobrina	Large Brown Mantid	1
Arcyriaceae	Arcyria denudata		1
Argasidae	Argas persicus		1
Artamidae	Artamus (Angroyan) cyanopterus	Dusky Woodswallow	1
Megascolecidae	Austrohoplochaetella whistleri		1
Acrididae	Austroicetes		1
Serpulaceae	Austropaxillus		1
Poaceae	Austrostipa campylachne		1
Poaceae	Austrostipa semibarbata	Fibrous Spear-grass	1
Synthemistidae	Austrosynthemis cyanitincta	Turquoise Tigertail	1
Desidae	Badumna		1
Colchicaceae	Baeometra uniflora	Baeometra	1
Proteaceae	Banksia ilicifolia	Holly Leaved Banksia	1
Proteaceae	Banksia littoralis	Swamp Banksia	1
Proteaceae	Banksia sessilis		1
Hydrophilidae	Berosus (Berosus) approximans	Water Scavenger Beetle	1
Hydrophilidae	Berosus (Berosus) pulchellus	Water Scavenger Beetle	1
Pittosporaceae	Billardiera fraseri	Elegant Pronaya	1
Cleridae	Blackburniella intricata		1
Cyperaceae	Bolboschoenus		1
Boletaceae	Boletaceae		1
Rutaceae	Boronia fastigiata	Bushy Boronia	1
Fabaceae	Bossiaea linophylla	Narrow-leaved Bossiaea	1
Fabaceae	Bossiaea pulchella		1
Fabaceae	Bossiaea rufa		1
Bovidae	Bos		1
Malvaceae	Brachychiton populneus	Kurrajong	1
Colchicaceae	Burchardia multiflora	Lesser Burchardia	1
Colchicaceae	Burchardia umbellata	Milkmaids	1
Charopidae	CHAROPIDAE		1
Chironomidae	CHIRONOMIDAE		1
Curculionidae	CURCULIONIDAE		1
Cacatuidae	Cacatua		1
Hemerocallidaceae	Caesia occidentalis	Pale Grass Lily	1
Orchidaceae	Caladenia attingens	Forest Mantis Orchid	1
Orchidaceae	Caladenia longiclavata	Clubbed Spider Orchid	1
Orchidaceae	Caladenia nana subsp. unita	Pink Fan Orchid	1
Orchidaceae	Caladenia pendens subsp. pendens	Pendant Spider Orchid	1
Orchidaceae	Caladenia reptans subsp. reptans	Little Pink Fairies	1
Dasypogonaceae	Calectasia cyanea	Blue Tinsel Lily	1
Dasypogonaceae	Calectasia narragara	Star Of Bethlehem	1
Dacrymycetaceae	Calocera sinensis		1

Euphorbiaceae	<i>Calycopeplus oligandrus</i>		1
Myrtaceae	<i>Calytrix tetragona</i>	Grampians Fringe-myrtle	1
Leucobryaceae	<i>Campylopus introflexus</i>	Swan-neck Moss	1
Candelariaceae	<i>Candelariella xanthostigmoides</i>		1
	Caryophyllales		1
Lauraceae	<i>Cassytha racemosa</i> f. <i>racemosa</i>		1
Buprestidae	<i>Castiarina amabilis</i>		1
Cyperaceae	<i>Caustis</i> sp. <i>Boyanup</i> (G.S.McCutcheon 1706)		1
Poaceae	<i>Cenchrus clandestinus</i>	Kikuyu	1
Poaceae	<i>Cenchrus macrourus</i>	African Feather Grass	1
Caryophyllaceae	<i>Cerastium glomeratum</i>	Common Mouse-ear Chickweed	1
Burramyidae	<i>Cercartetus concinnus</i>	Western Pygmy-possum	1
Hydrophilidae	<i>Cercyon</i>		1
Hygromiidae	<i>Cernuella</i>		1
Restionaceae	<i>Chaetanthus aristatus</i>	Bearded Twinerush	1
Charadriidae	<i>Charadrius</i> (<i>Charadrius</i>) <i>ruficapillus</i>	Red-capped Plover	1
Chelidae	<i>Chelodina</i> (<i>Macrochelodina</i>) <i>oblonga</i>	Northern Snake-necked Turtle	1
Parastacidae	<i>Cherax cainii</i>	Marron	1
Agaricaceae	<i>Chlorophyllum</i>		1
Fabaceae	<i>Chorizema glycinifolium</i>		1
Fabaceae	<i>Chorizema</i>		1
Locustellidae	<i>Cincloramphus</i> (<i>Cincloramphus</i>) <i>cruralis</i>	Brown Songlark	1
Pachycephalidae	<i>Colluricincla</i> (<i>Colluricincla</i>) <i>harmonica</i>	Grey Shrike-thrush	1
Scarabaeidae	<i>Colpochila</i>		1
Hymenochaetaceae	<i>Coltricia</i>		1
Proteaceae	<i>Conospermum capitatum</i> subsp. <i>glabratum</i>		1
Proteaceae	<i>Conospermum capitatum</i>		1
Haemodoraceae	<i>Conostylis serrulata</i>		1
Dytiscidae	<i>Copelatus ater</i>	Diving Beetle	1
Psathyrellaceae	<i>Coprinellus micaceus</i>		1
Psathyrellaceae	<i>Coprinellus</i>		1
Rhinotermitidae	<i>Coptotermes acinaciformis raffrayi</i>	Subterranean Termite	1
Desidae	<i>Corasoides occidentalis</i>		1
Myrtaceae	<i>Corymbia maculata</i>	Spotted Gum	1
Asteraceae	<i>Cotula coronopifolia</i>	Water Buttons	1
Artamidae	<i>Cracticus</i>		1
Orchidaceae	<i>Cryptostylis ovata</i>	Tongue Orchid	1
Scincidae	<i>Ctenotus labillardieri</i>	Red-legged Ctenotus	1
Convolvulaceae	<i>Cuscuta suaveolens</i>	Fringed Dodder	1
Cyperaceae	<i>Cyathochaeta avenacea</i>		1
Araneidae	<i>Cyclosa trilobata</i>	Three Lobed Spider	1
Orchidaceae	<i>Cyrtostylis</i>	Mosquito Orchids	1
Apiaceae	<i>Daucus glochidiatus</i>	Native Carrot	1
Fabaceae	<i>Daviesia divaricata</i> subsp. <i>divaricata</i>		1
Fabaceae	<i>Daviesia incrassata</i> subsp. <i>incrassata</i>		1
Fabaceae	<i>Daviesia inflata</i>		1
Restionaceae	<i>Desmocladus flexuosus</i>		1
Poaceae	<i>Deyeuxia quadriseta</i>	Slender Reed Bent-grass	1
Fabaceae	<i>Dillwynia</i>	Egg And Bacon Peas	1
Asteraceae	<i>Dimorphotheca ecklonis</i>	Cape Daisy	1
Rutaceae	<i>Diplolaena drummondii</i>	Lesser Diplolaena	1
Formicidae	<i>Dolichoderus ypsilon</i>		1
Araneidae	<i>Dolophones</i>		1
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	1
Droseraceae	<i>Drosera glanduligera</i>	Scarlet Sundew	1
Droseraceae	<i>Drosera huegelii</i>	Bold Sundew	1

Droseraceae	<i>Drosera macrantha</i> subsp. <i>macrantha</i>		1
Droseraceae	<i>Drosera paleacea</i>	Dwarf Sundew	1
Droseraceae	<i>Drosera rosulata</i>		1
Droseraceae	<i>Drosera stolonifera</i>	Leafy Sundew	1
Elateridae	ELATERIDAE	Click Beetles	1
Hydrophilidae	<i>Enochrus (Hydatotrephis) mastersii</i>		1
Ericaceae	Ericaceae	Austral Heaths	1
Syrphidae	<i>Eristalis (Eristalis) tenax</i>	Drone Fly	1
Geraniaceae	<i>Erodium botrys</i>	Big Herons-bill	1
Scarabaeidae	<i>Euoniticellus fulvus</i>		1
Staphylinidae	<i>Eupines (Eupines) distorticornis</i>		1
Convolvulaceae	<i>Evolvulus alsinoides</i> var. <i>sericeus</i>	Tropical Speedwell	1
Falconidae	<i>Falco (Hierofalco) peregrinus</i>	Peregrine Falcon	1
Gobiidae	<i>Favonigobius lateralis</i>	Southern Longfin Goby	1
Iridaceae	<i>Ferraria crispa</i>	Black Flag	1
Fistulinaceae	<i>Fistulina spiculifera</i>		1
Parmeliaceae	<i>Flavoparmelia rutidota</i>	Common Biscuit Lichen	1
Parmeliaceae	<i>Flavoparmelia</i>		1
Hymenochaetaceae	<i>Fomitiporia robusta</i>		1
Iridaceae	<i>Freesia</i>	Freesia	1
Hymenochaetaceae	<i>Fuscoporia gilva</i>		1
Poeciliidae	<i>Gambusia holbrooki</i>	Eastern Gambusia	1
Fabaceae	<i>Gastrolobium bilobum</i>	Heart-leaved Poison	1
Lamiaceae	Genus		1
Iridaceae	<i>Gladiolus communis</i> subsp. <i>byzantinus</i>	Byzantine Gladiolus	1
Haloragaceae	<i>Glischrocaryon angustifolium</i>	Golden Pennants	1
Asteraceae	<i>Gnephosis angianthoides</i>		1
Fabaceae	<i>Gompholobium capitatum</i>	Yellow Pea	1
Fabaceae	<i>Gompholobium shuttleworthii</i>		1
Proteaceae	<i>Grevillea bipinnatifida</i>	Fuchsia Grevillea	1
Proteaceae	<i>Grevillea dryandri</i> subsp. <i>dryandri</i>	Dryander's Grevillea	1
Proteaceae	<i>Grevillea trifida</i>		1
Proteaceae	<i>Grevillea vestita</i> subsp. <i>vestita</i>		1
Strophariaceae	<i>Gymnopilus allantopus</i>		1
Strophariaceae	<i>Gymnopilus junonius</i>		1
Strophariaceae	<i>Gymnopilus</i>		1
Muraenidae	<i>Gymnothorax woodwardi</i>	Woodward's Moray	1
Haemodoraceae	<i>Haemodorum sparsiflorum</i>	Mardja	1
Proteaceae	<i>Hakea ruscifolia</i>	Candle Hakea	1
Proteaceae	<i>Hakea</i>	Needle Bushes	1
Accipitridae	<i>Haliastur sphenurus</i>	Whistling Kite	1
Pentatomidae	Halyini		1
Hydrophilidae	<i>Helochares tenuistriatus</i>	Water Scavenger Beetle	1
Lamiaceae	<i>Hemiphora bartlingii</i>		1
Physciaceae	<i>Heterodermia speciosa</i>		1
Physciaceae	<i>Heterodermia</i>		1
Dilleniaceae	<i>Hibbertia acerosa</i>	Needle Leaved Guinea Flower	1
Dilleniaceae	<i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>	Yellow Buttercups	1
Dilleniaceae	<i>Hibbertia subvaginata</i>		1
Accipitridae	<i>Hieraaetus (Hieraaetus) morphnoides</i>	Little Eagle	1
Asteraceae	<i>Hyalosperma simplex</i> subsp. <i>simplex</i>		1
Violaceae	<i>Hybanthus</i>		1
Dytiscidae	<i>Hydroglyphus basalis</i>	Diving Beetle	1
Hydrophilidae	<i>Hydrophilus (Hydrophilus) albipes</i>	Water Scavenger Beetle	1
Dytiscidae	<i>Hyphydrus elegans</i>	Diving Beetle	1
Dytiscidae	<i>Hyphydrus lyratus</i>	Diving Beetle	1

Myrtaceae	Hypocalymma ericifolium		1
Hypocreaceae	Hypocreaceae		1
	INSECTA	Insects	1
Cyperaceae	Isolepis oldfieldiana		1
Peramelidae	Isoodon fusciventer	Southwestern Brown Bandicoot	1
Sparassidae	Isopedella castanea		1
Fabaceae	Isotropis cuneifolia	Granny Bonnets	1
Iridaceae	Ixia cultivar	Ixia	1
Fabaceae	Jacksonia		1
Fabaceae	Kennedia coccinea subsp. coccinea		1
Myrtaceae	Kunzea glabrescens	Spearwood	1
Lymnaeidae	LYMNAEIDAE		1
Hydnangiaceae	Laccaria lateritia		1
Hydnangiaceae	Laccaria		1
Asparagaceae	Lachenalia aloides		1
Asparagaceae	Lachenalia flava		1
Poaceae	Lachnagrostis filiformis	Common Blown-grass	1
Campephagidae	Lalage		1
Lucanidae	Lamprima aurata	Golden Stag Beetle	1
Asparagaceae	Laxmannia sessiliflora	Nodding Lily	1
Cyperaceae	Lepidosperma	Swordsedges	1
Erebidae	Leptocneria reducta	Moth	1
Myrtaceae	Leptospermum sericatum		1
Amaryllidaceae	Leucojum aestivum	Snowflake	1
Ericaceae	Leucopogon cordatus		1
Ericaceae	Leucopogon glabellus		1
Ericaceae	Leucopogon polymorphus		1
Ericaceae	Leucopogon pulchellus	Beard Heath	1
Ericaceae	Leucopogon reflexus		1
Pygopodidae	Lialis burtonis	Burton's Snake-lizard	1
Linaceae	Linum trigynum	French Flax	1
Pelodyradidae	Litoria adelaidensis	Slender Tree Frog	1
Pelodyradidae	Litoria		1
Poaceae	Lolium multiflorum	Italian Ryegrass	1
Asparagaceae	Lomandra odora	Fragrant Mat Rush	1
Asparagaceae	Lomandra pauciflora		1
Asparagaceae	Lomandra	Mat Rushes	1
Accipitridae	Lophoictinia isura	Square-tailed Kite	1
Fabaceae	Lotus angustissimus	Slender Bird's-foot Trefoil	1
Restionaceae	Loxocarya cinerea		1
Anarthriaceae	Lyginia imberbis		1
Monarchidae	MONARCHIDAE	Western Lesser Sundas Island Monarch	1
Maluridae	Malurus (Leggeornis) lamberti	Variiegated Fairy-wren	1
Pittosporaceae	Marianthus granulatus		1
Marsileaceae	Marsilea drummondii	Clover Fern	1
Asteraceae	Mauranthemum paludosum	Ox-eye Daisy	1
Dytiscidae	Megaporus solidus	Diving Beetle	1
Myrtaceae	Melaleuca incana subsp. incana	Grey Honey-myrtle	1
Myrtaceae	Melaleuca lateritia	Robin Redbreast Bush	1
Myrtaceae	Melaleuca parviceps		1
Meliphagidae	Melithreptus (Melithreptus) lunatus	White-naped Honeyeater	1
Scarabaeidae	Melolonthinae		1
Cyperaceae	Mesomelaena graciliceps		1
Cyperaceae	Mesomelaena stygia subsp. stygia		1
Poaceae	Microlaena stipoides	Weeping Grass	1
Orchidaceae	Microtis cupularis	Cupped Mignonette Orchid	1

Orchidaceae	<i>Microtis media</i> subsp. <i>media</i>	Common Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i>	Common Mignonette Orchid	1
Asteraceae	<i>Millotia myosotidifolia</i>	Broad-leaf Millotia	1
Fabaceae	<i>Mirbelia dilatata</i>	Holly-leaved Mirbelia	1
Caryophyllaceae	<i>Moenchia erecta</i>	Erect Chickweed	1
Iridaceae	<i>Moraea flaccida</i>	One-leaf Cape Tulip	1
Muscidae	<i>Musca domestica</i>	House Fly	1
Muscidae	Muscini		1
Asteraceae	<i>Myriocephalus helichrysoides</i>		1
Haloragaceae	<i>Myriophyllum</i>	Water Milfoil	1
Formicidae	<i>Myrmecia gulosa</i>	Giant Bull Ant	1
Formicidae	<i>Myrmecia</i>		1
Amoryllidaceae	<i>Narcissus pseudonarcissus</i>	Common Daffodil	1
Amoryllidaceae	<i>Narcissus tazetta</i> subsp. <i>italicus</i>	Tazetta	1
Dytiscidae	<i>Necterosoma darwini</i>	Diving Beetle	1
Araneidae	<i>Nephila</i>		1
Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen Night-heron	1
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	1
Julidae	<i>Ommatoiulus moreletii</i>	Portuguese Millipede	1
Menyanthaceae	<i>Ornduffia submersa</i>		1
Asparagaceae	<i>Ornithogalum thyrsoides</i>	Chincherinchee	1
Orobanchaceae	<i>Orobanche minor</i>	Lesser Broomrape	1
Mantidae	<i>Orthodera ministralis</i>	Green Mantid	1
Iridaceae	<i>Orthrosanthus laxus</i>	Morning Iris	1
Hydrocharitaceae	<i>Ottelia ovalifolia</i>	Swamp Lily	1
Oxalidaceae	<i>Oxalis perennans</i>	Native Sorrel	1
Myrtaceae	<i>Paragonis grandiflora</i>		1
Fabaceae	<i>Paraserianthes lophantha</i> subsp. <i>lophantha</i>	Crested Wattle	1
Pardalotidae	<i>Pardalotus (Pardalotus) punctatus xanthopyge</i>	Yellow-rumped Pardalote	1
Parmeliaceae	<i>Parmotrema cetratum</i>		1
Parmeliaceae	<i>Parmotrema reticulatum</i>		1
Poaceae	<i>Paspalum distichum</i>	Water Couch	1
Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>		1
Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>floridum</i>		1
Myrtaceae	<i>Pericalymma spongiocaulum</i>		1
Noctuidae	<i>Persectania</i>		1
Polygonaceae	<i>Persicaria prostrata</i>	Creeping Knotweed	1
Proteaceae	<i>Persoonia saccata</i>	Snottygobble	1
Caryophyllaceae	<i>Petrorhagia dubia</i>	Velvet Pink	1
Phalacrocoracidae	<i>Phalacrocorax (Phalacrocorax) sulcirostris</i>	Little Black Cormorant	1
Phalacrocoracidae	<i>Phalacrocorax (Phalacrocorax) varius</i>	Pied Cormorant	1
Poaceae	<i>Phalaris aquatica</i>	Phalaris	1
Acrididae	<i>Phaulacridium vittatum</i>	Wingless Grasshopper	1
Strophariaceae	<i>Pholiota</i>		1
Scarabaeidae	<i>Phyllotocus</i>		1
Marsileaceae	<i>Pilularia novae-hollandiae</i>	Austral Pillwort	1
Thymelaeaceae	<i>Pimelea imbricata</i> var. <i>piligera</i>		1
Thymelaeaceae	<i>Pimelea suaveolens</i>	Scented Banjine	1
Sclerodermataceae	<i>Pisolithus</i>		1
	Plantae		1
Apiaceae	<i>Platysace filiformis</i>		1
Elaeocarpaceae	<i>Platytheca galioides</i>		1
Pleurotaceae	<i>Pleurotus australis</i>		1
Plutellidae	<i>Plutella</i>		1
Phasmatidae	<i>Podacanthus viridiroseus</i>	Red-winged Stick-insect	1
Podocarpaceae	<i>Podocarpus drouynianus</i>	Wild Plum	1

Asteraceae	<i>Podotheca angustifolia</i>	Sticky Long-heads	1
Phyllanthaceae	<i>Poranthera microphylla</i>	Small Poranthera	1
Orchidaceae	<i>Praecoxanthus aphyllus</i>	Leafless Orchid	1
Rosaceae	<i>Prunus cerasifera</i>	Purple-leaf Cherry-plum	1
Rosaceae	<i>Prunus persica</i>	Peach	1
Psathyrellaceae	<i>Psathyrella bipellis</i>		1
Chelidae	<i>Pseudemadura umbrina</i>	Western Swamp Turtle	1
Asteraceae	<i>Pseudognaphalium</i>		1
Orchidaceae	<i>Pterostylis barbata</i>	Bird Orchid	1
Orchidaceae	<i>Pterostylis nana</i>	Dwarf Greenhood	1
Orchidaceae	<i>Pterostylis recurva</i>	Recurved Shell Orchid	1
Orchidaceae	<i>Pterostylis sanguinea</i>	Blood Greenhood	1
Orchidaceae	<i>Pterostylis</i> sp. crinkled leaf (G.J.Keighery 13426)		1
Fabaceae	<i>Pultenaea radiata</i>		1
Racopilaceae	<i>Racopilum cuspidigerum</i> var. <i>convolutaceum</i>	Common Carpet-moss	1
Ramalinaceae	<i>Ramalina ovalis</i>		1
Gomphaceae	<i>Ramaria</i>		1
Tettigoniidae	<i>Requena</i>		1
Dytiscidae	<i>Rhantus suturalis</i>	Diving Beetle	1
Asteraceae	<i>Rhodanthe propinqua</i>		1
Asteraceae	<i>Rhodanthe pyrethrum</i>		1
Rubiaceae	<i>Richardia brasiliensis</i>	White Eye	1
Euphorbiaceae	<i>Ricinus communis</i>	Castor Oil Plant	1
Iridaceae	<i>Romulea rosea</i>	Onion Grass	1
Poaceae	<i>Rytidosperma acerosum</i>		1
Poaceae	<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	1
Poaceae	<i>Rytidosperma occidentale</i>	Western Wallaby Grass	1
Scincidae	SCINCIDAE		1
Scoliidae	SCOLIIDAE		1
Goodeniaceae	<i>Scaevola phlebopetala</i>	Velvet Fanflower	1
Apiaceae	<i>Schoenolaena juncea</i>		1
Cyperaceae	<i>Schoenus bifidus</i>		1
Cyperaceae	<i>Schoenus brevisetis</i>		1
Cyperaceae	<i>Schoenus subbulbosus</i>		1
Sclerodermataceae	<i>Scleroderma verrucosum</i>		1
Selaginellaceae	<i>Selaginella gracillima</i>	Tiny Clubmoss	1
Asteraceae	<i>Senecio diaschides</i>	Shingle Fireweed	1
Acanthizidae	<i>Sericornis (Sericornis) frontalis</i>	White-browed Scrubwren	1
Asteraceae	<i>Siloxerus humifusus</i>	Procumbent Siloxerus	1
Brassicaceae	<i>Sisymbrium officinale</i>	Hedge Mustard	1
Iridaceae	<i>Sisyrinchium rosulatum</i>	Scourweed	1
Araneidae	<i>Socca arena</i>		1
Pyronemataceae	<i>Sowerbyella rhenana</i>		1
Fabaceae	<i>Sphaerolobium macranthum</i>		1
Fabaceae	<i>Sphaerolobium medium</i>		1
Picrodendraceae	<i>Stachystemon virgatus</i>		1
Celastraceae	<i>Stackhousia monogyna</i>	Creamy Candles	1
Stemonitidaceae	<i>Stemonitis</i>		1
Stereaceae	<i>Stereum</i>		1
Columbidae	<i>Streptopelia</i>		1
Stylidiaceae	<i>Stylidium amoenum</i>	Lovely Triggerplant	1
Stylidiaceae	<i>Stylidium lineatum</i>	Sunny Triggerplant	1
Stylidiaceae	<i>Stylidium petiolare</i>	Horn Triggerplant	1
Stylidiaceae	<i>Stylidium schoenoides</i>	Cow Kicks	1
Stylidiaceae	<i>Stylidium utricularioides</i>	Pink Fan Triggerplant	1
Stylidiaceae	<i>Stylidium</i>	Trigger-plants	1

Proteaceae	<i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>		1
Proteaceae	<i>Synaphea</i> sp. <i>Serpentine</i> (G.R.Brand 103)		1
Tabanidae	TABANIDAE		1
Triaenonychidae	TRIAENONYCHIDAE		1
Plotosidae	<i>Tandanus bostocki</i>	Freshwater Cobbler	1
Myrtaceae	<i>Taxandria parviceps</i>	Myrtle	1
Elaeocarpaceae	<i>Tetratheca hispidissima</i>		1
Orchidaceae	<i>Thelymitra crinita</i>	Blue Lady Orchid	1
Orchidaceae	<i>Thelymitra flexuosa</i>	Twisted Sun-orchid	1
Orchidaceae	<i>Thelymitra pauciflora</i>	Slender Sun Orchid	1
Orchidaceae	<i>Thelymitra</i>	Sun Orchids	1
Malvaceae	<i>Thomasia macrocalyx</i>		1
Asparagaceae	<i>Thysanotus dichotomus</i>	Branching Fringe Lily	1
Asparagaceae	<i>Thysanotus gracilis</i>		1
Asparagaceae	<i>Thysanotus manglesianus</i>	Fringed Lily	1
Asparagaceae	<i>Thysanotus patersonii</i>	Twining Fringe-lily	1
Asparagaceae	<i>Thysanotus sparteus</i>	Leafless Fringed Lily	1
Dytiscidae	<i>Tiporus undecimmaculatus</i>	Diving Beetle	1
Asteraceae	<i>Tolpis barbata</i>	Yellow Hawkweed	1
Polyporaceae	<i>Trametes marianna</i>		1
Hydatellaceae	<i>Trithuria australis</i>		1
Hydatellaceae	<i>Trithuria bibracteata</i>		1
Iridaceae	<i>Tritonia crocata</i>	Orange Tritonia	1
Tubiferaceae	<i>Tubifera ferruginosa</i>		1
Termitidae	<i>Tumulitermes apiocephalus</i>		1
Turnicidae	<i>Turnix (Austroturnix) varius</i>	Painted Button-quail	1
Urodacidae	<i>Urodacus novaehollandiae</i>		1
Pucciniaceae	<i>Uromyces rumicis</i>		1
Pucciniaceae	<i>Uromyces</i>		1
Nymphalidae	<i>Vanessa kershawi</i>	Australian Painted Lady	1
Varanidae	<i>Varanus gouldii</i>	Gould's Goanna	1
Myrtaceae	<i>Verticordia acerosa</i> var. <i>preissii</i>		1
Myrtaceae	<i>Verticordia densiflora</i>	Compacted Featherflower	1
Myrtaceae	<i>Verticordia drummondii</i>	Drummond's Featherflower	1
Myrtaceae	<i>Verticordia plumosa</i> var. <i>plumosa</i>		1
Fabaceae	<i>Vicia sativa</i> subsp. <i>nigra</i>	Narrow-leaved Vetch	1
Fabaceae	<i>Vicia sativa</i>	Common Vetch	1
Pluteaceae	<i>Volvopluteus gloiocephalus</i>		1
Neoniphargidae	<i>Wesniphargus</i>		1
Xanthorrhoeaceae	<i>Xanthorrhoea gracilis</i>	Graceful Grass Tree	1
Apiaceae	<i>Xanthosia candida</i>		1
Cacatuidae	<i>Zanda</i>		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 5: Endemic Species

Family	<i>Scientific Name</i>	Common Name	No. Occurrences
--------	------------------------	-------------	-----------------

All threatened species

Number of threatened species: 64

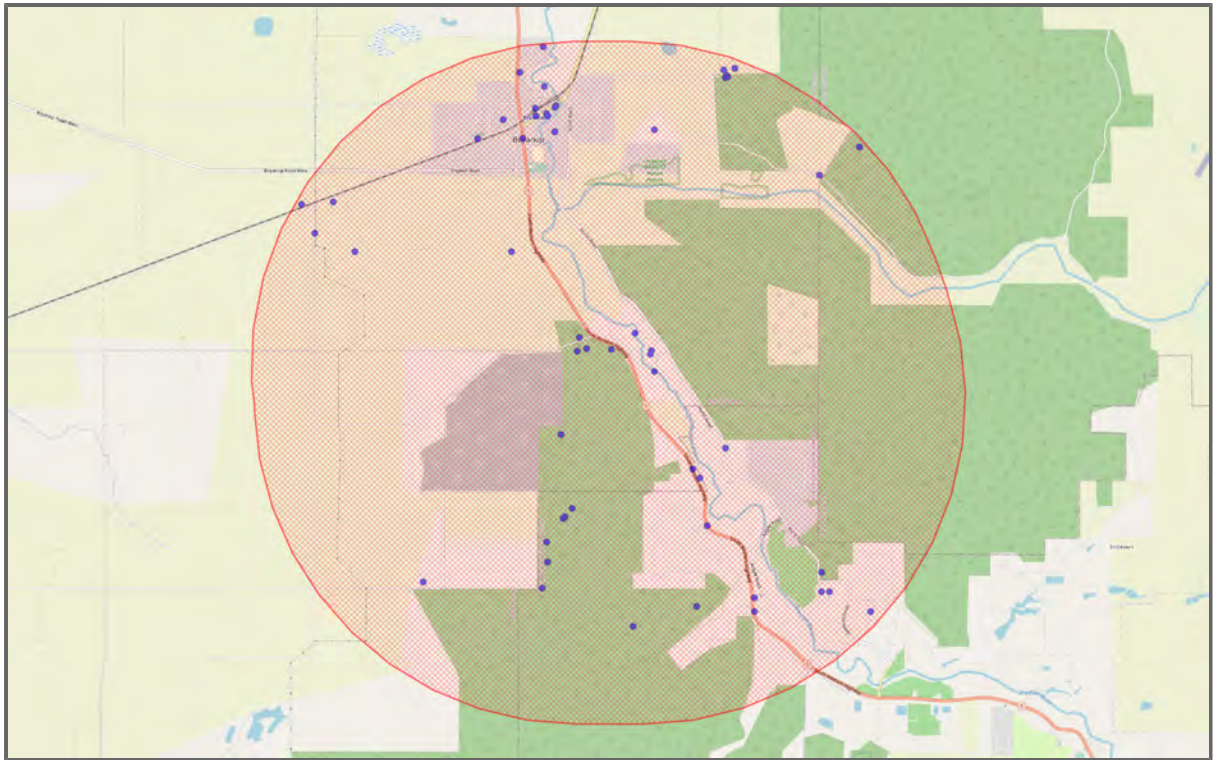


Figure 6 : Map of All threatened species

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

Family	Scientific Name	Common Name	No. Occurrences
Acanthizidae	<i>Gerygone fusca</i>	Western Gerygone	23
Cacatuidae	<i>Calyptorhynchus (Calyptorhynchus) banksii</i>	Red-tailed Black Cockatoo	17
Proteaceae	<i>Synaphea odocoileops</i>		12
Stylidiaceae	<i>Levenhookia pusilla</i>	Tiny Stylewort	8
Petroicidae	<i>Petroica (Petroica) boodang</i>	Scarlet Robin	8
Aponogetonaceae	<i>Aponogeton hexatepalus</i>	Stalked Water Ribbons	6
Psittacidae	<i>Neophema (Neonanodes) elegans</i>	Elegant Parrot	5
Psittacidae	<i>Polytelis anthopeplus</i>	Regent Parrot	5
Asparagaceae	<i>Thysanotus tenellus</i>	Grassy Fringe-lily	5
Cacatuidae	<i>Zanda baudinii</i>	Long-billed Black-cockatoo	5
Anatidae	<i>Aythya (Nyroca) australis</i>	Hardhead	4
Anatidae	<i>Biziura lobata</i>	Musk Duck	4
Scincidae	<i>Lerista distinguenda</i>	South-western Orange-tailed Slider	4
Proteaceae	<i>Synaphea</i> sp. Pinjarra Plain (A.S.George 17182)		4
Fabaceae	<i>Acacia semitrullata</i>		3
Acrocephalidae	<i>Acrocephalus (Acrocephalus) australis</i>	Australian Reed Warbler	3
Fabaceae	<i>Dillwynia uncinata</i>	Silky Parrot-pea	3
Cyperaceae	<i>Eleocharis keigheryi</i>	Keighery's Eleocharis	3
Stylidiaceae	<i>Levenhookia stipitata</i>	Common Stylewort	3
Cyperaceae	<i>Machaerina arthrophylla</i>	Baumea	3
Psittacidae	<i>Parvipsitta porphyrocephala</i>	Purple-crowned Lorikeet	3
Fabaceae	<i>Pultenaea skinneri</i>	Skinner's Pea	3
Asteraceae	<i>Quinetia urvillei</i>	Quinetia	3
Hemerocallidaceae	<i>Tricoryne elatior</i>	Yellow Rush Lily	3
Ardeidae	<i>Ardea alba modesta</i>	Great Egret	2

Orchidaceae	Caladenia	Fairy Orchids	2
Myrtaceae	Corymbia haematoxylon	Mountain Marri	2
Chenopodiaceae	Dysphania pumilio	Small Crumbweed	2
Proteaceae	Franklandia triaristata	Lanoline Bush	2
Araliaceae	Hydrocotyle intertexta	Buttercup Pennywort	2
Ericaceae	Leucopogon		2
Portulacaceae	Montia australasica	White Purslane	2
Orchidaceae	Orchidaceae	Orchids	2
Anatidae	Spatula rhynchotis	Australasian Shoveler	2
Fabaceae	Acacia flagelliformis		1
Scolopacidae	Actitis hypoleucos	Common Sandpiper	1
Dasyopogonaceae	Calectasia cyanea	Blue Tinsel Lily	1
Cyperaceae	Caustis sp. Boyanup (G.S.McCutcheon 1706)		1
Burramyidae	Cercartetus concinnus	Western Pygmy-possum	1
Myrtaceae	Corymbia maculata	Spotted Gum	1
Orchidaceae	Cyrtostylis	Mosquito Orchids	1
Apiaceae	Daucus glochidiatus	Native Carrot	1
Casuariidae	Dromaius novaehollandiae	Emu	1
Droseraceae	Drosera glanduligera	Scarlet Sundew	1
Droseraceae	Drosera paleacea	Dwarf Sundew	1
Convolvulaceae	Evolvulus alsinoides var. sericeus	Tropical Speedwell	1
Falconidae	Falco (Hierofalco) peregrinus	Peregrine Falcon	1
Haloragaceae	Glischrocaryon angustifolium	Golden Pennants	1
Accipitridae	Hieraaetus (Hieraaetus) morphnoides	Little Eagle	1
Peramelidae	Isoodon fusciventer	Southwestern Brown Bandicoot	1
Poaceae	Lachnagrostis filiformis	Common Blown-grass	1
Accipitridae	Lophoictinia isura	Square-tailed Kite	1
Pittosporaceae	Marianthus granulatus		1
Menyanthaceae	Ornduffia submersa		1
Marsileaceae	Pilularia novae-hollandiae	Austral Pillwort	1
Asteraceae	Podotheca angustifolia	Sticky Long-heads	1
Chelidae	Pseudemydura umbrina	Western Swamp Turtle	1
Orchidaceae	Pterostylis sanguinea	Blood Greenhood	1
Asteraceae	Senecio diaschides	Shingle Fireweed	1
Proteaceae	Synaphea sp. Serpentine (G.R.Brand 103)		1
Orchidaceae	Thelymitra flexuosa	Twisted Sun-orchid	1
Orchidaceae	Thelymitra pauciflora	Slender Sun Orchid	1
Orchidaceae	Thelymitra	Sun Orchids	1
Hydatellaceae	Trithuria australis		1

All invasive species

Number of invasive species: 7

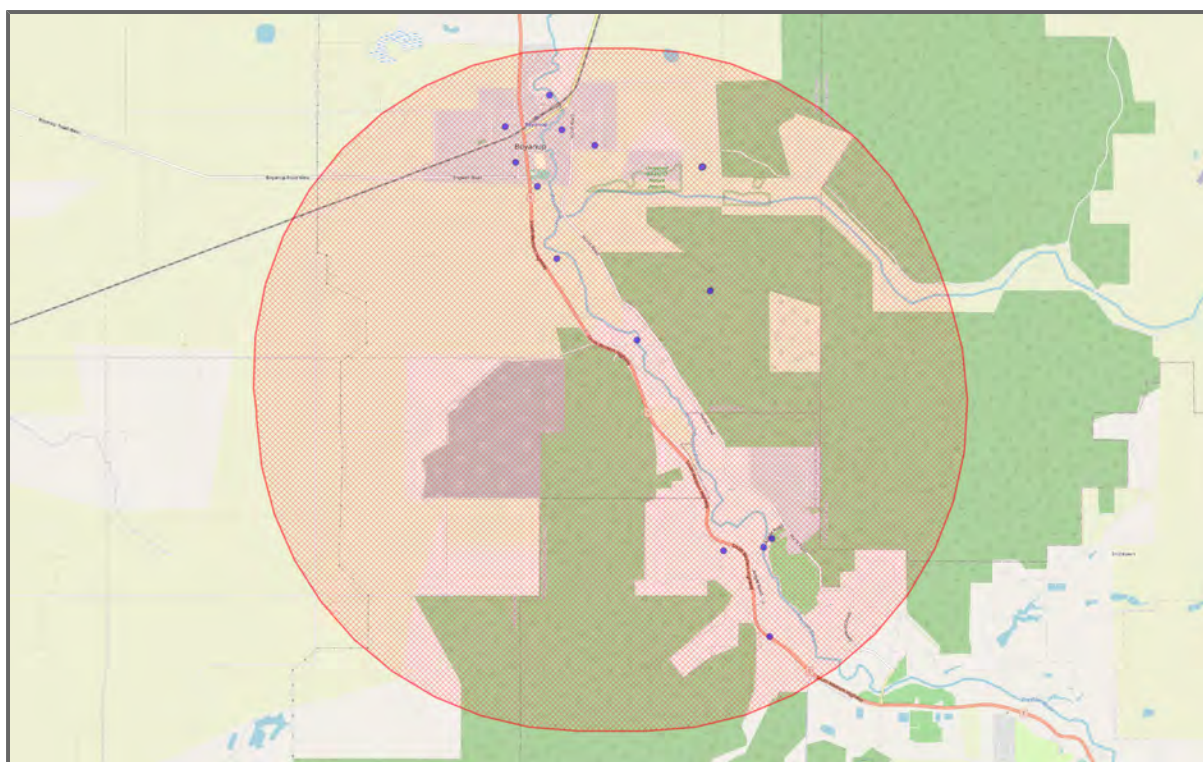


Figure 7 : Map of All invasive species

Table 7: All invasive species ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit	9
Asparagaceae	<i>Asparagus asparagoides</i>	Western Cape Bridal Creeper	2
Nectriaceae	<i>Fusarium</i>		2
Fabaceae	<i>Genista linifolia</i>	Flax-leaf Broom	2
Apocynaceae	<i>Gomphocarpus fruticosus</i>	Narrow-leaved Cotton Bush	2
Hygromiidae	<i>Cernuella</i>		1
Iridaceae	<i>Moraea flaccida</i>	One-leaf Cape Tulip	1

Iconic species

Number of iconic species: 10

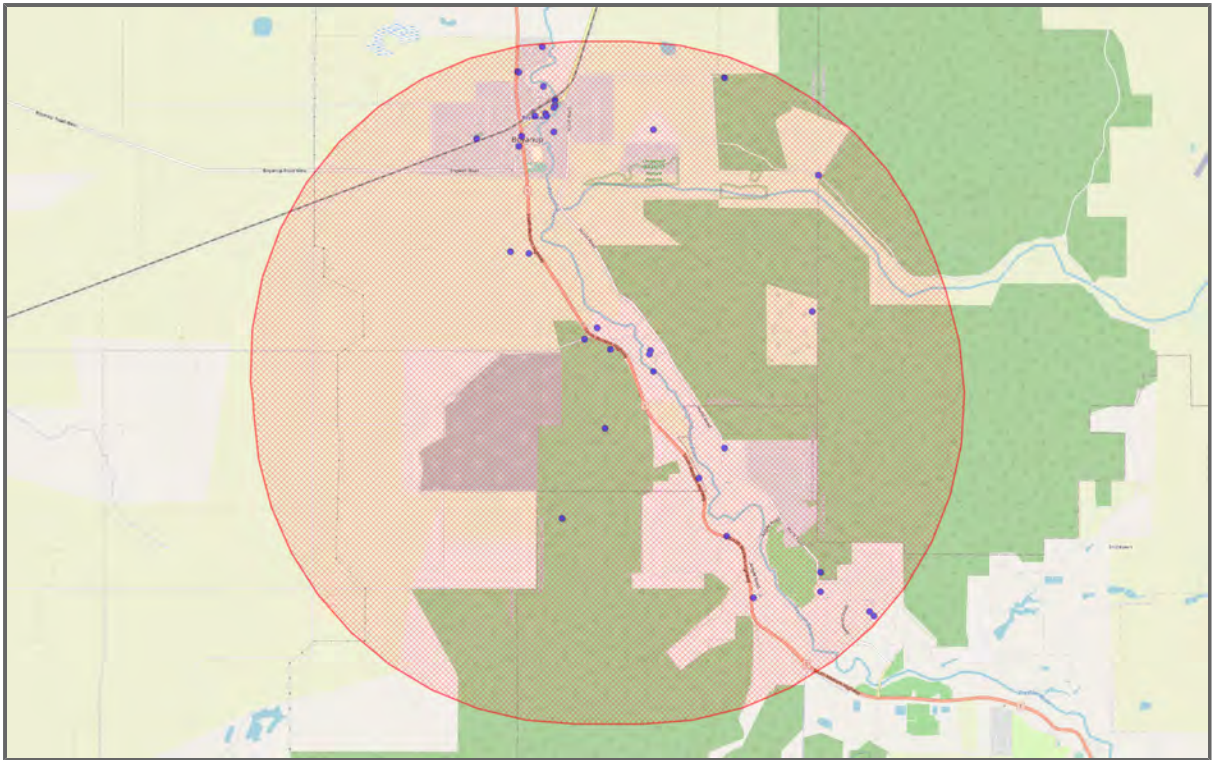


Figure 8 : Map of Iconic species

Table 8: Iconic species ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Meliphagidae	<i>Phylidonyris (Meliornis) novaehollandiae</i>	New Holland Honeyeater	40
Artamidae	<i>Gymnorhina tibicen</i>	Australian Magpie	35
Meliphagidae	<i>Anthochaera (Anthochaera) carunculata</i>	Red Wattlebird	33
Rhipiduridae	<i>Rhipidura (Sauloprocta) leucophrys</i>	Willie Wagtail	27
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah	21
Alcedinidae	<i>Dacelo (Dacelo) novaeguineae</i>	Laughing Kookaburra	19
Haemodoraceae	<i>Anigozanthos manglesii</i>	Red And Green Kangaroo Paw	3
Accipitridae	<i>Aquila (Uroaetus) audax</i>	Wedge-tailed Eagle	3
Gekkonidae	<i>Christinus marmoratus</i>	Marbled Gecko	3
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	1

Migratory species

Number of migratory species: 0

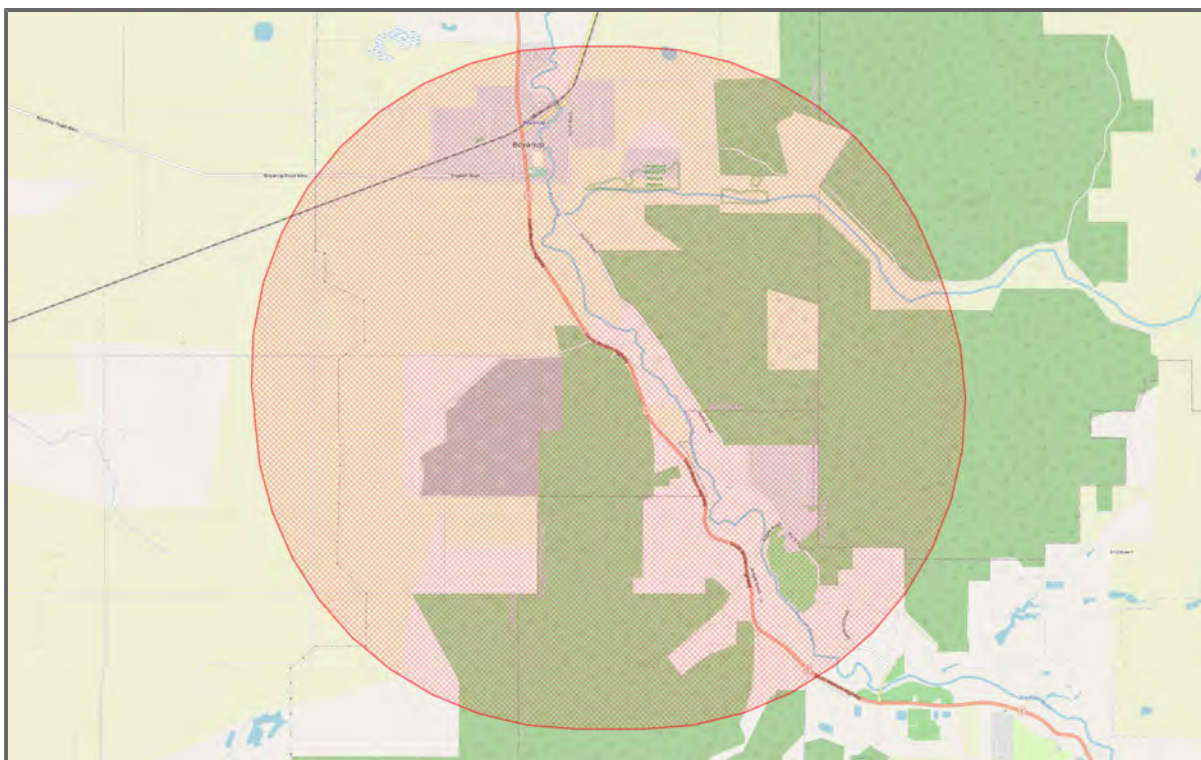


Figure 9 : Map of Migratory species

Table 9: Migratory species ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
--------	-----------------	-------------	-----------------

Lifeform - Algae

Number of Algae 0

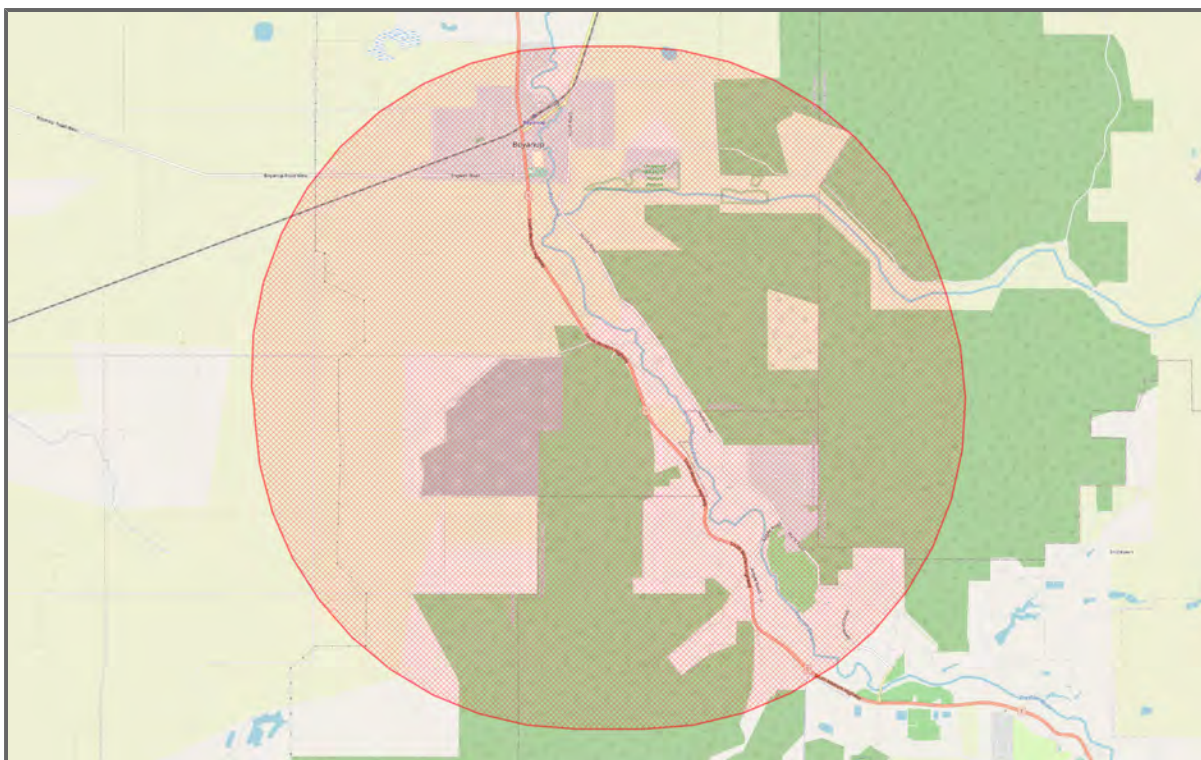


Figure 10 : Map of Lifeform - Algae

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

Family	Scientific Name	Common Name	No. Occurrences
--------	-----------------	-------------	-----------------

Lifeform - Amphibians

Number of Amphibians 8

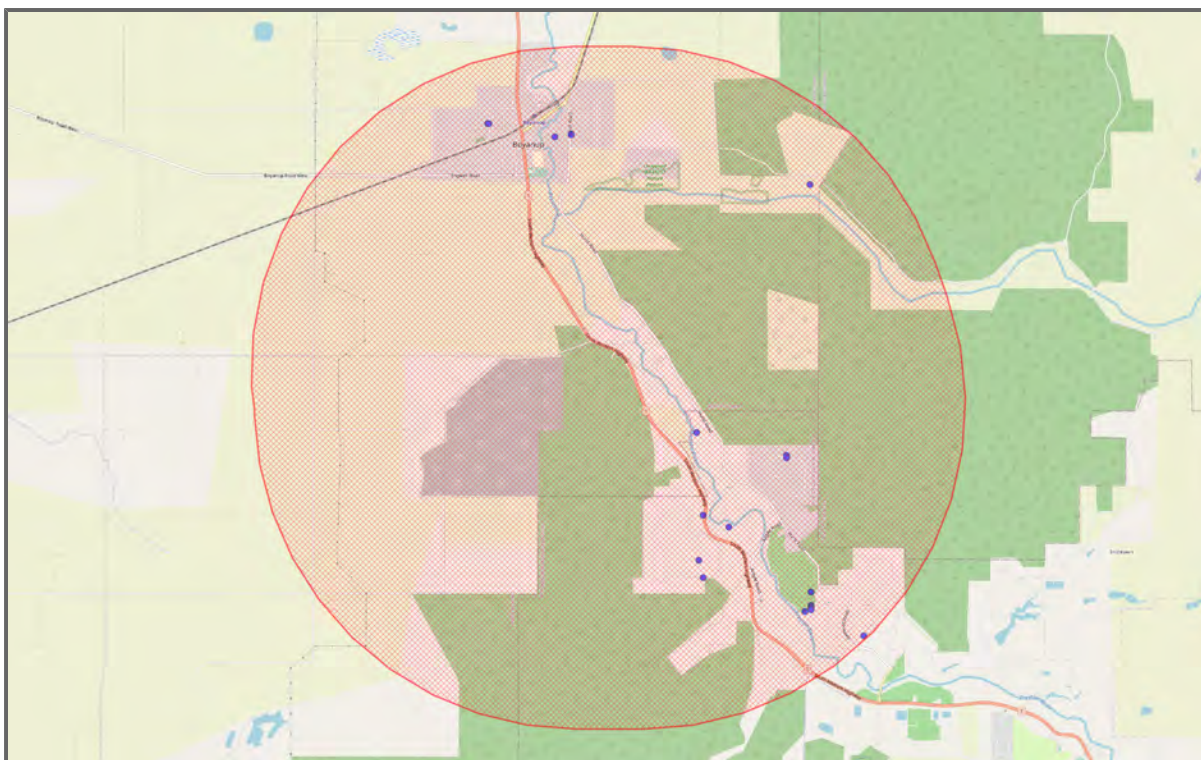


Figure 11 : Map of Lifeform - Amphibians

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

Family	Scientific Name	Common Name	No. Occurrences
Limnodynastidae	<i>Heleioporus eyrei</i>	Moaning Frog	11
Myobatrachidae	<i>Geocrinia leai</i>	Lea's Frog	7
Pelodyadidae	<i>Litoria moorei</i>	Western Green And Golden Bell Frog	7
Myobatrachidae	<i>Crinia insignifera</i>	Sign-bearing Froglet	6
Myobatrachidae	<i>Crinia georgiana</i>	Tschudi's Froglet	4
Myobatrachidae	<i>Crinia glauerti</i>	Glauert's Froglet	2
Pelodyadidae	<i>Litoria adelaidensis</i>	Slender Tree Frog	1
Pelodyadidae	<i>Litoria</i>		1

Lifeform - Angiosperms

Number of Angiosperms 0

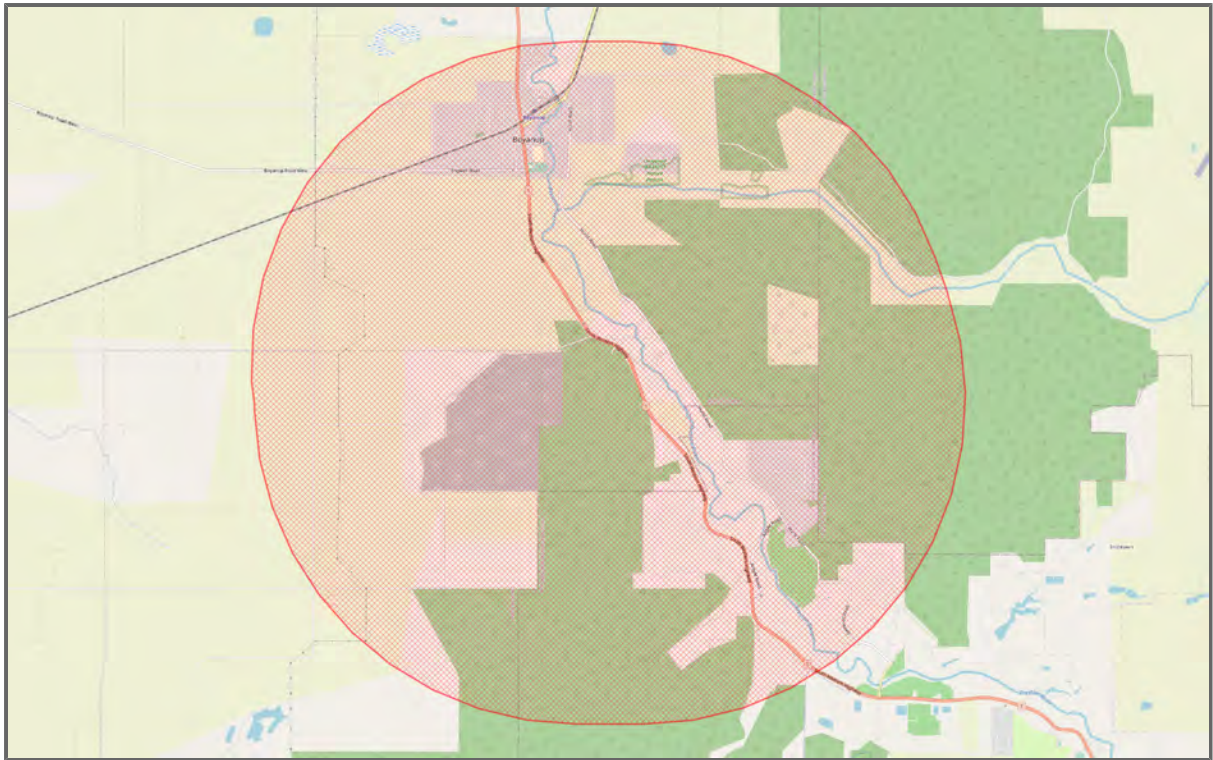


Figure 12 : Map of Lifeform - Angiosperms

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

Family	Scientific Name	Common Name	No. Occurrences
--------	-----------------	-------------	-----------------

Lifeform - Animals

Number of Animals 245

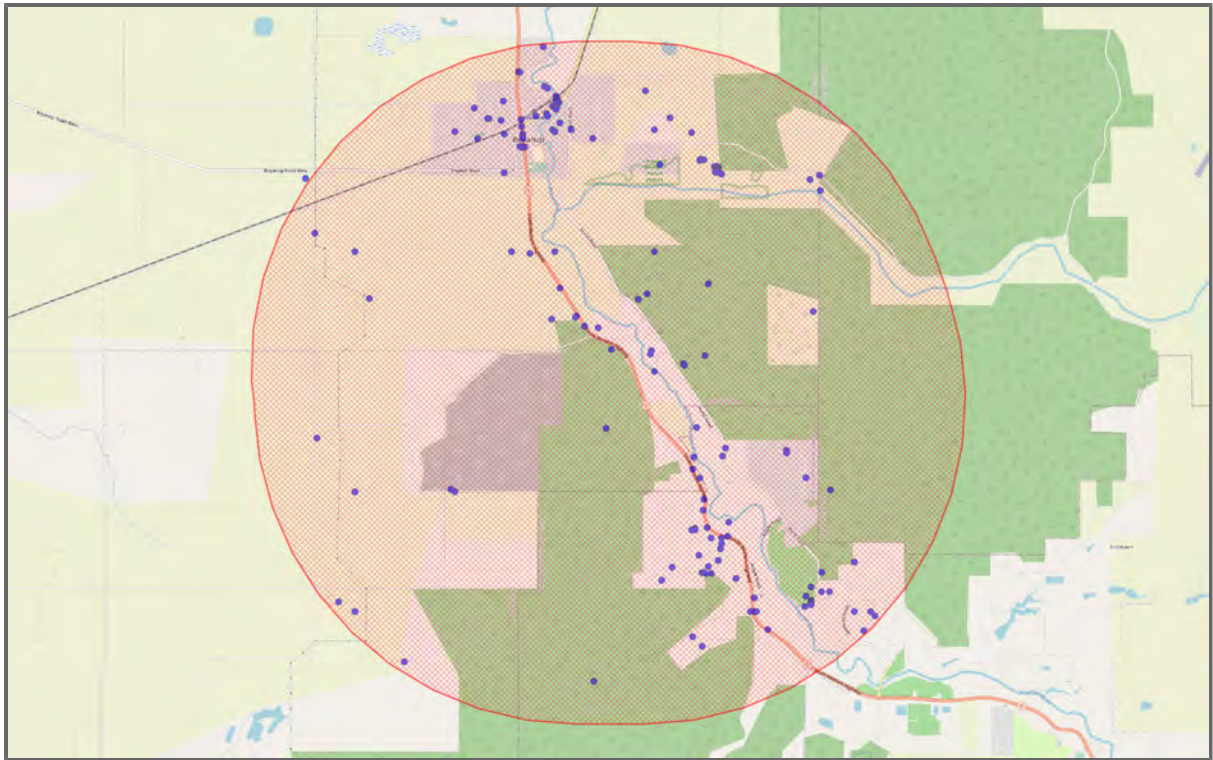


Figure 13 : Map of Lifeform - Animals

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

Family	Scientific Name	Common Name	No. Occurrences
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck	45
Zosteropidae	<i>Zosterops lateralis</i>	Silvereeye	45
Rhipiduridae	<i>Rhipidura (Rhipidura) albiscapa</i>	Grey Fantail	44
Meliphagidae	<i>Phylidonyris (Meliornis) novaehollandiae</i>	New Holland Honeyeater	40
Corvidae	<i>Corvus coronoides</i>	Australian Raven	36
Artamidae	<i>Gymnorhina tibicen</i>	Australian Magpie	35
Meliphagidae	<i>Anthochaera (Anthochaera) carunculata</i>	Red Wattlebird	33
Canidae	<i>Vulpes vulpes</i>	Fox	30
Meliphagidae	<i>Lichmera (Lichmera) indistincta</i>	Brown Honeyeater	29
Anatidae	<i>Anas (Anas) superciliosa</i>	Pacific Black Duck	27
Rhipiduridae	<i>Rhipidura (Sauloprocta) leucophrys</i>	Willie Wagtail	27
Acanthizidae	<i>Gerygone fusca</i>	Western Gerygone	23
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah	21
Maluridae	<i>Malurus (Malurus) splendens</i>	Splendid Fairy-wren	21
Alcedinidae	<i>Dacelo (Dacelo) novaeguineae</i>	Laughing Kookaburra	19
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	18
Psittacidae	<i>Purpureicephalus spurius</i>	Red-capped Parrot	18
Acanthizidae	<i>Acanthiza (Geobasileus) chrysothorax</i>	Yellow-rumped Thornbill	17
Cacatuidae	<i>Calyptorhynchus (Calyptorhynchus) banksii</i>	Red-tailed Black Cockatoo	17
Rallidae	<i>Porphyrio (Porphyrio) porphyrio</i>	Purple Swamphen	17
Threskiornithidae	<i>Threskiornis moluccus</i>	Australian White Ibis	17
Laelapidae	<i>Gaeolaelaps</i>		16
Columbidae	<i>Phaps (Phaps) chalcoptera</i>	Common Bronzewing	16
Anatidae	<i>Chenonetta jubata</i>	Australian Wood Duck	15
Pardalotidae	<i>Pardalotus (Pardalotinus) striatus</i>	Striated Pardalote	15

Campephagidae	Coracina (Coracina) novaehollandiae	Black-faced Cuckoo-shrike	14
Monarchidae	Grallina cyanoleuca	Magpie-lark	13
Pachycephalidae	Pachycephala (Alisternis) rufiventris	Rufous Whistler	13
Meliphagidae	Acanthorhynchus superciliosus	Western Spinebill	12
Scincidae	Cryptoblepharus buchanani	Buchanan's Snake-eyed Skink	12
Acanthizidae	Acanthiza (Acanthiza) apicalis	Red-rumped Tit	11
Limnodynastidae	Heleioporus eyrei	Moaning Frog	11
Psittacidae	Platycercus (Violania) icterotis	Western Rosella	10
Hirundinidae	Hirundo (Hirundo) neoxena	Welcome Swallow	9
Leporidae	Oryctolagus cuniculus	Rabbit	9
Rallidae	Fulica atra	Eurasian Coot	8
Scincidae	Hemiergis initialis	Southwestern Earless Skink	8
Scincidae	Hemiergis quadrilineata	Two-toed Earless Skink	8
Phalacrocoracidae	Microcarbo melanoleucos	Little Pied Cormorant	8
Percichthyidae	Nannoperca vittata	Western Pygmy Perch	8
Petroicidae	Petroica (Petroica) boodang	Scarlet Robin	8
Coccidae	Coccus synapheae		7
Artamidae	Cracticus torquatus	Grey Butcherbird	7
Myobatrachidae	Geocrinia leai	Lea's Frog	7
Pelodyadidae	Litoria moorei	Western Green And Golden Bell Frog	7
Pachycephalidae	Pachycephala (Pachycephala) pectoralis fuliginosa	South Australian Golden Whistler	7
Podicipedidae	Tachybaptus novaehollandiae	Australasian Grebe	7
Alcedinidae	Todiramphus (Todiramphus) sanctus	Sacred Kingfisher	7
Anatidae	Anas gracilis	Grey Teal	6
Myobatrachidae	Crinia insignifera	Sign-bearing Froglet	6
Meropidae	Merops (Merops) ornatus	Rainbow Bee-eater	6
Gobiidae	Pseudogobius olorum	Bluespot Goby	6
Threskiornithidae	Threskiornis spinicollis	Straw-necked Ibis	6
Psittacidae	Neophema (Neonanes) elegans	Elegant Parrot	5
Hirundinidae	Petrochelidon (Hylochelidon) nigricans	Tree Martin	5
Psittacidae	Polytelis anthopeplus	Regent Parrot	5
Anamidae	Proshermacha		5
Acanthizidae	Sericornis (Sericornis) frontalis maculatus	South-western Spotted Scrubwren	5
Cacatuidae	Zanda baudinii	Long-billed Black-cockatoo	5
Anatidae	Aythya (Nyroca) australis	Hardhead	4
Anatidae	Biziura lobata	Musk Duck	4
Cacatuidae	Calyptorhynchus		4
Cuculidae	Chalcites		4
Scolopendridae	Cormocephalus		4
Myobatrachidae	Crinia georgiana	Tschudi's Froglet	4
Anatidae	Cygnus atratus	Black Swan	4
Petroicidae	Eopsaltria		4
Scincidae	Hemiergis peronii	Lowlands Earless Skink	4
Scincidae	Lerista distinguenda	South-western Orange-tailed Slider	4
Macropodidae	Macropus fuliginosus melanops	[black-faced Kangaroo]	4
Maluridae	Malurus (Leggeornis) elegans	Red-winged Fairy-wren	4
Meliphagidae	Melithreptus (Melithreptus) chloropsis	Gilbert's Honeyeater	4
Pardalotidae	Pardalotus (Pardalotus) punctatus	Spotted Pardalote	4
Scarabaeidae	SCARABAEIDAE		4
Estrildidae	Stagonopleura (Zonaeginthus) oculata	Red-eared Firetail	4
Artamidae	Strepera (Neostrepera) versicolor	Grey Currawong	4
Anatidae	Tadorna (Casarca) tadornoides	Australian Shelduck	4
Acrocephalidae	Acrocephalus (Acrocephalus) australis	Australian Reed Warbler	3
Accipitridae	Aquila (Uroaetus) audax	Wedge-tailed Eagle	3
Percichthyidae	Bostockia porosa	Nightfish	3
Coccidae	COCCIDAE		3

Gekkonidae	<i>Christinus marmoratus</i>	Marbled Gecko	3
Formicidae	<i>Iridomyrmex discors</i>	Ant	3
Maluridae	<i>Malurus</i>		3
Actinopodidae	<i>Missulena granulosa</i>		3
Psittacidae	<i>Parvipsitta porphyrocephala</i>	Purple-crowned Lorikeet	3
Acanthizidae	<i>Smicromnis brevirostris</i>	Weebill	3
Columbidae	<i>Spilopelia senegalensis</i>	Laughing Turtle-dove	3
Elapidae	<i>Suta nigriceps</i>	Mitchell's Short-tailed Snake	3
Acanthizidae	<i>Acanthiza (Geobasileus) inornata</i>	Western Thornbill	2
Accipitridae	<i>Accipiter (Leucospiza) fasciatus</i>	Brown Goshawk	2
Aegothelidae	<i>Aegotheles (Aegotheles) cristatus cristatus</i>	Mainland Australian Owlet-nightjar	2
Meliphagidae	<i>Anthochaera (Anellobia) lunulata</i>	Western Wattlebird	2
Paradoxosomatidae	<i>Antichiropus</i>		2
Ardeidae	<i>Ardea alba modesta</i>	Great Egret	2
Araneidae	<i>Austracantha minax</i>	Jewel Spider	2
Scarabaeidae	<i>Bubas bison</i>		2
Cuculidae	<i>Cacomantis (Vidgenia) flabelliformis</i>	Fan-tailed Cuckoo	2
Cuculidae	<i>Chalcites lucidus</i>	Shining Bronze-cuckoo	2
Scarabaeidae	<i>Colymbomorpha vittata</i>	Spring Beetle	2
Artamidae	<i>Cracticus nigrogularis</i>	Pied Butcherbird	2
Myobatrachidae	<i>Crinia glauerti</i>	Glauert's Froglet	2
Scincidae	<i>Ctenotus impar</i>	Odd-striped Ctenotus	2
Dytiscidae	<i>Cybister godeffroyi</i>	Diving Beetle	2
Charadriidae	<i>Elseyonis melanops</i>	Black-fronted Dotterel	2
Petroicidae	<i>Eopsaltria (Eopsaltria) griseogularis</i>	Western Yellow Robin	2
Falconidae	<i>Falco (Tinnunculus) cenchroides</i>	Nankeen Kestrel	2
Galaxiidae	<i>Galaxias occidentalis</i>	Western Galaxias	2
Rallidae	<i>Gallinula (Gallinula) tenebrosa</i>	Dusky Moorhen	2
Meliphagidae	<i>Gavicalis virescens</i>	Singing Honeyeater	2
Idiopidae	<i>Idiosoma</i>		2
Dytiscidae	<i>Limbodessus inornatus</i>	Diving Beetle	2
Hydrophilidae	<i>Limnoxenus zealandicus</i>	Water Scavenger Beetle	2
	MANTODEA	Mantises	2
Micropezidae	MICROPEZIDAE	Stilt Flies	2
Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo	2
Scincidae	<i>Morethia obscura</i>	Shrubland Morethia Skink	2
Dytiscidae	<i>Neobidessodes mjobergi</i>	Diving Beetle	2
Strigidae	<i>Ninox (Ninox) novaeseelandiae</i>	Southern Boobook	2
Scarabaeidae	<i>Onthophagus taurus</i>	Bullhorned Dung Beetle	2
Pachycephalidae	<i>Pachycephala (Pachycephala) pectoralis</i>	Golden Whistler	2
Petroicidae	<i>Petroica (Petroica) goodenovii</i>	Red-capped Robin	2
Meliphagidae	<i>Phylidonyris (Meliornis) niger</i>	White-cheeked Honeyeater	2
Threskiornithidae	<i>Platalea (Platibis) flavipes</i>	Yellow-billed Spoonbill	2
Podicipedidae	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe	2
Zygaenidae	<i>Pollanisus</i>		2
Anatidae	<i>Spatula rhynchotis</i>	Australasian Shoveler	2
Dytiscidae	<i>Sternopriscus browni</i>	Diving Beetle	2
Thaumastocoridae	<i>Thaumastocoris nadelii</i>		2
Scincidae	<i>Tiliqua rugosa rugosa</i>		2
Dytiscidae	<i>Tiporus giuliani</i>	Diving Beetle	2
Turdidae	<i>Turdus merula</i>	Eurasian Blackbird	2
Araneidae	ARANEIDAE		1
	AVES	Birds	1
Accipitridae	<i>Accipiter (Paraspizias) cirrocephalus</i>	Collared Sparrowhawk	1
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	1
Paradoxosomatidae	<i>Akamptogonus novarae</i>		1

Anhingidae	Anhinga novaehollandiae	Australasian Darter	1
Typhlopidae	Anilius australis	Southern Blind Snake	1
Paradoxosomatidae	Antichiropus nanus		1
Araneidae	Arachnura higginsi	Scorpion Tailed Spider	1
Mantidae	Archimantis sobrina	Large Brown Mantid	1
Argasidae	Argas persicus		1
Artamidae	Artamus (Angroyan) cyanopterus	Dusky Woodswallow	1
Megascolecidae	Austrohoplochaetella whistleri		1
Acrididae	Austroicetes		1
Synthemistidae	Austrosynthemis cyanitincta	Turquoise Tigertail	1
Desidae	Badumna		1
Hydrophilidae	Berosus (Berosus) approximans	Water Scavenger Beetle	1
Hydrophilidae	Berosus (Berosus) pulchellus	Water Scavenger Beetle	1
Cleridae	Blackburniella intricata		1
Bovidae	Bos		1
Charopidae	CHAROPIDAE		1
Chironomidae	CHIRONOMIDAE		1
Curculionidae	CURCULIONIDAE		1
Cacatuidae	Cacatua		1
Buprestidae	Castiarina amabilis		1
Burramyidae	Cercartetus concinnus	Western Pygmy-possum	1
Hydrophilidae	Cercyon		1
Hygromiidae	Cernuella		1
Charadriidae	Charadrius (Charadrius) ruficapillus	Red-capped Plover	1
Chelidae	Chelodina (Macrochelodina) oblonga	Northern Snake-necked Turtle	1
Parastacidae	Cherax cainii	Marron	1
Locustellidae	Cincloramphus (Cincloramphus) cruralis	Brown Songlark	1
Pachycephalidae	Colluricincla (Colluricincla) harmonica	Grey Shrike-thrush	1
Scarabaeidae	Colpochila		1
Dytiscidae	Copelatus ater	Diving Beetle	1
Rhinotermitidae	Coptotermes acinaciformis raffrayi	Subterranean Termite	1
Desidae	Corasoides occidentalis		1
Artamidae	Cracticus		1
Scincidae	Ctenotus labillardieri	Red-legged Ctenotus	1
Araneidae	Cyclosa trilobata	Three Lobed Spider	1
Formicidae	Dolichoderus ypsilon		1
Araneidae	Dolophones		1
Casuariidae	Dromaius novaehollandiae	Emu	1
Elateridae	ELATERIDAE	Click Beetles	1
Hydrophilidae	Enochrus (Hydatotrephis) mastersii		1
Syrphidae	Eristalis (Eristalis) tenax	Drone Fly	1
Scarabaeidae	Euoniticellus fulvus		1
Staphylinidae	Eupines (Eupines) distorticornis		1
Falconidae	Falco (Hierofalco) peregrinus	Peregrine Falcon	1
Gobiidae	Favonigobius lateralis	Southern Longfin Goby	1
Poeciliidae	Gambusia holbrooki	Eastern Gambusia	1
Muraenidae	Gymnothorax woodwardi	Woodward's Moray	1
Accipitridae	Haliastur sphenurus	Whistling Kite	1
Pentatomidae	Halyini		1
Hydrophilidae	Helochares tenuistriatus	Water Scavenger Beetle	1
Accipitridae	Hieraaetus (Hieraaetus) morphnoides	Little Eagle	1
Dytiscidae	Hydroglyphus basalis	Diving Beetle	1
Hydrophilidae	Hydrophilus (Hydrophilus) albipes	Water Scavenger Beetle	1
Dytiscidae	Hyphydrus elegans	Diving Beetle	1
Dytiscidae	Hyphydrus lyratus	Diving Beetle	1
	INSECTA	Insects	1

Peramelidae	<i>Isoodon fusciventer</i>	Southwestern Brown Bandicoot	1
Sparassidae	<i>Isopedella castanea</i>		1
Lymnaeidae	LYMNAEIDAE		1
Campephagidae	<i>Lalage</i>		1
Lucanidae	<i>Lamprima aurata</i>	Golden Stag Beetle	1
Erebidae	<i>Leptocneria reducta</i>	Moth	1
Pygopodidae	<i>Lialis burtonis</i>	Burton's Snake-lizard	1
Pelodyradidae	<i>Litoria adelaidensis</i>	Slender Tree Frog	1
Pelodyradidae	<i>Litoria</i>		1
Accipitridae	<i>Lophoictinia isura</i>	Square-tailed Kite	1
Monarchidae	MONARCHIDAE	Western Lesser Sundas Island Monarch	1
Maluridae	<i>Malurus (Leggeornis) lamberti</i>	Variegated Fairy-wren	1
Dytiscidae	<i>Megaporus solidus</i>	Diving Beetle	1
Meliphagidae	<i>Melithreptus (Melithreptus) lunatus</i>	White-naped Honeyeater	1
Scarabaeidae	Melolonthinae		1
Muscidae	<i>Musca domestica</i>	House Fly	1
Muscidae	Muscini		1
Formicidae	<i>Myrmecia gulosa</i>	Giant Bull Ant	1
Formicidae	<i>Myrmecia</i>		1
Dytiscidae	<i>Necterosoma darwini</i>	Diving Beetle	1
Araneidae	<i>Nephila</i>		1
Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen Night-heron	1
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	1
Julidae	<i>Ommatoiulus moreleti</i>	Portuguese Millipede	1
Mantidae	<i>Orthodera ministralis</i>	Green Mantid	1
Pardalotidae	<i>Pardalotus (Pardalotus) punctatus xanthopyge</i>	Yellow-rumped Pardalote	1
Noctuidae	Persectania		1
Phalacrocoracidae	<i>Phalacrocorax (Phalacrocorax) sulcirostris</i>	Little Black Cormorant	1
Phalacrocoracidae	<i>Phalacrocorax (Phalacrocorax) varius</i>	Pied Cormorant	1
Acrididae	<i>Phaulacridium vittatum</i>	Wingless Grasshopper	1
Scarabaeidae	<i>Phyllotocus</i>		1
Plutellidae	<i>Plutella</i>		1
Phasmatidae	<i>Podacanthus viridiroseus</i>	Red-winged Stick-insect	1
Chelidae	<i>Pseudemydura umbrina</i>	Western Swamp Turtle	1
Tettigoniidae	<i>Requena</i>		1
Dytiscidae	<i>Rhantus suturalis</i>	Diving Beetle	1
Scincidae	SCINCIDAE		1
Scoliidae	SCOLIIDAE		1
Acanthizidae	<i>Sericornis (Sericornis) frontalis</i>	White-browed Scrubwren	1
Araneidae	<i>Socca arena</i>		1
Columbidae	<i>Streptopelia</i>		1
Tabanidae	TABANIDAE		1
Triaenonychidae	TRIAENONYCHIDAE		1
Plotosidae	<i>Tandanus bostocki</i>	Freshwater Cobbler	1
Dytiscidae	<i>Tiporus undecimmaculatus</i>	Diving Beetle	1
Termitidae	<i>Tumulitermes apiocephalus</i>		1
Turnicidae	<i>Turnix (Austroturnix) varius</i>	Painted Button-quail	1
Urodacidae	<i>Urodacus novaehollandiae</i>		1
Nymphalidae	<i>Vanessa kershawi</i>	Australian Painted Lady	1
Varanidae	<i>Varanus gouldii</i>	Gould's Goanna	1
Neoniphargidae	<i>Wesniphargus</i>		1
Cacatuidae	<i>Zanda</i>		1

Lifeform - Arthropods

Number of Arthropods 89

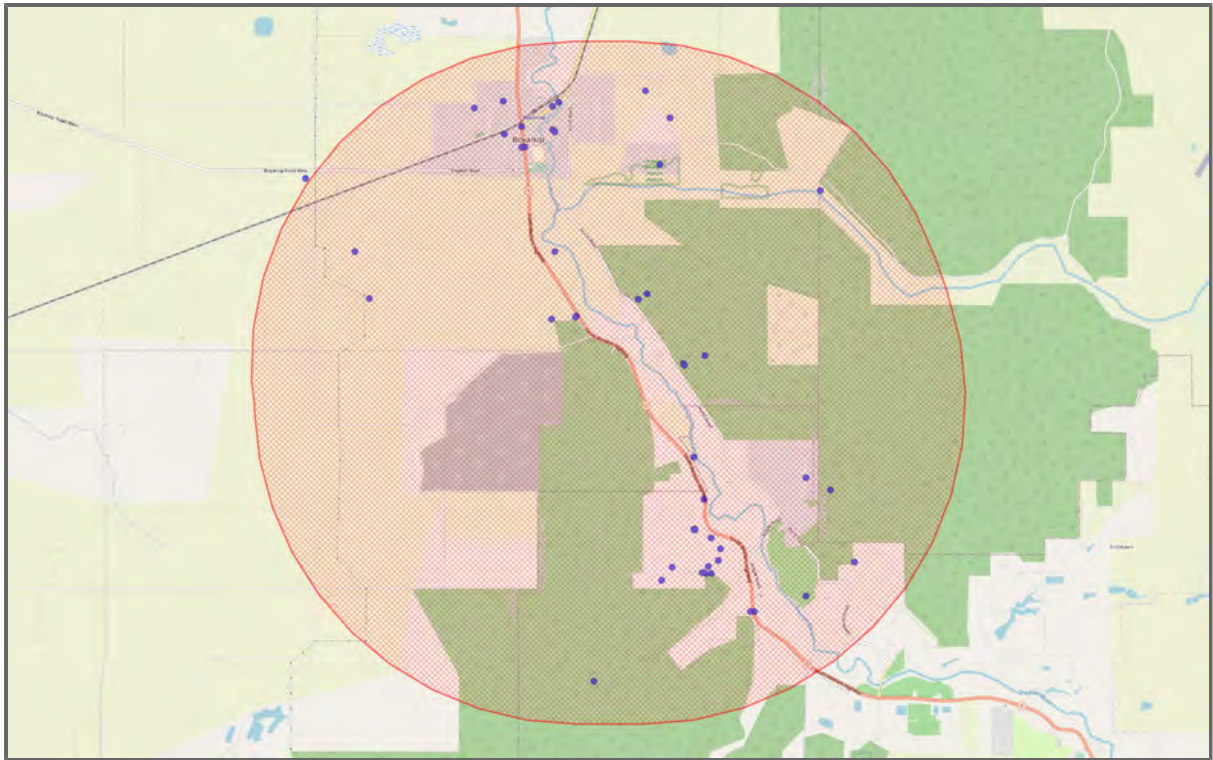


Figure 14 : Map of Lifeform - Arthropods

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

Family	Scientific Name	Common Name	No. Occurrences
Laelapidae	Gaeolaelaps		16
Coccidae	Coccus synapheae		7
Anamidae	Proshermacha		5
Scolopendridae	Cormocephalus		4
Scarabaeidae	SCARABAEIDAE		4
Coccidae	COCCIDAE		3
Formicidae	Iridomyrmex discors	Ant	3
Actinopodidae	Missulena granulosa		3
Paradoxosomatidae	Antichiropus		2
Araneidae	Austracantha minax	Jewel Spider	2
Scarabaeidae	Bubas bison		2
Scarabaeidae	Colymbomorpha vittata	Spring Beetle	2
Dytiscidae	Cybister godeffroyi	Diving Beetle	2
Idiopidae	Idiosoma		2
Dytiscidae	Limbodessus inornatus	Diving Beetle	2
Hydrophilidae	Limnoxenus zealandicus	Water Scavenger Beetle	2
	MANTODEA	Mantises	2
Micropezidae	MICROPEZIDAE	Stilt Flies	2
Dytiscidae	Neobidessodes mjobergi	Diving Beetle	2
Scarabaeidae	Onthophagus taurus	Bullhorned Dung Beetle	2
Zygaenidae	Pollanisus		2
Dytiscidae	Sternopriscus browni	Diving Beetle	2
Thaumastocoridae	Thaumastocoris nadelii		2
Dytiscidae	Tiporus giuliani	Diving Beetle	2
Araneidae	ARANEIDAE		1

Paradoxosomatidae	Akamptogonus novarae		1
Paradoxosomatidae	Antichiropus nanus		1
Araneidae	Arachnura higginsii	Scorpion Tailed Spider	1
Mantidae	Archimantis sobrina	Large Brown Mantid	1
Argasidae	Argas persicus		1
Acrididae	Austroicetes		1
Synthemistidae	Austrosynthemis cyanitincta	Turquoise Tigertail	1
Desidae	Badumna		1
Hydrophilidae	Berosus (Berosus) approximans	Water Scavenger Beetle	1
Hydrophilidae	Berosus (Berosus) pulchellus	Water Scavenger Beetle	1
Cleridae	Blackburniella intricata		1
Chironomidae	CHIRONOMIDAE		1
Curculionidae	CURCULIONIDAE		1
Buprestidae	Castiarina amabilis		1
Hydrophilidae	Cercyon		1
Parastacidae	Cherax cainii	Marron	1
Scarabaeidae	Colpochila		1
Dytiscidae	Copelatus ater	Diving Beetle	1
Rhinotermitidae	Coptotermes acinaciformis raffrayi	Subterranean Termite	1
Desidae	Corasoides occidentalis		1
Araneidae	Cyclosa trilobata	Three Lobed Spider	1
Formicidae	Dolichoderus ypsilon		1
Araneidae	Dolophones		1
Elateridae	ELATERIDAE	Click Beetles	1
Hydrophilidae	Enochrus (Hydatotrepis) mastersii		1
Syrphidae	Eristalis (Eristalis) tenax	Drone Fly	1
Scarabaeidae	Euoniticellus fulvus		1
Staphylinidae	Eupines (Eupines) distorticornis		1
Pentatomidae	Halyini		1
Hydrophilidae	Helochares tenuistriatus	Water Scavenger Beetle	1
Dytiscidae	Hydroglyphus basalis	Diving Beetle	1
Hydrophilidae	Hydrophilus (Hydrophilus) albipes	Water Scavenger Beetle	1
Dytiscidae	Hyphydrus elegans	Diving Beetle	1
Dytiscidae	Hyphydrus lyratus	Diving Beetle	1
	INSECTA	Insects	1
Sparassidae	Isopedella castanea		1
Lucanidae	Lamprima aurata	Golden Stag Beetle	1
Erebidae	Leptocneria reducta	Moth	1
Dytiscidae	Megaporus solidus	Diving Beetle	1
Scarabaeidae	Melolonthinae		1
Muscidae	Musca domestica	House Fly	1
Muscidae	Muscini		1
Formicidae	Myrmecia gulosa	Giant Bull Ant	1
Formicidae	Myrmecia		1
Dytiscidae	Necterosoma darwini	Diving Beetle	1
Araneidae	Nephila		1
Julidae	Ommatoiulus moreleti	Portuguese Millipede	1
Mantidae	Orthodera ministralis	Green Mantid	1
Noctuidae	Persectania		1
Acrididae	Phaulacridium vittatum	Wingless Grasshopper	1
Scarabaeidae	Phyllotocus		1
Plutellidae	Plutella		1
Phasmatidae	Podacanthus viridiroseus	Red-winged Stick-insect	1
Tettigoniidae	Requena		1
Dytiscidae	Rhantus suturalis	Diving Beetle	1
Scoliidae	SCOLIIDAE		1

Araneidae	Socca arena		1
Tabanidae	TABANIDAE		1
Triaenonychidae	TRIAENONYCHIDAE		1
Dytiscidae	Tiporus undecimmaculatus	Diving Beetle	1
Termitidae	Tumulitermes apiocephalus		1
Urodacidae	Urodacus novaehollandiae		1
Nymphalidae	Vanessa kershawi	Australian Painted Lady	1
Neoniphargidae	Wesniphargus		1

Lifeform - Bacteria

Number of Bacteria 0

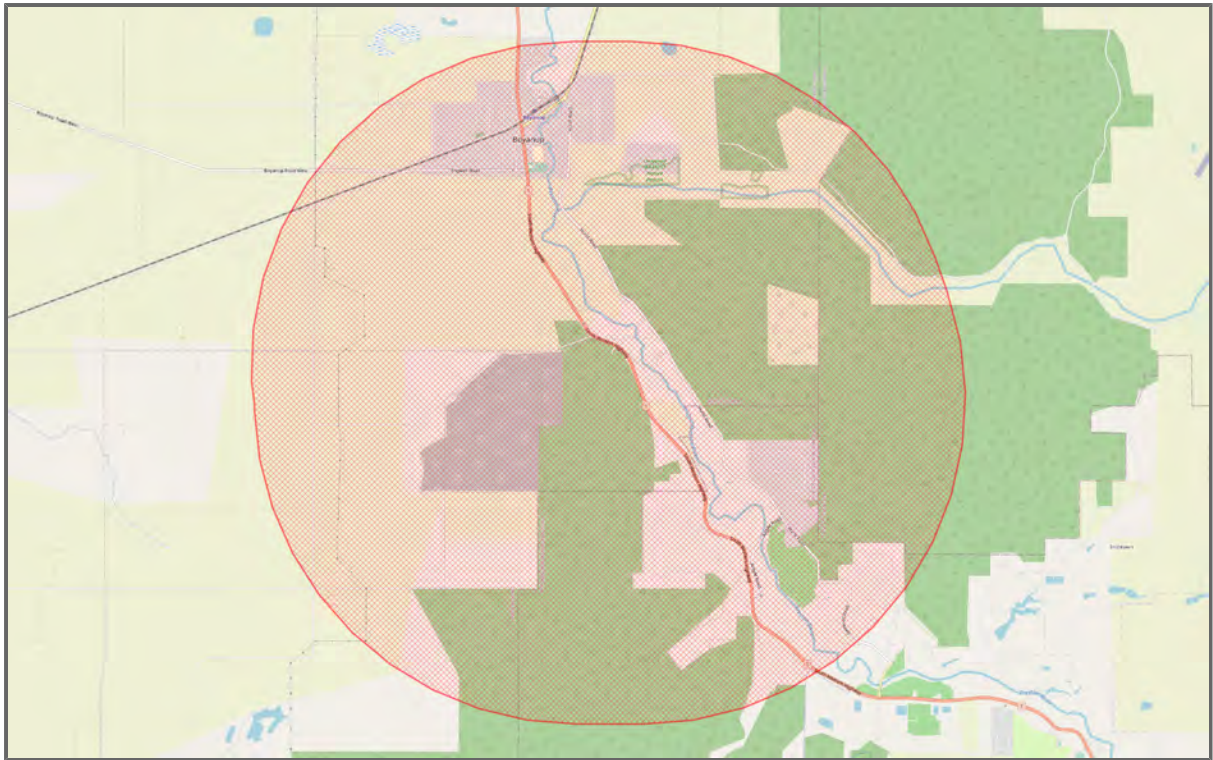


Figure 15 : Map of Lifeform - Bacteria

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

Family	Scientific Name	Common Name	No. Occurrences
--------	-----------------	-------------	-----------------

Lifeform - Birds

Number of Birds 112

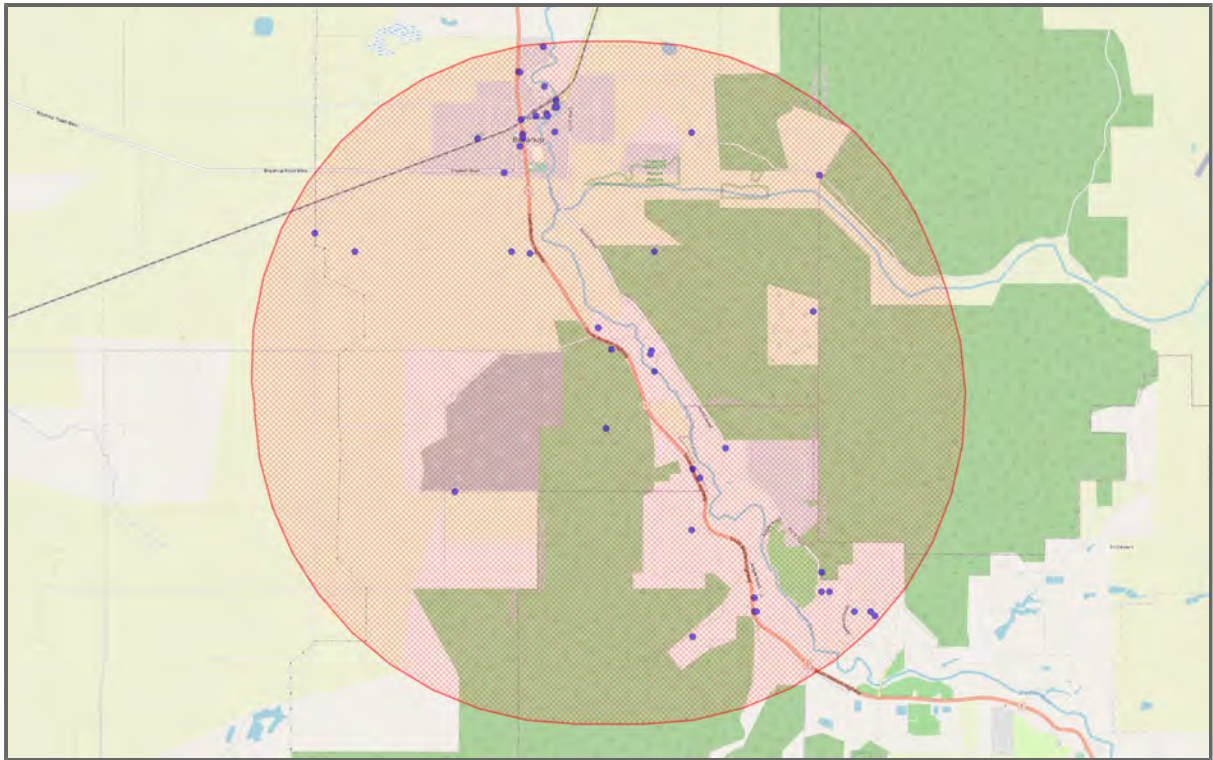


Figure 16 : Map of Lifeform - Birds

Table 16: Lifeform - Birds ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck	45
Zosteropidae	<i>Zosterops lateralis</i>	Silveryeye	45
Rhipiduridae	<i>Rhipidura (Rhipidura) albiscapa</i>	Grey Fantail	44
Meliphagidae	<i>Phylidonyris (Meliornis) novaehollandiae</i>	New Holland Honeyeater	40
Corvidae	<i>Corvus coronoides</i>	Australian Raven	36
Artamidae	<i>Gymnorhina tibicen</i>	Australian Magpie	35
Meliphagidae	<i>Anthochaera (Anthochaera) carunculata</i>	Red Wattlebird	33
Meliphagidae	<i>Lichmera (Lichmera) indistincta</i>	Brown Honeyeater	29
Anatidae	<i>Anas (Anas) superciliosa</i>	Pacific Black Duck	27
Rhipiduridae	<i>Rhipidura (Sauloprocta) leucophrys</i>	Willie Wagtail	27
Acanthizidae	<i>Gerygone fusca</i>	Western Gerygone	23
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah	21
Maluridae	<i>Malurus (Malurus) splendens</i>	Splendid Fairy-wren	21
Alcedinidae	<i>Dacelo (Dacelo) novaeguineae</i>	Laughing Kookaburra	19
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	18
Psittacidae	<i>Purpureicephalus spurius</i>	Red-capped Parrot	18
Acanthizidae	<i>Acanthiza (Geobasileus) chrysorrhoa</i>	Yellow-rumped Thornbill	17
Cacatuidae	<i>Calyptorhynchus (Calyptorhynchus) banksii</i>	Red-tailed Black Cockatoo	17
Rallidae	<i>Porphyrio (Porphyrio) porphyrio</i>	Purple Swamphen	17
Threskiornithidae	<i>Threskiornis moluccus</i>	Australian White Ibis	17
Columbidae	<i>Phaps (Phaps) chalcoptera</i>	Common Bronzewing	16
Anatidae	<i>Chenonetta jubata</i>	Australian Wood Duck	15
Pardalotidae	<i>Pardalotus (Pardalotinus) striatus</i>	Striated Pardalote	15
Campephagidae	<i>Coracina (Coracina) novaehollandiae</i>	Black-faced Cuckoo-shrike	14
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	13

Pachycephalidae	Pachycephala (Alisterornis) rufiventris	Rufous Whistler	13
Meliphagidae	Acanthorhynchus superciliosus	Western Spinebill	12
Acanthizidae	Acanthiza (Acanthiza) apicalis	Red-rumped Tit	11
Psittacidae	Platycercus (Violania) icterotis	Western Rosella	10
Hirundinidae	Hirundo (Hirundo) neoxena	Welcome Swallow	9
Rallidae	Fulica atra	Eurasian Coot	8
Phalacrocoracidae	Microcarbo melanoleucos	Little Pied Cormorant	8
Petroicidae	Petroica (Petroica) boodang	Scarlet Robin	8
Artamidae	Cracticus torquatus	Grey Butcherbird	7
Pachycephalidae	Pachycephala (Pachycephala) pectoralis fuliginosa	South Australian Golden Whistler	7
Podicipedidae	Tachybaptus novaehollandiae	Australasian Grebe	7
Alcedinidae	Todiramphus (Todiramphus) sanctus	Sacred Kingfisher	7
Anatidae	Anas gracilis	Grey Teal	6
Meropidae	Merops (Merops) ornatus	Rainbow Bee-eater	6
Threskiornithidae	Threskiornis spinicollis	Straw-necked Ibis	6
Psittacidae	Neophema (Neonanodes) elegans	Elegant Parrot	5
Hirundinidae	Petrochelidon (Hylochelidon) nigricans	Tree Martin	5
Psittacidae	Polytelis anthopeplus	Regent Parrot	5
Acanthizidae	Sericornis (Sericornis) frontalis maculatus	South-western Spotted Scrubwren	5
Cacatuidae	Zanda baudinii	Long-billed Black-cockatoo	5
Anatidae	Aythya (Nyroca) australis	Hardhead	4
Anatidae	Biziura lobata	Musk Duck	4
Cacatuidae	Calyptorhynchus		4
Cuculidae	Chalcites		4
Anatidae	Cygnus atratus	Black Swan	4
Petroicidae	Eopsaltria		4
Maluridae	Malurus (Leggeornis) elegans	Red-winged Fairy-wren	4
Meliphagidae	Melithreptus (Melithreptus) chloropsis	Gilbert's Honeyeater	4
Pardalotidae	Pardalotus (Pardalotus) punctatus	Spotted Pardalote	4
Estrildidae	Stagonopleura (Zonaeginthus) oculata	Red-eared Firetail	4
Artamidae	Strepera (Neostrepera) versicolor	Grey Currawong	4
Anatidae	Tadorna (Casarca) tadornoides	Australian Shelduck	4
Acrocephalidae	Acrocephalus (Acrocephalus) australis	Australian Reed Warbler	3
Accipitridae	Aquila (Uroaetus) audax	Wedge-tailed Eagle	3
Maluridae	Malurus		3
Psittacidae	Parvipsitta porphyrocephala	Purple-crowned Lorikeet	3
Acanthizidae	Smicromnis brevirostris	Weebill	3
Columbidae	Spilopelia senegalensis	Laughing Turtle-dove	3
Acanthizidae	Acanthiza (Geobasilus) inornata	Western Thornbill	2
Accipitridae	Accipiter (Leucospiza) fasciatus	Brown Goshawk	2
Aegothelidae	Aegotheles (Aegotheles) cristatus cristatus	Mainland Australian Owllet-nightjar	2
Meliphagidae	Anthochaera (Anellobia) lunulata	Western Wattlebird	2
Ardeidae	Ardea alba modesta	Great Egret	2
Cuculidae	Cacomantis (Vidgenia) flabelliformis	Fan-tailed Cuckoo	2
Cuculidae	Chalcites lucidus	Shining Bronze-cuckoo	2
Artamidae	Cracticus nigrogularis	Pied Butcherbird	2
Charadriidae	Elseornis melanops	Black-fronted Dotterel	2
Petroicidae	Eopsaltria (Eopsaltria) griseogularis	Western Yellow Robin	2
Falconidae	Falco (Tinnunculus) cenchroides	Nankeen Kestrel	2
Rallidae	Gallinula (Gallinula) tenebrosa	Dusky Moorhen	2
Meliphagidae	Gavicalis virescens	Singing Honeyeater	2
Strigidae	Ninox (Ninox) novaeseelandiae	Southern Boobook	2
Pachycephalidae	Pachycephala (Pachycephala) pectoralis	Golden Whistler	2
Petroicidae	Petroica (Petroica) goodenovii	Red-capped Robin	2
Meliphagidae	Phylidonyris (Meliornis) niger	White-cheeked Honeyeater	2
Threskiornithidae	Platalea (Platibis) flavipes	Yellow-billed Spoonbill	2

Podicipedidae	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe	2
Anatidae	<i>Spatula rhynchotis</i>	Australasian Shoveler	2
Turdidae	<i>Turdus merula</i>	Eurasian Blackbird	2
AVES		Birds	1
Accipitridae	<i>Accipiter (Paraspizias) cirrocephalus</i>	Collared Sparrowhawk	1
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	1
Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian Darter	1
Artamidae	<i>Artamus (Angroyan) cyanopterus</i>	Dusky Woodswallow	1
Cacatuidae	<i>Cacatua</i>		1
Charadriidae	<i>Charadrius (Charadrius) ruficapillus</i>	Red-capped Plover	1
Locustellidae	<i>Cincloramphus (Cincloramphus) cruralis</i>	Brown Songlark	1
Pachycephalidae	<i>Colluricincla (Colluricincla) harmonica</i>	Grey Shrike-thrush	1
Artamidae	<i>Cracticus</i>		1
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	1
Falconidae	<i>Falco (Hierofalco) peregrinus</i>	Peregrine Falcon	1
Accipitridae	<i>Haliastur sphenurus</i>	Whistling Kite	1
Accipitridae	<i>Hieraaetus (Hieraaetus) morphnoides</i>	Little Eagle	1
Campephagidae	<i>Lalage</i>		1
Accipitridae	<i>Lophoictinia isura</i>	Square-tailed Kite	1
Monarchidae	MONARCHIDAE	Western Lesser Sundas Island Monarch	1
Maluridae	<i>Malurus (Leggeornis) lamberti</i>	Variiegated Fairy-wren	1
Meliphagidae	<i>Melithreptus (Melithreptus) lunatus</i>	White-naped Honeyeater	1
Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen Night-heron	1
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	1
Pardalotidae	<i>Pardalotus (Pardalotus) punctatus xanthopyge</i>	Yellow-rumped Pardalote	1
Phalacrocoracidae	<i>Phalacrocorax (Phalacrocorax) sulcirostris</i>	Little Black Cormorant	1
Phalacrocoracidae	<i>Phalacrocorax (Phalacrocorax) varius</i>	Pied Cormorant	1
Acanthizidae	<i>Sericornis (Sericornis) frontalis</i>	White-browed Scrubwren	1
Columbidae	<i>Streptopelia</i>		1
Turnicidae	<i>Turnix (Austroturnix) varius</i>	Painted Button-quail	1
Cacatuidae	<i>Zanda</i>		1

Lifeform - Bryophytes

Number of Bryophytes 2

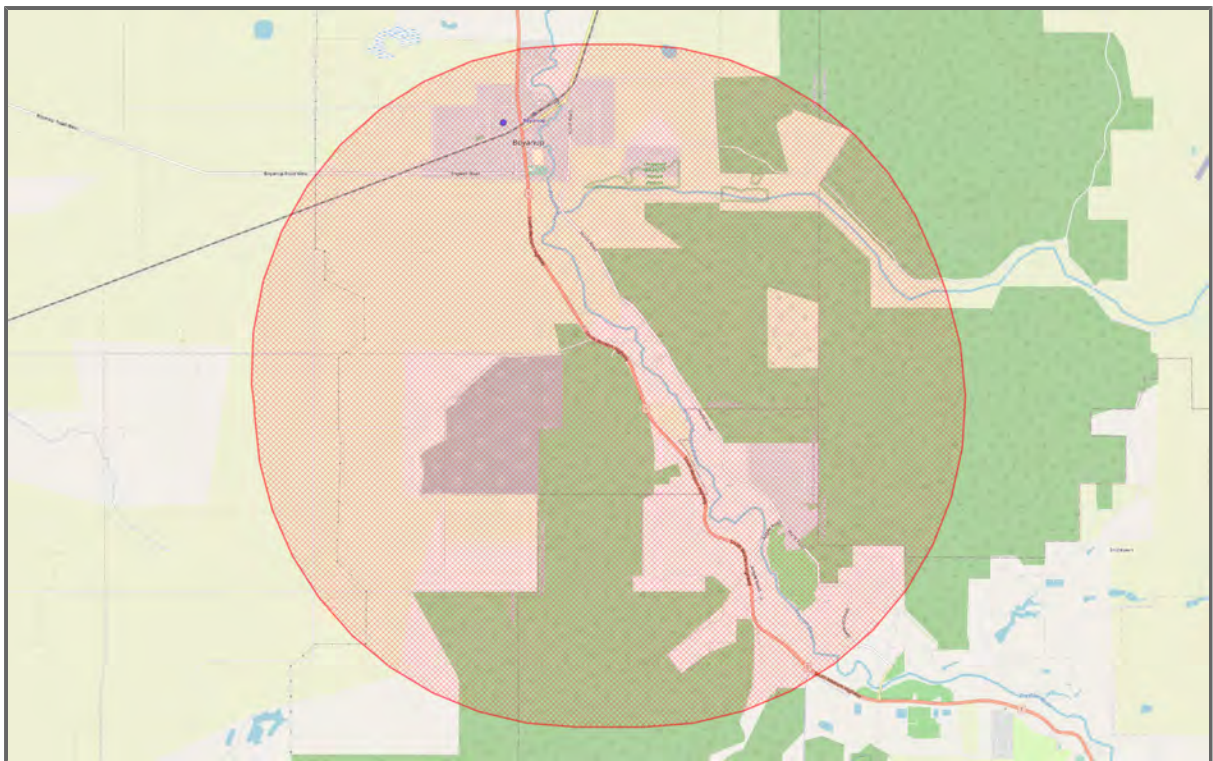


Figure 17 : Map of Lifeform - Bryophytes

Table 17: Lifeform - Bryophytes ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Leucobryaceae	Campylopus introflexus	Swan-neck Moss	1
Racopilaceae	Racopilum cuspidigerum var. convolutaceum	Common Carpet-moss	1

Lifeform - Chromista

Number of Chromista 0

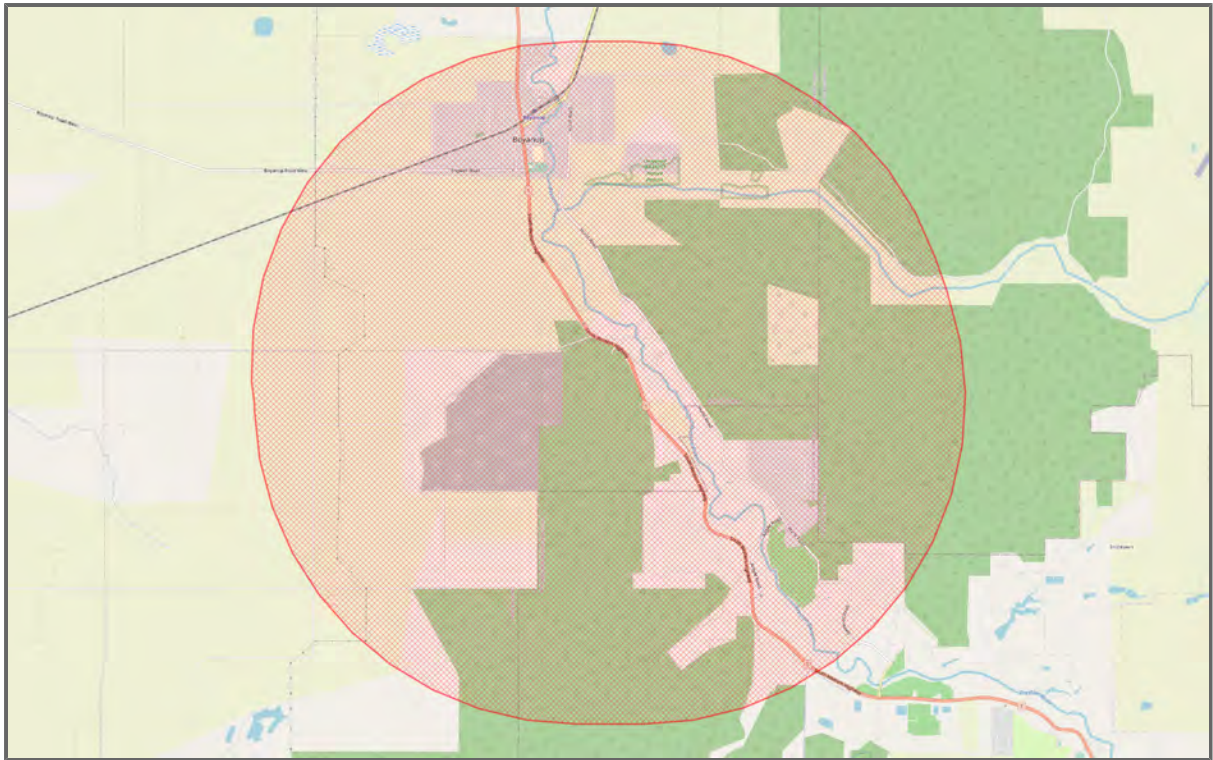


Figure 18 : Map of Lifeform - Chromista

Table 18: Lifeform - Chromista ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
--------	-----------------	-------------	-----------------

Lifeform - Crustaceans

Number of Crustaceans 2

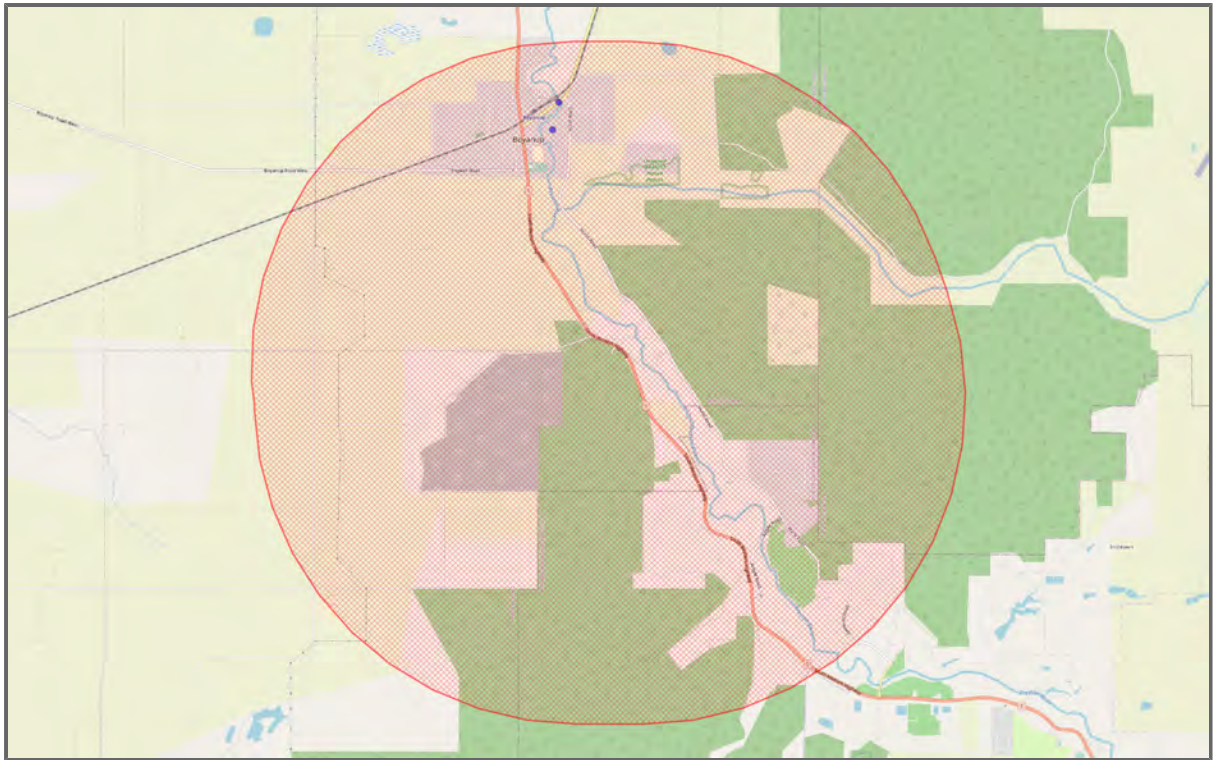


Figure 19 : Map of Lifeform - Crustaceans

Table 19: Lifeform - Crustaceans ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Parastacidae	<i>Cherax cainii</i>	Marron	1
Neoniphargidae	<i>Wesniphargus</i>		1

Lifeform - Dicots

Number of Dicots 323

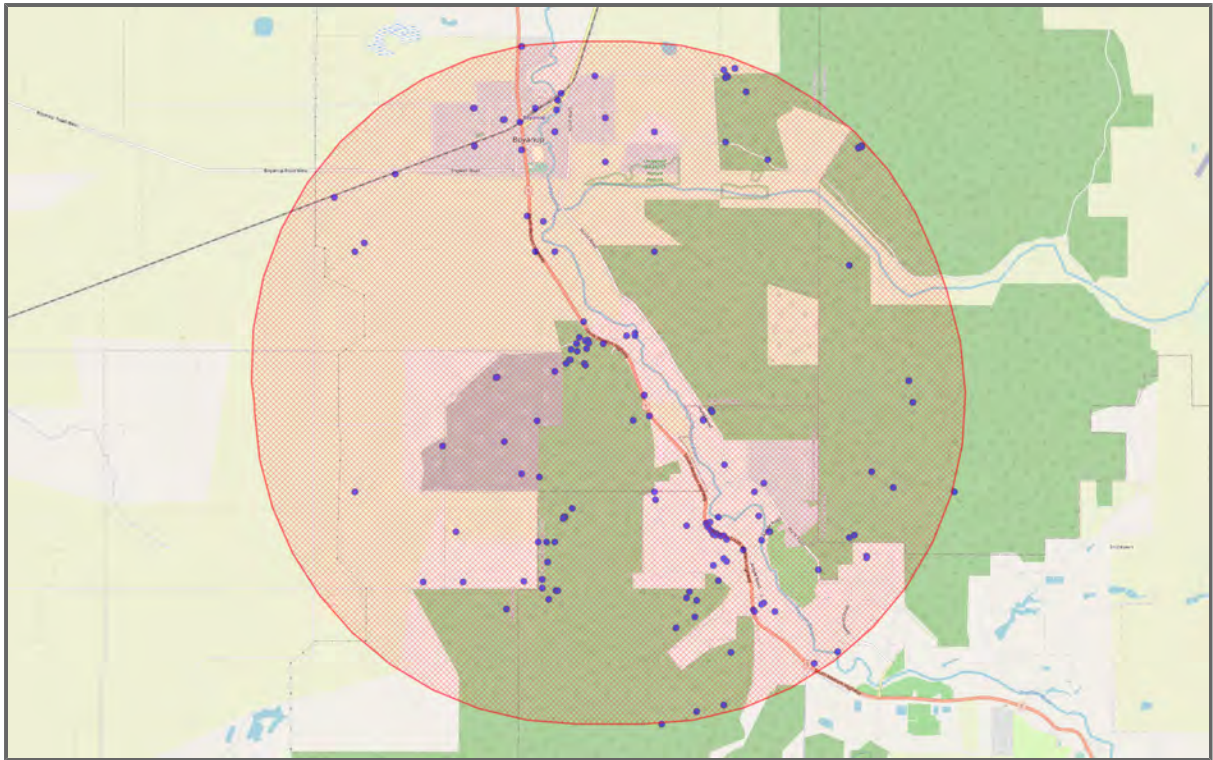


Figure 20 : Map of Lifeform - Dicots

Table 20: Lifeform - Dicots ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Fabaceae	<i>Kennedia coccinea</i>	Coral Vine	18
Dilleniaceae	<i>Hibbertia hypericoides</i>	Yellow Buttercups	15
Myrtaceae	<i>Hypocalymma robustum</i>	Swan River Myrtle	15
Proteaceae	<i>Petrophile linearis</i>	Pixie Mops	15
Rutaceae	<i>Boronia dichotoma</i>		14
Fabaceae	<i>Acacia extensa</i>	Wiry Wattle	13
Asteraceae	<i>Hypochaeris glabra</i>	Smooth Cat's Ear	13
Fabaceae	<i>Kennedia carinata</i>		13
Apiaceae	<i>Xanthosia huegelii</i>	Hairy Xanthosia	13
Fabaceae	<i>Bossiaea eriocarpa</i>	Common Brown Pea	12
Dilleniaceae	<i>Hibbertia racemosa</i>	Stalked Guinea Flower	12
Ericaceae	<i>Leucopogon conostephioides</i>		12
Proteaceae	<i>Synaphea odocoileops</i>		12
Proteaceae	<i>Xylomelum occidentale</i>	Woody Pear	12
Proteaceae	<i>Banksia attenuata</i>	Coast Banksia	11
Myrtaceae	<i>Melaleuca thymoides</i>		11
Rutaceae	<i>Philotheca spicata</i>	Pepper And Salt	11
Proteaceae	<i>Stirlingia latifolia</i>	Blueboy	11
Araliaceae	<i>Trachymene pilosa</i>	Dwarf Trachymene	11
Proteaceae	<i>Adenanthos meisneri</i>		10
Loranthaceae	<i>Nuytsia floribunda</i>	Western Australian Christmas Tree	10
Rutaceae	<i>Boronia spathulata</i>	Boronia	9
Myrtaceae	<i>Calytrix flavescens</i>	Summer Starflower	9
Fabaceae	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea	9
Dilleniaceae	<i>Hibbertia vaginata</i>		9

Thymelaeaceae	<i>Pimelea rosea</i> subsp. <i>rosea</i>	Rose Banjine	9
Rosaceae	<i>Pyrus communis</i>	Pear	9
Fabaceae	<i>Acacia pulchella</i>	Prickly Moses	8
Casuarinaceae	<i>Allocasuarina humilis</i>	Dwarf Sheoak	8
Ericaceae	<i>Andersonia caerulea</i>	Foxtails	8
Proteaceae	<i>Banksia dallaneyi</i>		8
Droseraceae	<i>Drosera collina</i>		8
Droseraceae	<i>Drosera erythrorhiza</i>	Red Ink Sundew	8
Dilleniaceae	<i>Hibbertia huegelii</i>		8
Goodeniaceae	<i>Lechenaultia biloba</i>	Blue Leschenaultia	8
Stylidiaceae	<i>Levenhookia pusilla</i>	Tiny Stylewort	8
Proteaceae	<i>Adenanthos barbiger</i>	Hairy Glandflower	7
Proteaceae	<i>Banksia grandis</i>	Giant Banksia	7
Goodeniaceae	<i>Dampiera linearis</i>	Wedge-leaved Dampiera	7
Droseraceae	<i>Drosera drummondii</i>		7
Haloragaceae	<i>Gonocarpus paniculatus</i>		7
Fabaceae	<i>Hovea trisperma</i> var. <i>grandiflora</i>		7
Ericaceae	<i>Lysinema ciliatum</i>	Curry Flower	7
Apiaceae	<i>Platysace tenuissima</i>		7
Stylidiaceae	<i>Stylidium piliferum</i>	Common Butterfly Triggerplant	7
Fabaceae	<i>Acacia stenoptera</i>	Narrow-winged Wattle	6
Lauraceae	<i>Cassytha glabella</i>	Slender Dodder-laurel	6
Lauraceae	<i>Cassytha racemosa</i>	Dodder Laurel	6
Dilleniaceae	<i>Hibbertia cunninghamii</i>		6
Pittosporaceae	<i>Marianthus tenuis</i>		6
Loganiaceae	<i>Phyllangium paradoxum</i>	Wiry Mitrewort	6
Stylidiaceae	<i>Stylidium brunonianum</i>	Pink Fountain Triggerplant	6
Myrtaceae	<i>Taxandria linearifolia</i>		6
Asteraceae	<i>Ursinia anthemoides</i>	Ursinia	6
Apiaceae	<i>Xanthosia ciliata</i>		6
Fabaceae	<i>Acacia pulchella</i> var. <i>pulchella</i>	Prickly Moses	5
Myrtaceae	<i>Corymbia calophylla</i>	Marri	5
Fabaceae	<i>Daviesia physodes</i>		5
Droseraceae	<i>Drosera marchantii</i>	Bridal Rainbow	5
Droseraceae	<i>Drosera pallida</i>	Pale Rainbow	5
Myrtaceae	<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	Jarrah	5
Fabaceae	<i>Gompholobium knightianum</i>	Knight's Wedge-pea	5
Fabaceae	<i>Hovea chorizemifolia</i>	Holly-leaved Hovea	5
Fabaceae	<i>Jacksonia horrida</i>		5
Asteraceae	<i>Lagenophora huegelii</i>	Coarse Bottle-daisy	5
Goodeniaceae	<i>Scaevola calliptera</i>	Royal Robe	5
Stylidiaceae	<i>Stylidium repens</i>	Matted Triggerplant	5
Fabaceae	<i>Acacia huegelii</i>	Huegel's Wattle	4
Fabaceae	<i>Acacia pulchella</i> var. <i>glaberrima</i>	Western Prickly Moses	4
Fabaceae	<i>Acacia urophylla</i>	Pointed Leaved Acacia	4
Ericaceae	<i>Astroloma ciliatum</i>	Candle Cranberry	4
Pittosporaceae	<i>Billardiera variifolia</i>		4
Ericaceae	<i>Conostephium pendulum</i>	Pearl Flower	4
Dilleniaceae	<i>Hibbertia diamesogenos</i>		4
Fabaceae	<i>Hovea trisperma</i> var. <i>trisperma</i>	Common Hovea	4
Fabaceae	<i>Hovea trisperma</i>	Common Hovea	4
Ericaceae	<i>Leucopogon capitellatus</i>		4
Asteraceae	<i>Millotia tenuifolia</i>	Soft Millotia	4
Rubiaceae	<i>Opercularia apiciflora</i>		4
Loganiaceae	<i>Orianthera serpyllifolia</i> subsp. <i>angustifolia</i>		4
Fabaceae	<i>Sphaerolobium scabriusculum</i>		4

Stylidiaceae	<i>Stylidium calcaratum</i>	Spurred Trigger-plant	4
Ericaceae	<i>Styphelia tenuiflora</i>	Common Pinheath	4
Proteaceae	<i>Synaphea</i> sp. Pinjarra Plain (A.S.George 17182)		4
Celastraceae	<i>Tripterococcus brunonis</i>	Winged Stackhousia	4
Fabaceae	<i>Acacia semitrullata</i>		3
Fabaceae	<i>Acacia willdenowiana</i>	Grass Wattle	3
Asteraceae	<i>Arctotheca calendula</i>	Cape Weed	3
Fabaceae	<i>Bossiaea angustifolia</i>		3
Fabaceae	<i>Bossiaea ornata</i>	Broad-leaved Brown Pea	3
Myrtaceae	<i>Calothamnus sanguineus</i>	Silky-leaved Bloodflower	3
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>	Dense Crassula	3
Fabaceae	<i>Daviesia rhombifolia</i>		3
Fabaceae	<i>Dillwynia uncinata</i>	Silky Parrot-pea	3
Droseraceae	<i>Drosera menziesii</i>	Pink Rainbow	3
Myrtaceae	<i>Eremaea pauciflora</i> var. <i>pauciflora</i>		3
Fabaceae	<i>Gastrolobium praemorsum</i>		3
Fabaceae	<i>Gompholobium confertum</i>		3
Fabaceae	<i>Gompholobium marginatum</i>		3
Fabaceae	<i>Gompholobium preissii</i>		3
Goodeniaceae	<i>Goodenia eatoniana</i>		3
Proteaceae	<i>Grevillea diversifolia</i> subsp. <i>diversifolia</i>		3
Proteaceae	<i>Hakea lissocarpha</i>	Honey Bush	3
Dilleniaceae	<i>Hibbertia commutata</i>		3
Proteaceae	<i>Isopogon sphaerocephalus</i>	Drumstick Isopogon	3
Fabaceae	<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	Granny Bonnets	3
Goodeniaceae	<i>Lechenaultia floribunda</i>	Free-flowering Leschenaultia	3
Santalaceae	<i>Leptomeria cunninghamii</i>		3
Stylidiaceae	<i>Levenhookia stipitata</i>	Common Stylewort	3
Campanulaceae	<i>Lobelia rhytidosperra</i>	Wrinkle-seeded Lobelia	3
Campanulaceae	<i>Lobelia tenuior</i>	Slender Lobelia	3
Euphorbiaceae	<i>Monotaxis grandiflora</i>	Diamond Of The Desert	3
Oxalidaceae	<i>Oxalis glabra</i>	Finger-leaf Wood-sorrel	3
Fabaceae	<i>Pultenaea skinneri</i>	Skinner's Pea	3
Asteraceae	<i>Quinetia urvillei</i>	Quinetia	3
Asteraceae	<i>Rhodanthe citrina</i>	Pale Immortelle	3
Stylidiaceae	<i>Stylidium carnosum</i>	Fleshy-leaved Triggerplant	3
Proteaceae	<i>Synaphea floribunda</i>		3
Fabaceae	<i>Acacia lateriticola</i>		2
Fabaceae	<i>Acacia preissiana</i>		2
Apiaceae	<i>Actinotus glomeratus</i>		2
Casuarinaceae	<i>Allocasuarina fraseriana</i>	Western Sheoak	2
Euphorbiaceae	<i>Amperea simulans</i>		2
Ericaceae	<i>Astroloma pallidum</i>	Kick Bush	2
Myrtaceae	<i>Babingtonia camphorosmae</i>		2
Proteaceae	<i>Conospermum flexuosum</i> subsp. <i>laevigatum</i>		2
Myrtaceae	<i>Corymbia haematoxylon</i>	Mountain Marri	2
Asteraceae	<i>Craspedia variabilis</i>	Common Billy-buttons	2
Fabaceae	<i>Daviesia decurrens</i> subsp. <i>decurrens</i>		2
Droseraceae	<i>Drosera pulchella</i>	Pretty Sundew	2
Chenopodiaceae	<i>Dysphania pumilio</i>	Small Crumbweed	2
Fabaceae	<i>Eutaxia virgata</i>		2
Proteaceae	<i>Franklandia triaristata</i>	Lanoline Bush	2
Fabaceae	<i>Genista linifolia</i>	Flax-leaf Broom	2
Apocynaceae	<i>Gomphocarpus fruticosus</i>	Narrow-leaved Cotton Bush	2
Fabaceae	<i>Gompholobium polymorphum</i>		2
Proteaceae	<i>Grevillea quercifolia</i>	Oak-leaf Grevillea	2

Proteaceae	Grevillea		2
Proteaceae	Hakea amplexicaulis	Prickly Hakea	2
Lamiaceae	Hemiantra pungens	Snakebush	2
Dilleniaceae	Hibbertia glomerata		2
Violaceae	Hybanthus floribundus	Shrub Spade Flower	2
Araliaceae	Hydrocotyle intertexta	Buttercup Pennywort	2
Myrtaceae	Hypocalymma angustifolium	White Myrtle	2
Campanulaceae	Isotoma hypocraeteriformis	Woodbridge Poison	2
Fabaceae	Jacksonia lehmannii		2
Fabaceae	Kennedia prostrata	Scarlet Runner	2
Myrtaceae	Kunzea rostrata		2
Fabaceae	Labichea punctata	Lance-leaved Cassia	2
Ericaceae	Leucopogon australis	Spike Beard-heath	2
Ericaceae	Leucopogon oxycedrus		2
Ericaceae	Leucopogon		2
Myrtaceae	Melaleuca trichophylla		2
Asteraceae	Millotia tenuifolia var. tenuifolia	Soft Millotia	2
Portulacaceae	Montia australasica	White Purslane	2
Oxalidaceae	Oxalis	Wood Sorrel	2
Apiaceae	Pentapeltis peltigera		2
Myrtaceae	Pericalymma ellipticum	Swamp Teatree	2
Proteaceae	Persoonia longifolia	Snottygobble	2
Phytolaccaceae	Phytolacca octandra	Red-ink Weed	2
Thymelaeaceae	Pimelea lanata		2
Thymelaeaceae	Pimelea rosea	Rose Banjine	2
Stylidiaceae	Stylidium amoenum var. amoenum		2
Stylidiaceae	Stylidium ciliatum	Golden Triggerplant	2
Stylidiaceae	Stylidium neurophyllum	Fan-leaved Triggerplant	2
Stylidiaceae	Stylidium pulchellum	Thumbelina Triggerplant	2
Stylidiaceae	Stylidium spathulatum	Creamy Triggerplant	2
Proteaceae	Synaphea		2
Elaeocarpaceae	Tetratheca hirsuta	Black-eyed Susan	2
Asteraceae	Trichocline spathulata	Native Gerbera	2
Goodeniaceae	Velleia trinervis		2
Apocynaceae	Vinca major	Blue Periwinkle	2
Fabaceae	Acacia alata	Winged Wattle	1
Fabaceae	Acacia browniana	Brown's Wattle	1
Fabaceae	Acacia drummondii	Drummond's Wattle	1
Fabaceae	Acacia flagelliformis		1
Fabaceae	Acacia mooreana		1
Fabaceae	Acacia nervosa	Rib Wattle	1
Fabaceae	Acacia obovata		1
Fabaceae	Acacia podalyriifolia	Mount Morgan Wattle	1
Fabaceae	Acacia spectabilis	Pilliga Wattle	1
Fabaceae	Acacia teretifolia		1
Fabaceae	Acacia varia var. varia		1
Myrtaceae	Actinodium cunninghamii	Swamp Daisy	1
Proteaceae	Adenanthos obovatus	Basket Flower	1
Violaceae	Afrohybanthus enneaspermus	Ladys Slipper	1
Myrtaceae	Agonis flexuosa var. flexuosa	Willow Myrtle	1
Casuarinaceae	Allocasuarina thuyoides	Horned Sheoak	1
Ericaceae	Andersonia		1
Fabaceae	Aotus cordifolia		1
Proteaceae	Banksia ilicifolia	Holly Leaved Banksia	1
Proteaceae	Banksia littoralis	Swamp Banksia	1
Proteaceae	Banksia sessilis		1

Pittosporaceae	Billardiera fraseri	Elegant Pronaya	1
Rutaceae	Boronia fastigiata	Bushy Boronia	1
Fabaceae	Bossiaea linophylla	Narrow-leaved Bossiaea	1
Fabaceae	Bossiaea pulchella		1
Fabaceae	Bossiaea rufa		1
Malvaceae	Brachychiton populneus	Kurrajong	1
Euphorbiaceae	Calycopeplus oligandrus		1
Myrtaceae	Calytrix tetragona	Grampians Fringe-myrtle	1
	Caryophyllales		1
Lauraceae	Cassytha racemosa f. racemosa		1
Caryophyllaceae	Cerastium glomeratum	Common Mouse-ear Chickweed	1
Fabaceae	Chorizema glycinifolium		1
Fabaceae	Chorizema		1
Proteaceae	Conospermum capitatum subsp. glabratum		1
Proteaceae	Conospermum capitatum		1
Myrtaceae	Corymbia maculata	Spotted Gum	1
Asteraceae	Cotula coronopifolia	Water Buttons	1
Convolvulaceae	Cuscuta suaveolens	Fringed Dodder	1
Apiaceae	Daucus glochidiatus	Native Carrot	1
Fabaceae	Daviesia divaricata subsp. divaricata		1
Fabaceae	Daviesia incrassata subsp. incrassata		1
Fabaceae	Daviesia inflata		1
Fabaceae	Dillwynia	Egg And Bacon Peas	1
Asteraceae	Dimorphotheca ecklonis	Cape Daisy	1
Rutaceae	Diplolaena drummondii	Lesser Diplolaena	1
Droseraceae	Drosera glanduligera	Scarlet Sundew	1
Droseraceae	Drosera huegelii	Bold Sundew	1
Droseraceae	Drosera macrantha subsp. macrantha		1
Droseraceae	Drosera paleacea	Dwarf Sundew	1
Droseraceae	Drosera rosulata		1
Droseraceae	Drosera stolonifera	Leafy Sundew	1
Ericaceae	Ericaceae	Austral Heaths	1
Geraniaceae	Erodium botrys	Big Herons-bill	1
Convolvulaceae	Evolvulus alsinoides var. sericeus	Tropical Speedwell	1
Fabaceae	Gastrolobium bilobum	Heart-leaved Poison	1
Lamiaceae	Genus		1
Haloragaceae	Glischrocaryon angustifolium	Golden Pennants	1
Asteraceae	Gnephosis angianthoides		1
Fabaceae	Gompholobium capitatum	Yellow Pea	1
Fabaceae	Gompholobium shuttleworthii		1
Proteaceae	Grevillea bipinnatifida	Fuchsia Grevillea	1
Proteaceae	Grevillea dryandri subsp. dryandri	Dryander's Grevillea	1
Proteaceae	Grevillea trifida		1
Proteaceae	Grevillea vestita subsp. vestita		1
Proteaceae	Hakea ruscifolia	Candle Hakea	1
Proteaceae	Hakea	Needle Bushes	1
Lamiaceae	Hemiphora bartlingii		1
Dilleniaceae	Hibbertia acerosa	Needle Leaved Guinea Flower	1
Dilleniaceae	Hibbertia hypericoides subsp. hypericoides	Yellow Buttercups	1
Dilleniaceae	Hibbertia subvaginata		1
Asteraceae	Hyalosperma simplex subsp. simplex		1
Violaceae	Hybanthus		1
Myrtaceae	Hypocalymma ericifolium		1
Fabaceae	Isotropis cuneifolia	Granny Bonnets	1
Fabaceae	Jacksonia		1
Fabaceae	Kennedia coccinea subsp. coccinea		1

Myrtaceae	<i>Kunzea glabrescens</i>	Spearwood	1
Myrtaceae	<i>Leptospermum sericatum</i>		1
Ericaceae	<i>Leucopogon cordatus</i>		1
Ericaceae	<i>Leucopogon glabellus</i>		1
Ericaceae	<i>Leucopogon polymorphus</i>		1
Ericaceae	<i>Leucopogon pulchellus</i>	Beard Heath	1
Ericaceae	<i>Leucopogon reflexus</i>		1
Linaceae	<i>Linum trigynum</i>	French Flax	1
Fabaceae	<i>Lotus angustissimus</i>	Slender Bird's-foot Trefoil	1
Pittosporaceae	<i>Marianthus granulatus</i>		1
Asteraceae	<i>Mauranthemum paludosum</i>	Ox-eye Daisy	1
Myrtaceae	<i>Melaleuca incana</i> subsp. <i>incana</i>	Grey Honey-myrtle	1
Myrtaceae	<i>Melaleuca lateritia</i>	Robin Redbreast Bush	1
Myrtaceae	<i>Melaleuca parviceps</i>		1
Asteraceae	<i>Millotia myosotidifolia</i>	Broad-leaf Millotia	1
Fabaceae	<i>Mirbelia dilatata</i>	Holly-leaved Mirbelia	1
Caryophyllaceae	<i>Moenchia erecta</i>	Erect Chickweed	1
Asteraceae	<i>Myriocephalus helichrysoides</i>		1
Haloragaceae	<i>Myriophyllum</i>	Water Milfoil	1
Menyanthaceae	<i>Ornduffia submersa</i>		1
Orobanchaceae	<i>Orobanche minor</i>	Lesser Broomrape	1
Oxalidaceae	<i>Oxalis perennans</i>	Native Sorrel	1
Myrtaceae	<i>Paragonis grandiflora</i>		1
Fabaceae	<i>Paraserianthes lophantha</i> subsp. <i>lophantha</i>	Crested Wattle	1
Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>		1
Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>floridum</i>		1
Myrtaceae	<i>Pericalymma spongiocaulum</i>		1
Polygonaceae	<i>Persicaria prostrata</i>	Creeping Knotweed	1
Proteaceae	<i>Persoonia saccata</i>	Snottygobble	1
Caryophyllaceae	<i>Petrorhagia dubia</i>	Velvet Pink	1
Thymelaeaceae	<i>Pimelea imbricata</i> var. <i>piligera</i>		1
Thymelaeaceae	<i>Pimelea suaveolens</i>	Scented Banjine	1
Apiaceae	<i>Platysace filiformis</i>		1
Elaeocarpaceae	<i>Platytheca galioides</i>		1
Asteraceae	<i>Podotheca angustifolia</i>	Sticky Long-heads	1
Phyllanthaceae	<i>Poranthera microphylla</i>	Small Poranthera	1
Rosaceae	<i>Prunus cerasifera</i>	Purple-leaf Cherry-plum	1
Rosaceae	<i>Prunus persica</i>	Peach	1
Asteraceae	<i>Pseudognaphalium</i>		1
Fabaceae	<i>Pultenaea radiata</i>		1
Asteraceae	<i>Rhodanthe propinqua</i>		1
Asteraceae	<i>Rhodanthe pyrethrum</i>		1
Rubiaceae	<i>Richardia brasiliensis</i>	White Eye	1
Euphorbiaceae	<i>Ricinus communis</i>	Castor Oil Plant	1
Goodeniaceae	<i>Scaevola phlebopetala</i>	Velvet Fanflower	1
Apiaceae	<i>Schoenolaena juncea</i>		1
Asteraceae	<i>Senecio diaschides</i>	Shingle Fireweed	1
Asteraceae	<i>Siloxerus humifusus</i>	Procumbent Siloxerus	1
Brassicaceae	<i>Sisymbrium officinale</i>	Hedge Mustard	1
Fabaceae	<i>Sphaerolobium macranthum</i>		1
Fabaceae	<i>Sphaerolobium medium</i>		1
Picrodendraceae	<i>Stachystemon virgatus</i>		1
Celastraceae	<i>Stackhousia monogyna</i>	Creamy Candles	1
Stylidiaceae	<i>Stylidium amoenum</i>	Lovely Triggerplant	1
Stylidiaceae	<i>Stylidium lineatum</i>	Sunny Triggerplant	1
Stylidiaceae	<i>Stylidium petiolare</i>	Horn Triggerplant	1

Stylidiaceae	<i>Stylidium schoenoides</i>	Cow Kicks	1
Stylidiaceae	<i>Stylidium utricularioides</i>	Pink Fan Triggerplant	1
Stylidiaceae	<i>Stylidium</i>	Trigger-plants	1
Proteaceae	<i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>		1
Proteaceae	<i>Synaphea</i> sp. <i>Serpentine</i> (G.R.Brand 103)		1
Myrtaceae	<i>Taxandria parviceps</i>	Myrtle	1
Elaeocarpaceae	<i>Tetratheca hispidissima</i>		1
Malvaceae	<i>Thomasia macrocalyx</i>		1
Asteraceae	<i>Tolpis barbata</i>	Yellow Hawkweed	1
Hydatellaceae	<i>Trithuria australis</i>		1
Hydatellaceae	<i>Trithuria bibracteata</i>		1
Myrtaceae	<i>Verticordia acerosa</i> var. <i>preissii</i>		1
Myrtaceae	<i>Verticordia densiflora</i>	Compacted Featherflower	1
Myrtaceae	<i>Verticordia drummondii</i>	Drummond's Featherflower	1
Myrtaceae	<i>Verticordia plumosa</i> var. <i>plumosa</i>		1
Fabaceae	<i>Vicia sativa</i> subsp. <i>nigra</i>	Narrow-leaved Vetch	1
Fabaceae	<i>Vicia sativa</i>	Common Vetch	1
Apiaceae	<i>Xanthosia candida</i>		1

Lifeform - FernsAndAllies

Number of FernsAndAllies 0

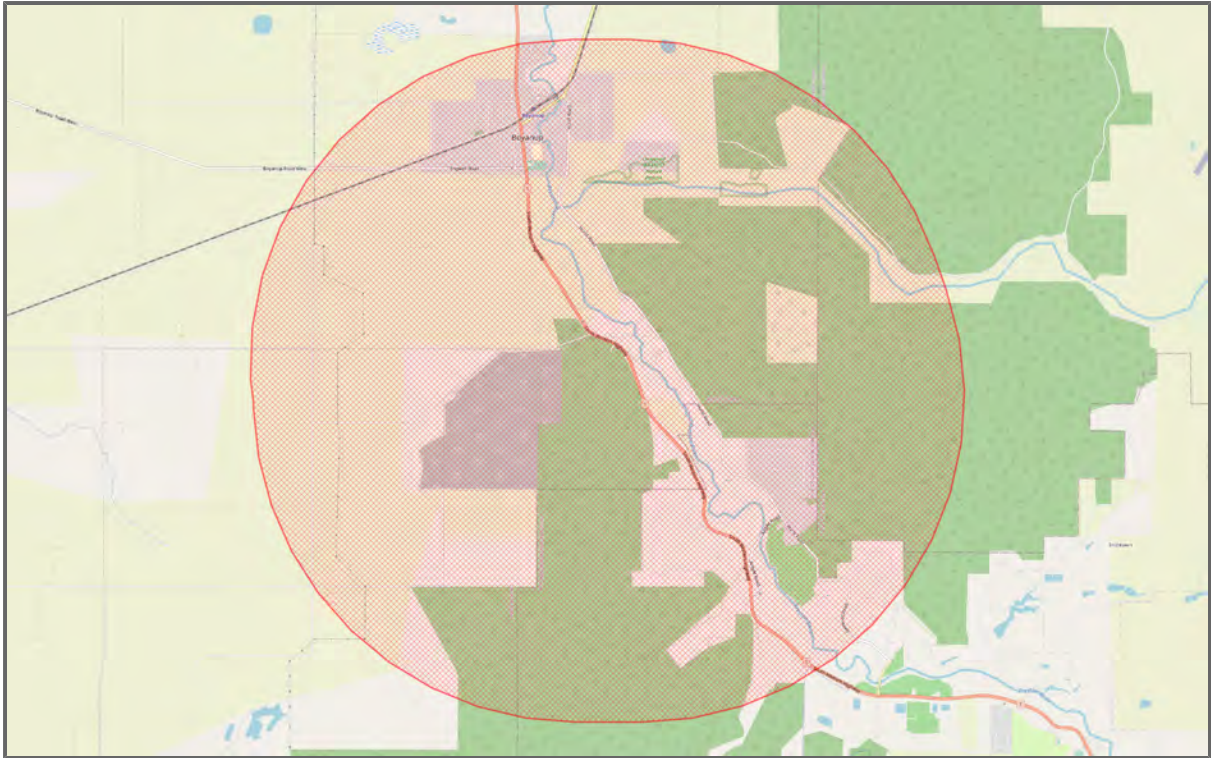


Figure 21 : Map of Lifeform - FernsAndAllies

Table 21: Lifeform - FernsAndAllies [\(Link to full list\)](#)

Family	Scientific Name	Common Name	No. Occurrences
--------	-----------------	-------------	-----------------

Lifeform - Fishes

Number of Fishes 8

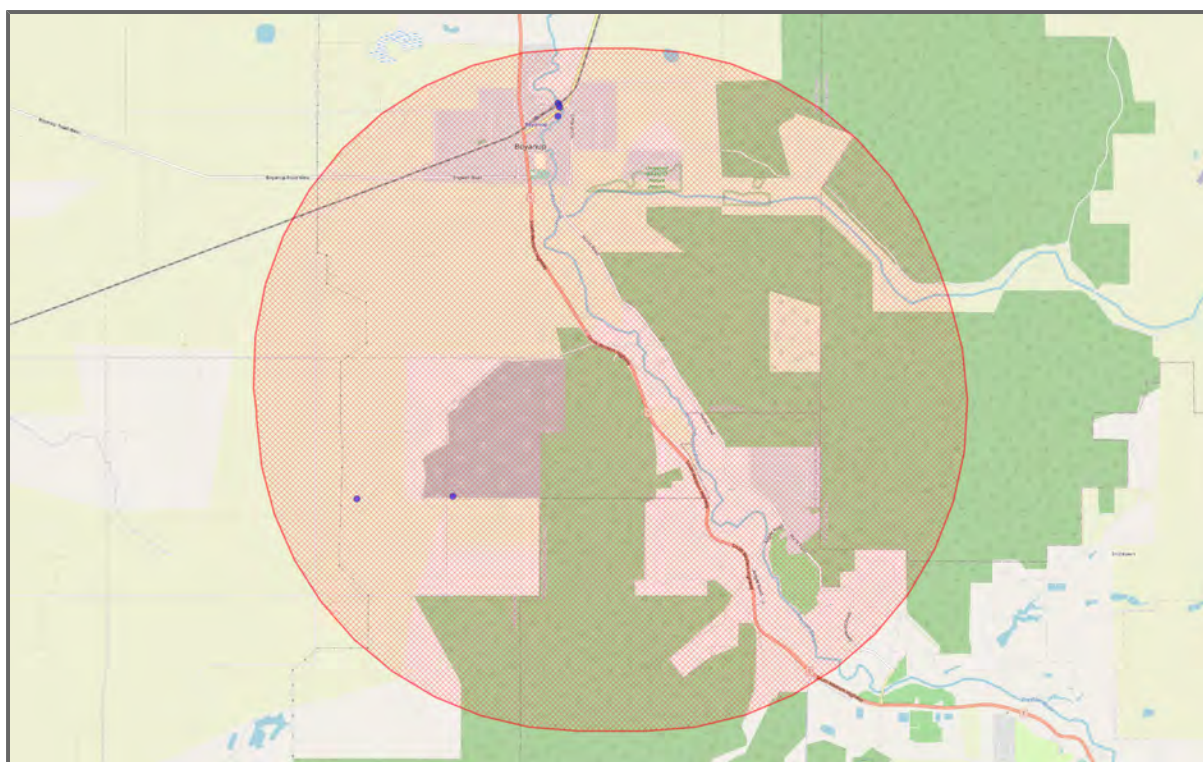


Figure 22 : Map of Lifeform - Fishes

Table 22: Lifeform - Fishes ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Percichthyidae	<i>Nannoperca vittata</i>	Western Pygmy Perch	8
Gobiidae	<i>Pseudogobius olorum</i>	Bluespot Goby	6
Percichthyidae	<i>Bostockia porosa</i>	Nightfish	3
Galaxiidae	<i>Galaxias occidentalis</i>	Western Galaxias	2
Gobiidae	<i>Favonigobius lateralis</i>	Southern Longfin Goby	1
Poeciliidae	<i>Gambusia holbrooki</i>	Eastern Gambusia	1
Muraenidae	<i>Gymnothorax woodwardi</i>	Woodward's Moray	1
Plotosidae	<i>Tandanus bostocki</i>	Freshwater Cobbler	1

Lifeform - Fungi

Number of Fungi 52

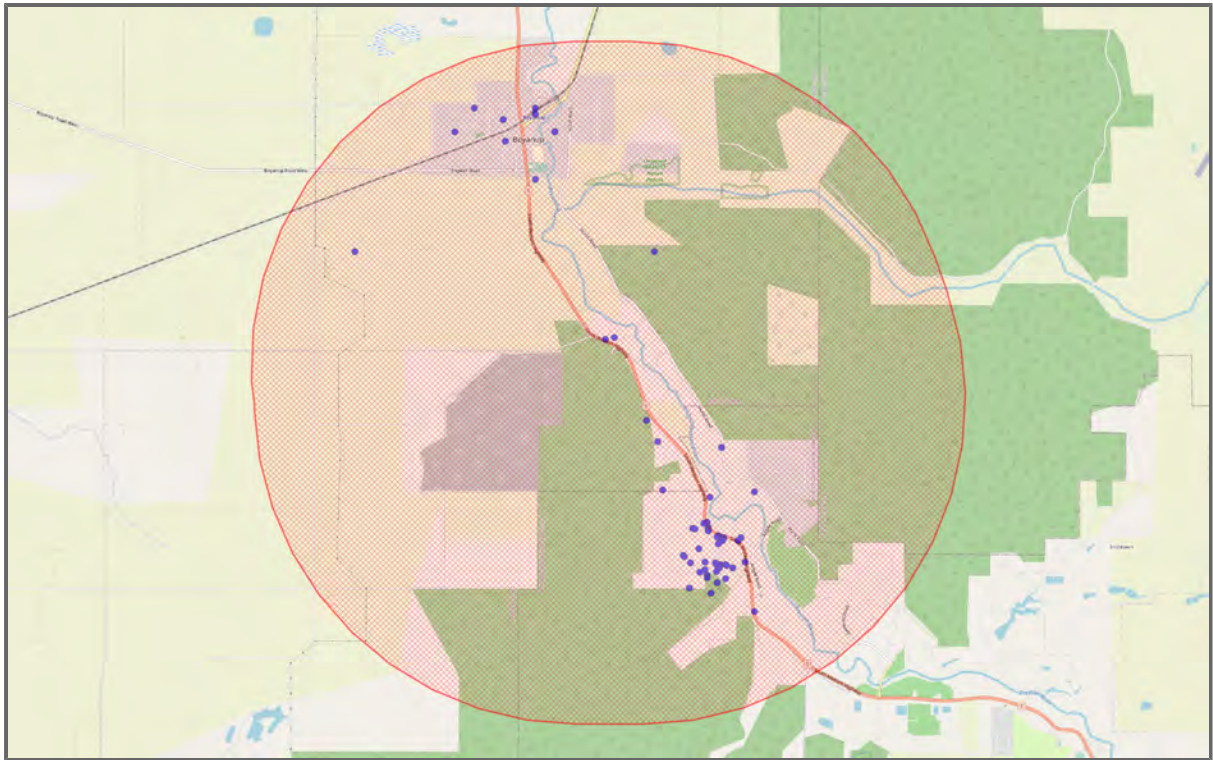


Figure 23 : Map of Lifeform - Fungi

Table 23: Lifeform - Fungi ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
	Agaricales		6
Polyporaceae	Trametes		5
	Agaricomycetes		3
Agaricaceae	Coprinus		3
Strophariaceae	Agrocybe pediades		2
Boletaceae	Austroboletus		2
Agaricaceae	Cyathus stercoreus		2
	Fungi		2
Nectriaceae	Fusarium		2
Hydnangiaceae	Laccaria fraterna		2
Mycosphaerellaceae	Mycosphaerella		2
Mycosphaerellaceae	Neopseudocercospora brassicae		2
Marasmiaceae	Omphalotus nidiformis		2
Russulaceae	Russula		2
Amanitaceae	Amanita xanthocephala		1
Amanitaceae	Amanita		1
Serpulaceae	Austropaxillus		1
Boletaceae	Boletaceae		1
Dacrymycetaceae	Calocera sinensis		1
Candelariaceae	Candelariella xanthostigmoides		1
Agaricaceae	Chlorophyllum		1
Hymenochaetaceae	Coltricia		1
Psathyrellaceae	Coprinellus micaceus		1
Psathyrellaceae	Coprinellus		1
Fistulinaceae	Fistulina spiculifera		1

Parmeliaceae	Flavoparmelia rutidota	Common Biscuit Lichen	1
Parmeliaceae	Flavoparmelia		1
Hymenochaetaceae	Fomitiporia robusta		1
Hymenochaetaceae	Fuscoporia gilva		1
Strophariaceae	Gymnopilus allantopus		1
Strophariaceae	Gymnopilus junonius		1
Strophariaceae	Gymnopilus		1
Physciaceae	Heterodermia speciosa		1
Physciaceae	Heterodermia		1
Hypocreaceae	Hypocreaceae		1
Hydnangiaceae	Laccaria lateritia		1
Hydnangiaceae	Laccaria		1
Parmeliaceae	Parmotrema cetratum		1
Parmeliaceae	Parmotrema reticulatum		1
Strophariaceae	Pholiota		1
Sclerodermataceae	Pisolithus		1
Pleurotaceae	Pleurotus australis		1
Psathyrellaceae	Psathyrella bipellis		1
Ramalinaceae	Ramalina ovalis		1
Gomphaceae	Ramaria		1
Sclerodermataceae	Scleroderma verrucosum		1
Pyronemataceae	Sowerbyella rhenana		1
Stereaceae	Stereum		1
Polyporaceae	Trametes marianna		1
Pucciniaceae	Uromyces rumicis		1
Pucciniaceae	Uromyces		1
Pluteaceae	Volvopluteus gloiocephalus		1

Lifeform - Gymnosperms

Number of Gymnosperms 0

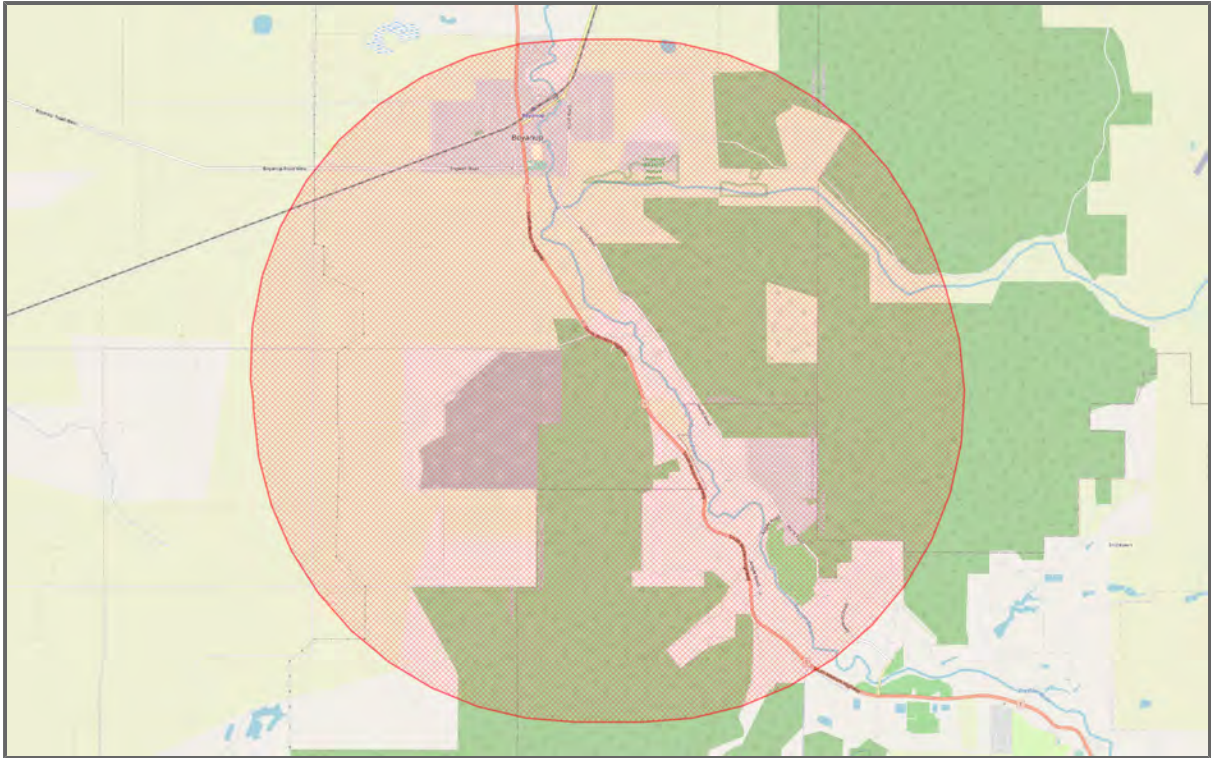


Figure 24 : Map of Lifeform - Gymnosperms

Table 24: Lifeform - Gymnosperms [\(Link to full list\)](#)

Family	Scientific Name	Common Name	No. Occurrences
--------	-----------------	-------------	-----------------

Lifeform - Insects

Number of Insects 65

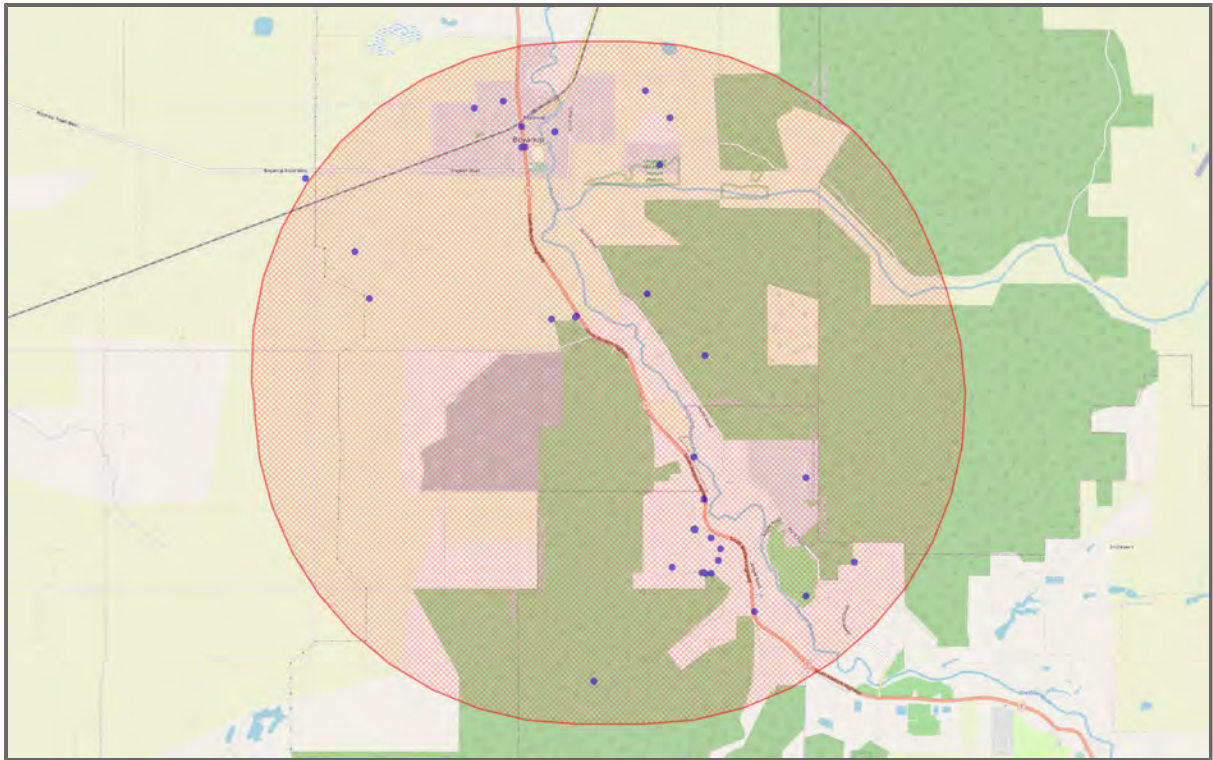


Figure 25 : Map of Lifeform - Insects

Table 25: Lifeform - Insects ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Coccidae	Coccus synapheae		7
Scarabaeidae	SCARABAEIDAE		4
Coccidae	COCCIDAE		3
Formicidae	Iridomyrmex discors	Ant	3
Scarabaeidae	Bubas bison		2
Scarabaeidae	Colymbomorpha vittata	Spring Beetle	2
Dytiscidae	Cybister godeffroyi	Diving Beetle	2
Dytiscidae	Limbodessus inornatus	Diving Beetle	2
Hydrophilidae	Limnoxenus zealandicus	Water Scavenger Beetle	2
	MANTODEA	Mantises	2
Micropezidae	MICROPEZIDAE	Stilt Flies	2
Dytiscidae	Neobidessodes mjobergi	Diving Beetle	2
Scarabaeidae	Onthophagus taurus	Bullhorned Dung Beetle	2
Zygaenidae	Pollanisus		2
Dytiscidae	Sternopriscus browni	Diving Beetle	2
Thaumastocoridae	Thaumastocoris nadelii		2
Dytiscidae	Tiporus giuliani	Diving Beetle	2
Mantidae	Archimantis sobrina	Large Brown Mantid	1
Acrididae	Austroicetes		1
Synthemistidae	Austrosynthemis cyanitincta	Turquoise Tigertail	1
Hydrophilidae	Berosus (Berosus) approximans	Water Scavenger Beetle	1
Hydrophilidae	Berosus (Berosus) pulchellus	Water Scavenger Beetle	1
Cleridae	Blackburniella intricata		1
Chironomidae	CHIRONOMIDAE		1
Curculionidae	CURCULIONIDAE		1

Buprestidae	Castiarina amabilis		1
Hydrophilidae	Cercyon		1
Scarabaeidae	Colpochila		1
Dytiscidae	Copelatus ater	Diving Beetle	1
Rhinotermitidae	Coptotermes acinaciformis raffrayi	Subterranean Termite	1
Formicidae	Dolichoderus ypsilon		1
Elateridae	ELATERIDAE	Click Beetles	1
Hydrophilidae	Enochrus (Hydatotrepis) mastersii		1
Syrphidae	Eristalis (Eristalis) tenax	Drone Fly	1
Scarabaeidae	Euoniticellus fulvus		1
Staphylinidae	Eupines (Eupines) distorticornis		1
Pentatomidae	Halyini		1
Hydrophilidae	Helochares tenuistriatus	Water Scavenger Beetle	1
Dytiscidae	Hydroglyphus basalis	Diving Beetle	1
Hydrophilidae	Hydrophilus (Hydrophilus) albipes	Water Scavenger Beetle	1
Dytiscidae	Hyphydrus elegans	Diving Beetle	1
Dytiscidae	Hyphydrus lyratus	Diving Beetle	1
	INSECTA	Insects	1
Lucanidae	Lamprima aurata	Golden Stag Beetle	1
Erebidae	Leptocneria reducta	Moth	1
Dytiscidae	Megaporus solidus	Diving Beetle	1
Scarabaeidae	Melolonthinae		1
Muscidae	Musca domestica	House Fly	1
Muscidae	Muscini		1
Formicidae	Myrmecia gulosa	Giant Bull Ant	1
Formicidae	Myrmecia		1
Dytiscidae	Necterosoma darwini	Diving Beetle	1
Mantidae	Orthodera ministralis	Green Mantid	1
Noctuidae	Persectania		1
Acrididae	Phaulacridium vittatum	Wingless Grasshopper	1
Scarabaeidae	Phyllotocus		1
Plutellidae	Plutella		1
Phasmatidae	Podacanthus viridiroseus	Red-winged Stick-insect	1
Tettigoniidae	Requena		1
Dytiscidae	Rhantus suturalis	Diving Beetle	1
Scoliidae	SCOLIIDAE		1
Tabanidae	TABANIDAE		1
Dytiscidae	Tiporus undecimmaculatus	Diving Beetle	1
Termitidae	Tumulitermes apiocephalus		1
Nymphalidae	Vanessa kershawi	Australian Painted Lady	1

Lifeform - Mammals

Number of Mammals 7

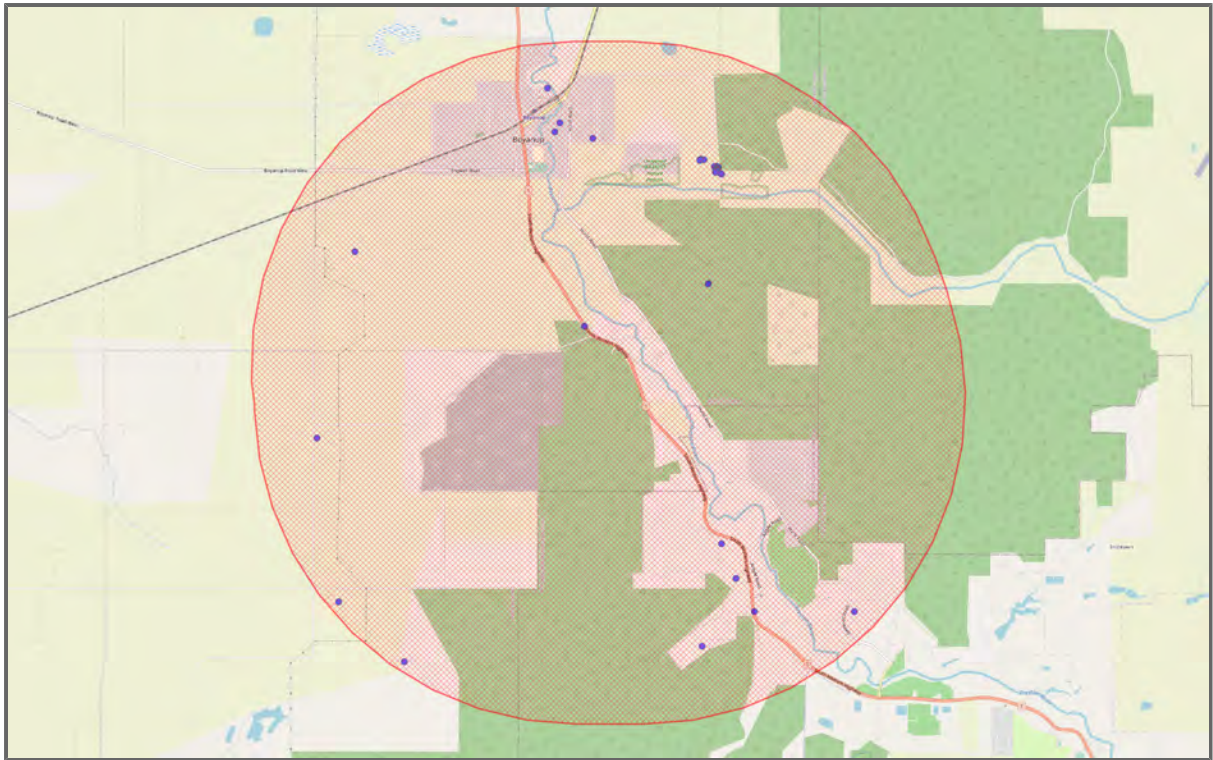


Figure 26 : Map of Lifeform - Mammals

Table 26: Lifeform - Mammals ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Canidae	<i>Vulpes vulpes</i>	Fox	30
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit	9
Macropodidae	<i>Macropus fuliginosus melanops</i>	[black-faced Kangaroo]	4
Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo	2
Bovidae	<i>Bos</i>		1
Burramyidae	<i>Cercartetus concinnus</i>	Western Pygmy-possum	1
Peramelidae	<i>Isodon fusciventer</i>	Southwestern Brown Bandicoot	1

Lifeform - Molluscs

Number of Molluscs 3

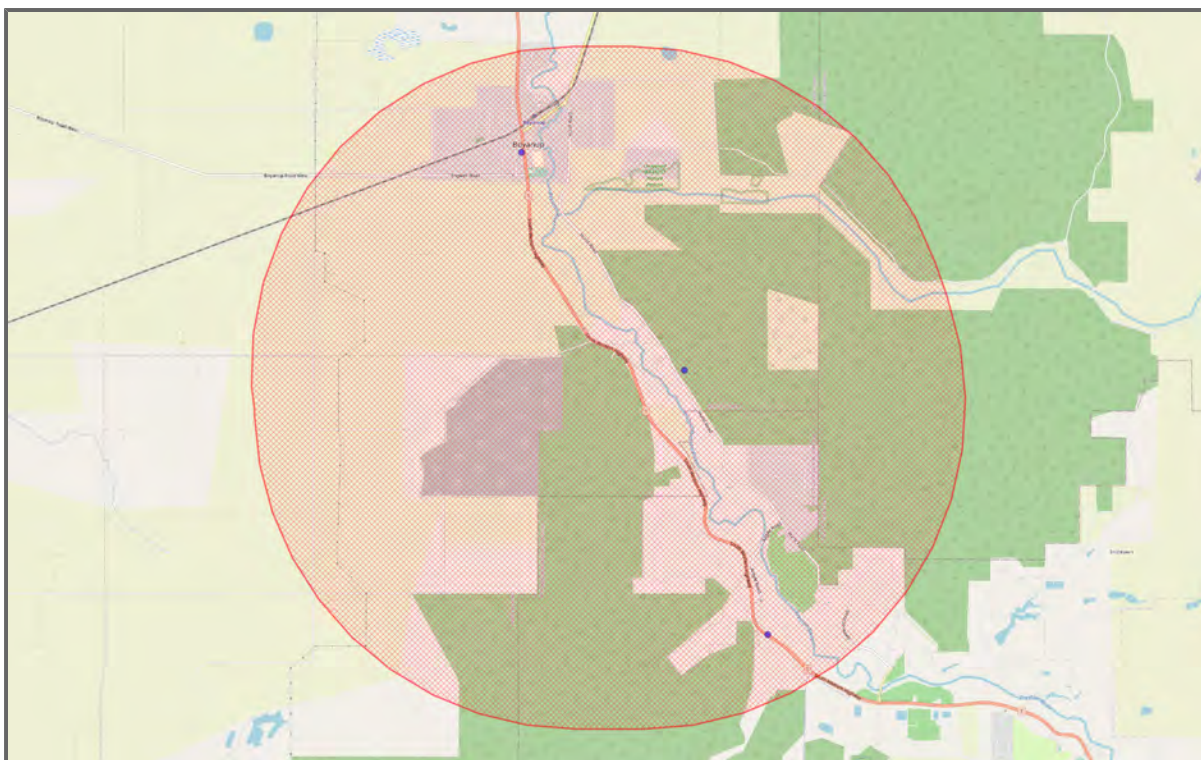


Figure 27 : Map of Lifeform - Molluscs

Table 27: Lifeform - Molluscs ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Charopidae	CHAROPIDAE		1
Hygromiidae	Cernuella		1
Lymnaeidae	LYMNAEIDAE		1

Lifeform - Monocots

Number of Monocots 182

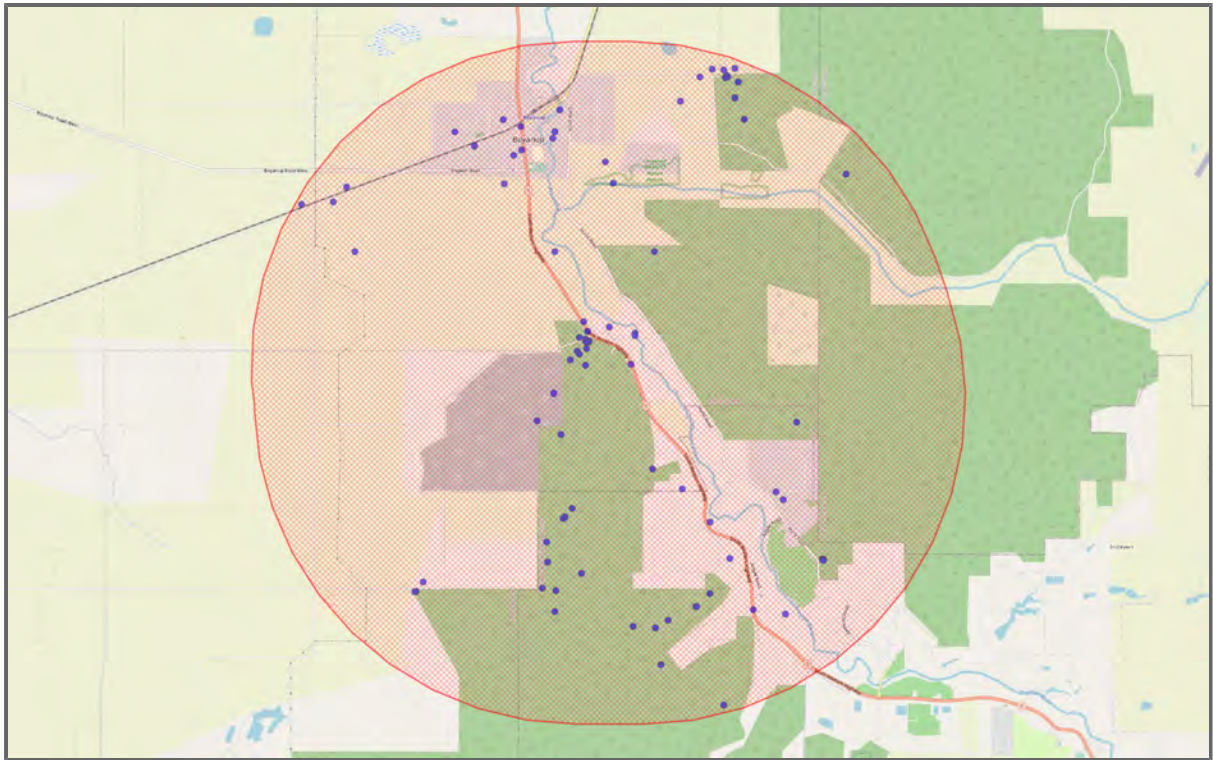


Figure 28 : Map of Lifeform - Monocots

Table 28: Lifeform - Monocots ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Restionaceae	<i>Hypolaena exsulca</i>		14
Dasyopogonaceae	<i>Dasyopogon bromeliifolius</i>	Pineapple Bush	13
Poaceae	<i>Austrostipa compressa</i>		11
Asparagaceae	<i>Lomandra hermaphrodita</i>		11
Orchidaceae	<i>Caladenia flava</i>	Cowslip Orchid	10
Asparagaceae	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	Blue Stars	10
Haemodoraceae	<i>Conostylis aculeata</i>	Prickly Conostylis	10
Restionaceae	<i>Desmocladus fasciculatus</i>		10
Cyperaceae	<i>Lepidosperma squamatum</i>		10
Iridaceae	<i>Patersonia occidentalis</i>	Long Purple-flag	10
Cyperaceae	<i>Tetaria octandra</i>		10
Asparagaceae	<i>Lomandra sericea</i>	Silky Mat Rush	9
Colchicaceae	<i>Burchardia congesta</i>	Milkmaids	8
Orchidaceae	<i>Leporella fimbriata</i>	Fringed Hare-orchid	8
Asparagaceae	<i>Lomandra caespitosa</i>	Tufted Mat-rush	8
Anarthriaceae	<i>Lyginia barbata</i>		8
Haemodoraceae	<i>Phlebocarya ciliata</i>		8
Orchidaceae	<i>Pyrorchis nigricans</i>	Black Fire-orchid	8
Anarthriaceae	<i>Anarthria prolifera</i>		7
Haemodoraceae	<i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>	Mangles' Kangaroo Paw	7
Iridaceae	<i>Patersonia umbrosa</i> var. <i>xanthina</i>	Yellow Flags	7
Poaceae	<i>Amphipogon turbinatus</i>		6
Aponogetonaceae	<i>Aponogeton hexatepalus</i>	Stalked Water Ribbons	6
Poaceae	<i>Briza maxima</i>	Large Quaking-grass	6
Centrolepidaceae	<i>Centrolepis drummondiana</i>	Drummond's Centrolepis	6

Cyperaceae	<i>Schoenus curvifolius</i>		6
Hemerocallidaceae	<i>Tricoryne tenella</i>	Tufted Yellow Rush-lily	6
Haemodoraceae	<i>Conostylis laxiflora</i>		5
Orchidaceae	<i>Eriochilus dilatatus</i> subsp. <i>dilatatus</i>	White Bunny Orchid	5
Hemerocallidaceae	<i>Johnsonia acaulis</i>		5
Asparagaceae	<i>Lomandra nigricans</i>		5
Asparagaceae	<i>Lomandra preissii</i>	Preiss' Mat Rush	5
Asparagaceae	<i>Thysanotus tenellus</i>	Grassy Fringe-lily	5
Poaceae	<i>Vulpia myuros</i>	Fescue	5
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>	Grasstree	5
Orchidaceae	<i>Caladenia attingens</i> subsp. <i>attingens</i>	Forest Mantis Orchid	4
Orchidaceae	<i>Caladenia longicauda</i>	White Spider Orchid	4
Asparagaceae	<i>Chamaescilla corymbosa</i>	Blue Stars	4
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>	Bristly Cottonhead	4
Cyperaceae	<i>Lepidosperma pubisquamum</i>		4
Asparagaceae	<i>Ornithogalum arabicum</i>	Star Of Africa	4
Orchidaceae	<i>Pterostylis vittata</i>	Banded Greenhood	4
Poaceae	<i>Sorghum halepense</i>	Johnson Grass	4
Asparagaceae	<i>Thysanotus arenarius</i>	Sand-dune Fringed Lily	4
Asparagaceae	<i>Thysanotus multiflorus</i>	Many-flowered Fringe	4
Hemerocallidaceae	<i>Agrostocrinum hirsutum</i>	Grass Lily	3
Poaceae	<i>Aira caryophyllea</i>	Silvery Hairgrass	3
Haemodoraceae	<i>Anigozanthos manglesii</i>	Red And Green Kangaroo Paw	3
Poaceae	<i>Briza minor</i>	Lesser Quaking-grass	3
Asparagaceae	<i>Chamaexeros serra</i>		3
Cyperaceae	<i>Eleocharis keigheryi</i>	Keighery's Eleocharis	3
Orchidaceae	<i>Elythranthera brunonis</i>	Purple Enamel Orchid	3
Iridaceae	<i>Ixia paniculata</i>	Long-tube Ixia	3
Asparagaceae	<i>Laxmannia sessiliflora</i> subsp. <i>australis</i>		3
Cyperaceae	<i>Lepidosperma scabrum</i>	Scabrid Sword-sedge	3
Asparagaceae	<i>Lomandra purpurea</i>	Purple Mat Rush	3
Asparagaceae	<i>Lomandra suaveolens</i>		3
Cyperaceae	<i>Machaerina arthropylla</i>	Baumea	3
Poaceae	<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass	3
Haemodoraceae	<i>Phlebocarya filifolia</i>		3
Poaceae	<i>Tetrarrhena laevis</i>	Forest Ricegrass	3
Haemodoraceae	<i>Tribonanthes brachypetala</i>	Nodding Tiurndin	3
Hemerocallidaceae	<i>Tricoryne elatior</i>	Yellow Rush Lily	3
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i> subsp. <i>semibarbata</i>		3
Poaceae	<i>Amphipogon laguroides</i>		2
Asparagaceae	<i>Asparagus asparagoides</i>	Western Cape Bridal Creeper	2
Orchidaceae	<i>Caladenia flava</i> subsp. <i>sylvestris</i>	Karri Cowslip Orchid	2
Orchidaceae	<i>Caladenia reptans</i>	Little Pink Fairies	2
Orchidaceae	<i>Caladenia</i>	Fairy Orchids	2
Centrolepidaceae	<i>Centrolepis aristata</i>	Pointed Centrolepis	2
Orchidaceae	<i>Cyanicula sericea</i>	Silky Blue Orchid	2
Dasypogonaceae	<i>Dasypogon hookeri</i>	Pineapple Bush	2
Poaceae	<i>Digitaria sanguinalis</i>	Summer Grass	2
Orchidaceae	<i>Diuris longifolia</i>	Common Donkey Orchid	2
Orchidaceae	<i>Eriochilus dilatatus</i>	White Bunny Orchid	2
Iridaceae	<i>Gladiolus tristis</i>	Evening-flower Gladiolus	2
Haemodoraceae	<i>Haemodorum laxum</i>	Bloodroot	2
Asparagaceae	<i>Hyacinthoides non-scripta</i>	English Bluebell	2
Cyperaceae	<i>Isolepis marginata</i>	Little Club-rush	2
Iridaceae	<i>Ixia maculata</i>	Yellow Ixia	2
Hemerocallidaceae	<i>Johnsonia lupulina</i>	Hooded Lily	2

Dasypogonaceae	<i>Kingia australis</i>	Drumsticks	2
Cyperaceae	<i>Lepidosperma angustatum</i>		2
Asparagaceae	<i>Lomandra drummondii</i>		2
Orchidaceae	<i>Lyperanthus serratus</i>	Rattle Beaks	2
Cyperaceae	<i>Mesomelaena tetragona</i>	Semaphore Sedge	2
Orchidaceae	Orchidaceae	Orchids	2
Iridaceae	<i>Patersonia babianoides</i>		2
Cyperaceae	<i>Schoenus breviculmis</i>	Matted Bog-rush	2
Cyperaceae	<i>Schoenus</i>		2
Cyperaceae	<i>Tetralia capillaris</i>	Hair Sedge	2
Asparagaceae	<i>Thysanotus thyrsoideus</i>		2
Asparagaceae	<i>Thysanotus</i>	Fringed Lily	2
Xanthorrhoeaceae	<i>Xanthorrhoea acanthostachya</i>		2
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i> subsp. <i>brunonis</i>	Grasstree	2
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i>		2
Poaceae	<i>Aira cupaniana</i>	Quicksilver Grass	1
Poaceae	<i>Amphibromus</i>	Swamp Wallaby Grass	1
Poaceae	<i>Amphipogon amphipogonoides</i>		1
Haemodoraceae	<i>Anigozanthos flavidus</i>	Tall Kangaroo Paw	1
Centrolepidaceae	<i>Aphelia cyperoides</i>		1
Poaceae	<i>Austrostipa campylachne</i>		1
Poaceae	<i>Austrostipa semibarbata</i>	Fibrous Spear-grass	1
Colchicaceae	<i>Baeometra uniflora</i>	Baeometra	1
Cyperaceae	<i>Bolboschoenus</i>		1
Colchicaceae	<i>Burchardia multiflora</i>	Lesser Burchardia	1
Colchicaceae	<i>Burchardia umbellata</i>	Milkmaids	1
Hemerocallidaceae	<i>Caesia occidentalis</i>	Pale Grass Lily	1
Orchidaceae	<i>Caladenia attingens</i>	Forest Mantis Orchid	1
Orchidaceae	<i>Caladenia longiclavata</i>	Clubbed Spider Orchid	1
Orchidaceae	<i>Caladenia nana</i> subsp. <i>unita</i>	Pink Fan Orchid	1
Orchidaceae	<i>Caladenia pendens</i> subsp. <i>pendens</i>	Pendant Spider Orchid	1
Orchidaceae	<i>Caladenia reptans</i> subsp. <i>reptans</i>	Little Pink Fairies	1
Dasypogonaceae	<i>Calectasia cyanea</i>	Blue Tinsel Lily	1
Dasypogonaceae	<i>Calectasia narragara</i>	Star Of Bethlehem	1
Cyperaceae	<i>Caustis</i> sp. <i>Boyanup</i> (G.S.McCutcheon 1706)		1
Poaceae	<i>Cenchrus clandestinus</i>	Kikuyu	1
Poaceae	<i>Cenchrus macrourus</i>	African Feather Grass	1
Restionaceae	<i>Chaetanthus aristatus</i>	Bearded Twinerush	1
Haemodoraceae	<i>Conostylis serrulata</i>		1
Orchidaceae	<i>Cryptostylis ovata</i>	Tongue Orchid	1
Cyperaceae	<i>Cyathochaeta avenacea</i>		1
Orchidaceae	<i>Cyrtostylis</i>	Mosquito Orchids	1
Restionaceae	<i>Desmocladius flexuosus</i>		1
Poaceae	<i>Deyeuxia quadriseta</i>	Slender Reed Bent-grass	1
Iridaceae	<i>Ferraria crispa</i>	Black Flag	1
Iridaceae	<i>Freesia</i>	Freesia	1
Iridaceae	<i>Gladiolus communis</i> subsp. <i>byzantinus</i>	Byzantine Gladiolus	1
Haemodoraceae	<i>Haemodorum sparsiflorum</i>	Mardja	1
Cyperaceae	<i>Isolepis oldfieldiana</i>		1
Iridaceae	<i>Ixia cultivar</i>	<i>Ixia</i>	1
Asparagaceae	<i>Lachenalia aloides</i>		1
Asparagaceae	<i>Lachenalia flava</i>		1
Poaceae	<i>Lachnagrostis filiformis</i>	Common Blown-grass	1
Asparagaceae	<i>Laxmannia sessiliflora</i>	Nodding Lily	1
Cyperaceae	<i>Lepidosperma</i>	Swordsedges	1
Amarylloidaceae	<i>Leucojum aestivum</i>	Snowflake	1

Poaceae	<i>Lolium multiflorum</i>	Italian Ryegrass	1
Asparagaceae	<i>Lomandra odora</i>	Fragrant Mat Rush	1
Asparagaceae	<i>Lomandra pauciflora</i>		1
Asparagaceae	<i>Lomandra</i>	Mat Rushes	1
Restionaceae	<i>Loxocarya cinerea</i>		1
Anarthriaceae	<i>Lyginia imberbis</i>		1
Cyperaceae	<i>Mesomelaena graciliceps</i>		1
Cyperaceae	<i>Mesomelaena stygia</i> subsp. <i>stygia</i>		1
Poaceae	<i>Microlaena stipoides</i>	Weeping Grass	1
Orchidaceae	<i>Microtis cupularis</i>	Cupped Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i> subsp. <i>media</i>	Common Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i>	Common Mignonette Orchid	1
Iridaceae	<i>Moraea flaccida</i>	One-leaf Cape Tulip	1
Amaryllidaceae	<i>Narcissus pseudonarcissus</i>	Common Daffodil	1
Amaryllidaceae	<i>Narcissus tazetta</i> subsp. <i>italicus</i>	Tazetta	1
Asparagaceae	<i>Ornithogalum thyrsoides</i>	Chincherinchee	1
Iridaceae	<i>Orthrosanthus laxus</i>	Morning Iris	1
Hydrocharitaceae	<i>Ottelia ovalifolia</i>	Swamp Lily	1
Poaceae	<i>Paspalum distichum</i>	Water Couch	1
Poaceae	<i>Phalaris aquatica</i>	Phalaris	1
Orchidaceae	<i>Praecoxanthus aphyllus</i>	Leafless Orchid	1
Orchidaceae	<i>Pterostylis barbata</i>	Bird Orchid	1
Orchidaceae	<i>Pterostylis nana</i>	Dwarf Greenhood	1
Orchidaceae	<i>Pterostylis recurva</i>	Recurved Shell Orchid	1
Orchidaceae	<i>Pterostylis sanguinea</i>	Blood Greenhood	1
Orchidaceae	<i>Pterostylis</i> sp. crinkled leaf (G.J.Keighery 13426)		1
Iridaceae	<i>Romulea rosea</i>	Onion Grass	1
Poaceae	<i>Rytidosperma acerosum</i>		1
Poaceae	<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	1
Poaceae	<i>Rytidosperma occidentale</i>	Western Wallaby Grass	1
Cyperaceae	<i>Schoenus bifidus</i>		1
Cyperaceae	<i>Schoenus brevisetis</i>		1
Cyperaceae	<i>Schoenus subbulbosus</i>		1
Iridaceae	<i>Sisyrinchium rosulatum</i>	Scourweed	1
Orchidaceae	<i>Thelymitra crinita</i>	Blue Lady Orchid	1
Orchidaceae	<i>Thelymitra flexuosa</i>	Twisted Sun-orchid	1
Orchidaceae	<i>Thelymitra pauciflora</i>	Slender Sun Orchid	1
Orchidaceae	<i>Thelymitra</i>	Sun Orchids	1
Asparagaceae	<i>Thysanotus dichotomus</i>	Branching Fringe Lily	1
Asparagaceae	<i>Thysanotus gracilis</i>		1
Asparagaceae	<i>Thysanotus manglesianus</i>	Fringed Lily	1
Asparagaceae	<i>Thysanotus patersonii</i>	Twining Fringe-lily	1
Asparagaceae	<i>Thysanotus sparteus</i>	Leafless Fringed Lily	1
Iridaceae	<i>Tritonia crocata</i>	Orange Tritonia	1
Xanthorrhoeaceae	<i>Xanthorrhoea gracilis</i>	Graceful Grass Tree	1

Lifeform - Plants

Number of Plants 514

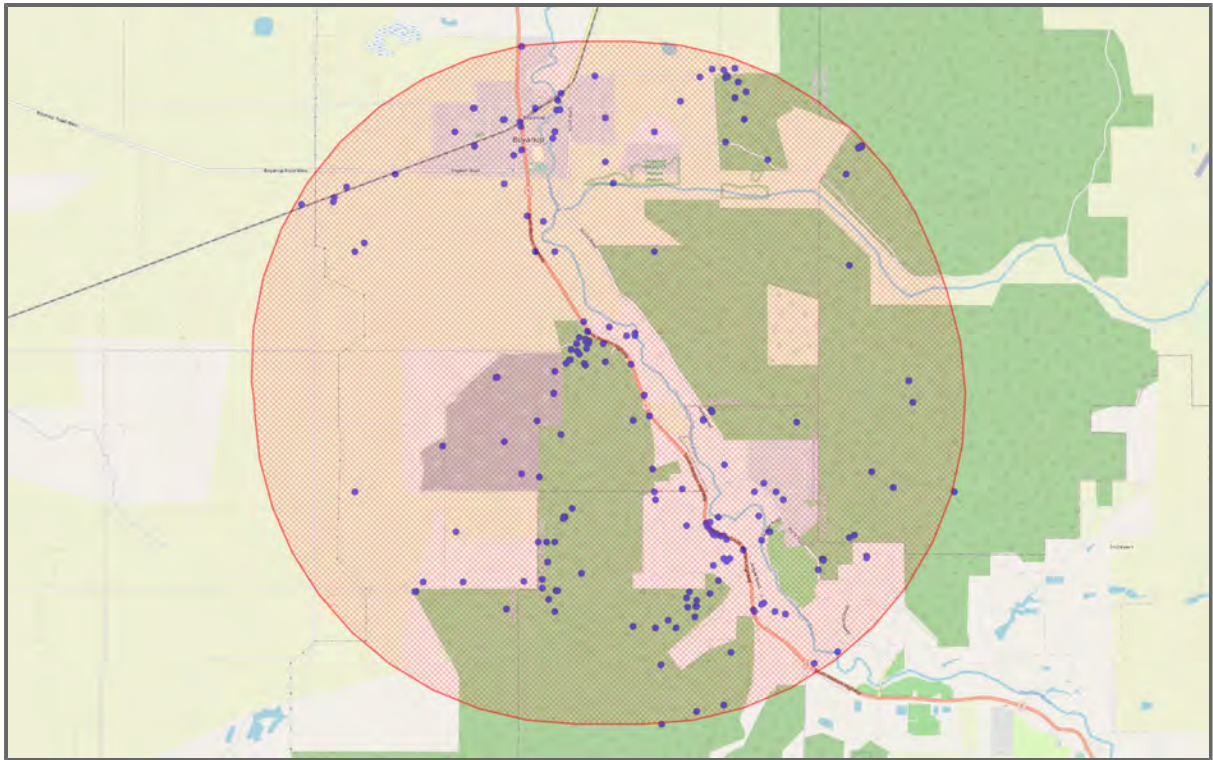


Figure 29 : Map of Lifeform - Plants

Table 29: Lifeform - Plants ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Fabaceae	<i>Kennedia coccinea</i>	Coral Vine	18
Dilleniaceae	<i>Hibbertia hypericoides</i>	Yellow Buttercups	15
Myrtaceae	<i>Hypocalymma robustum</i>	Swan River Myrtle	15
Proteaceae	<i>Petrophile linearis</i>	Pixie Mops	15
Rutaceae	<i>Boronia dichotoma</i>		14
Restionaceae	<i>Hypolaena exsulca</i>		14
Fabaceae	<i>Acacia extensa</i>	Wiry Wattle	13
Dasypogonaceae	<i>Dasypogon bromeliifolius</i>	Pineapple Bush	13
Asteraceae	<i>Hypochaeris glabra</i>	Smooth Cat's Ear	13
Fabaceae	<i>Kennedia carinata</i>		13
Apiaceae	<i>Xanthosia huegelii</i>	Hairy Xanthosia	13
Fabaceae	<i>Bossiaea eriocarpa</i>	Common Brown Pea	12
Dilleniaceae	<i>Hibbertia racemosa</i>	Stalked Guinea Flower	12
Ericaceae	<i>Leucopogon conostephioides</i>		12
Proteaceae	<i>Synaphea odocoileops</i>		12
Proteaceae	<i>Xylomelum occidentale</i>	Woody Pear	12
Poaceae	<i>Austrostipa compressa</i>		11
Proteaceae	<i>Banksia attenuata</i>	Coast Banksia	11
Asparagaceae	<i>Lomandra hermaphrodita</i>		11
Myrtaceae	<i>Melaleuca thymoides</i>		11
Rutaceae	<i>Philothea spicata</i>	Pepper And Salt	11
Proteaceae	<i>Stirlingia latifolia</i>	Blueboy	11
Araliaceae	<i>Trachymene pilosa</i>	Dwarf Trachymene	11
Proteaceae	<i>Adenanthos meisneri</i>		10
Orchidaceae	<i>Caladenia flava</i>	Cowslip Orchid	10

Asparagaceae	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	Blue Stars	10
Haemodoraceae	<i>Conostylis aculeata</i>	Prickly Conostylis	10
Restionaceae	<i>Desmodcladus fasciculatus</i>		10
Cyperaceae	<i>Lepidosperma squamatum</i>		10
Zamiaceae	<i>Macrozamia riedlei</i>	Zamia Palm	10
Loranthaceae	<i>Nuytsia floribunda</i>	Western Australian Christmas Tree	10
Iridaceae	<i>Patersonia occidentalis</i>	Long Purple-flag	10
Cyperaceae	<i>Tetraria octandra</i>		10
Rutaceae	<i>Boronia spathulata</i>	Boronia	9
Myrtaceae	<i>Calytrix flavescens</i>	Summer Starflower	9
Fabaceae	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea	9
Dilleniaceae	<i>Hibbertia vaginata</i>		9
Asparagaceae	<i>Lomandra sericea</i>	Silky Mat Rush	9
Thymelaeaceae	<i>Pimelea rosea</i> subsp. <i>rosea</i>	Rose Banjine	9
Rosaceae	<i>Pyrus communis</i>	Pear	9
Fabaceae	<i>Acacia pulchella</i>	Prickly Moses	8
Casuarinaceae	<i>Allocasuarina humilis</i>	Dwarf Sheoak	8
Ericaceae	<i>Andersonia caerulea</i>	Foxtails	8
Proteaceae	<i>Banksia dallanneyi</i>		8
Colchicaceae	<i>Burchardia congesta</i>	Milkmaids	8
Droseraceae	<i>Drosera collina</i>		8
Droseraceae	<i>Drosera erythrorhiza</i>	Red Ink Sundew	8
Dilleniaceae	<i>Hibbertia huegelii</i>		8
Goodeniaceae	<i>Lechenaultia biloba</i>	Blue Leschenaultia	8
Orchidaceae	<i>Leporella fimbriata</i>	Fringed Hare-orchid	8
Stylidiaceae	<i>Levenhookia pusilla</i>	Tiny Stylewort	8
Asparagaceae	<i>Lomandra caespitosa</i>	Tufted Mat-rush	8
Anarthriaceae	<i>Lyginia barbata</i>		8
Haemodoraceae	<i>Phlebocarya ciliata</i>		8
Orchidaceae	<i>Pyrorchis nigricans</i>	Black Fire-orchid	8
Proteaceae	<i>Adenanthos barbiger</i>	Hairy Glandflower	7
Anarthriaceae	<i>Anarthria prolifera</i>		7
Haemodoraceae	<i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>	Mangles' Kangaroo Paw	7
Proteaceae	<i>Banksia grandis</i>	Giant Banksia	7
Goodeniaceae	<i>Dampiera linearis</i>	Wedge-leaved Dampiera	7
Droseraceae	<i>Drosera drummondii</i>		7
Haloragaceae	<i>Gonocarpus paniculatus</i>		7
Fabaceae	<i>Hovea trisperma</i> var. <i>grandiflora</i>		7
Ericaceae	<i>Lysinema ciliatum</i>	Curry Flower	7
Iridaceae	<i>Patersonia umbrosa</i> var. <i>xanthina</i>	Yellow Flags	7
Apiaceae	<i>Platysace tenuissima</i>		7
Stylidiaceae	<i>Stylidium piliferum</i>	Common Butterfly Triggerplant	7
Fabaceae	<i>Acacia stenoptera</i>	Narrow-winged Wattle	6
Poaceae	<i>Amphipogon turbinatus</i>		6
Aponogetonaceae	<i>Aponogeton hexatepalus</i>	Stalked Water Ribbons	6
Poaceae	<i>Briza maxima</i>	Large Quaking-grass	6
Lauraceae	<i>Cassytha glabella</i>	Slender Dodder-laurel	6
Lauraceae	<i>Cassytha racemosa</i>	Dodder Laurel	6
Centrolepidaceae	<i>Centrolepis drummondiana</i>	Drummond's Centrolepis	6
Dilleniaceae	<i>Hibbertia cunninghamii</i>		6
Pittosporaceae	<i>Marianthus tenuis</i>		6
Loganiaceae	<i>Phyllangium paradoxum</i>	Wiry Mitrewort	6
Cyperaceae	<i>Schoenus curvifolius</i>		6
Stylidiaceae	<i>Stylidium brunonianum</i>	Pink Fountain Triggerplant	6
Myrtaceae	<i>Taxandria linearifolia</i>		6
Hemerocallidaceae	<i>Tricoryne tenella</i>	Tufted Yellow Rush-lily	6

Asteraceae	<i>Ursinia anthemoides</i>	Ursinia	6
Apiaceae	<i>Xanthosia ciliata</i>		6
Fabaceae	<i>Acacia pulchella</i> var. <i>pulchella</i>	Prickly Moses	5
Haemodoraceae	<i>Conostylis laxiflora</i>		5
Myrtaceae	<i>Corymbia calophylla</i>	Marri	5
Fabaceae	<i>Daviesia physodes</i>		5
Droseraceae	<i>Drosera marchantii</i>	Bridal Rainbow	5
Droseraceae	<i>Drosera pallida</i>	Pale Rainbow	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
Fabaceae	<i>Gompholobium knightianum</i>	Knight's Wedge-pea	5
Fabaceae	<i>Hovea chorizemifolia</i>	Holly-leaved Hovea	5
Fabaceae	<i>Jacksonia horrida</i>		5
Hemerocallidaceae	<i>Johnsonia acaulis</i>		5
Asteraceae	<i>Lagenophora huegelii</i>	Coarse Bottle-daisy	5
Asparagaceae	<i>Lomandra nigricans</i>		5
Asparagaceae	<i>Lomandra preissii</i>	Preiss' Mat Rush	5
Goodeniaceae	<i>Scaevola calliptera</i>	Royal Robe	5
Stylidiaceae	<i>Stylidium repens</i>	Matted Triggerplant	5
Asparagaceae	<i>Thysanotus tenellus</i>	Grassy Fringe-lily	5
Poaceae	<i>Vulpia myuros</i>	Fescue	5
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>	Grasstree	5
Fabaceae	<i>Acacia huegelii</i>	Huegel's Wattle	4
Fabaceae	<i>Acacia pulchella</i> var. <i>glaberrima</i>	Western Prickly Moses	4
Fabaceae	<i>Acacia urophylla</i>	Pointed Leaved Acacia	4
Ericaceae	<i>Astroloma ciliatum</i>	Candle Cranberry	4
Pittosporaceae	<i>Billardiera variifolia</i>		4
Orchidaceae	<i>Caladenia attingens</i> subsp. <i>atingens</i>	Forest Mantis Orchid	4
Orchidaceae	<i>Caladenia longicauda</i>	White Spider Orchid	4
Asparagaceae	<i>Chamaescilla corymbosa</i>	Blue Stars	4
Ericaceae	<i>Conostephium pendulum</i>	Pearl Flower	4
Haemodoraceae	<i>Conostylis setigera</i> subsp. <i>setigera</i>	Bristly Cottonhead	4
Dilleniaceae	<i>Hibbertia diamesogenos</i>		4
Fabaceae	<i>Hovea trisperma</i> var. <i>trisperma</i>	Common Hovea	4
Fabaceae	<i>Hovea trisperma</i>	Common Hovea	4
Cyperaceae	<i>Lepidosperma pubisquamum</i>		4
Ericaceae	<i>Leucopogon capitellatus</i>		4
Asteraceae	<i>Millotia tenuifolia</i>	Soft Millotia	4
Rubiaceae	<i>Opercularia apiciflora</i>		4
Loganiaceae	<i>Orianthera serpyllifolia</i> subsp. <i>angustifolia</i>		4
Asparagaceae	<i>Ornithogalum arabicum</i>	Star Of Africa	4
Orchidaceae	<i>Pterostylis vittata</i>	Banded Greenhood	4
Poaceae	<i>Sorghum halepense</i>	Johnson Grass	4
Fabaceae	<i>Sphaerolobium scabriusculum</i>		4
Stylidiaceae	<i>Stylidium calcaratum</i>	Spurred Trigger-plant	4
Ericaceae	<i>Styphelia tenuiflora</i>	Common Pinheath	4
Proteaceae	<i>Synaphea</i> sp. Pinjarra Plain (A.S.George 17182)		4
Asparagaceae	<i>Thysanotus arenarius</i>	Sand-dune Fringed Lily	4
Asparagaceae	<i>Thysanotus multiflorus</i>	Many-flowered Fringe	4
Celastraceae	<i>Tripterococcus brunonis</i>	Winged Stackhousia	4
Fabaceae	<i>Acacia semitrullata</i>		3
Fabaceae	<i>Acacia willdenowiana</i>	Grass Wattle	3
Hemerocallidaceae	<i>Agrostocrinum hirsutum</i>	Grass Lily	3
Poaceae	<i>Aira caryophyllea</i>	Silvery Hairgrass	3
Haemodoraceae	<i>Anigozanthos manglesii</i>	Red And Green Kangaroo Paw	3
Asteraceae	<i>Arctotheca calendula</i>	Cape Weed	3

Fabaceae	<i>Bossiaea angustifolia</i>		3
Fabaceae	<i>Bossiaea ornata</i>	Broad-leaved Brown Pea	3
Poaceae	<i>Briza minor</i>	Lesser Quaking-grass	3
Myrtaceae	<i>Calothamnus sanguineus</i>	Silky-leaved Bloodflower	3
Asparagaceae	<i>Chamaexeros serra</i>		3
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>	Dense Crassula	3
Fabaceae	<i>Daviesia rhombifolia</i>		3
Fabaceae	<i>Dillwynia uncinata</i>	Silky Parrot-pea	3
Droseraceae	<i>Drosera menziesii</i>	Pink Rainbow	3
Cyperaceae	<i>Eleocharis keigheryi</i>	Keighery's Eleocharis	3
Orchidaceae	<i>Elythranthera brunonis</i>	Purple Enamel Orchid	3
Myrtaceae	<i>Eremaea pauciflora</i> var. <i>pauciflora</i>		3
Fabaceae	<i>Gastrolobium praemorsum</i>		3
Fabaceae	<i>Gompholobium confertum</i>		3
Fabaceae	<i>Gompholobium marginatum</i>		3
Fabaceae	<i>Gompholobium preissii</i>		3
Goodeniaceae	<i>Goodenia eatoniana</i>		3
Proteaceae	<i>Grevillea diversifolia</i> subsp. <i>diversifolia</i>		3
Proteaceae	<i>Hakea lissocarpha</i>	Honey Bush	3
Dilleniaceae	<i>Hibbertia commutata</i>		3
Proteaceae	<i>Isopogon sphaerocephalus</i>	Drumstick Isopogon	3
Fabaceae	<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	Granny Bonnets	3
Iridaceae	<i>Ixia paniculata</i>	Long-tube Ixia	3
Asparagaceae	<i>Laxmannia sessiliflora</i> subsp. <i>australis</i>		3
Goodeniaceae	<i>Lechenaultia floribunda</i>	Free-flowering Leschenaultia	3
Cyperaceae	<i>Lepidosperma scabrum</i>	Scabrid Sword-sedge	3
Santalaceae	<i>Leptomeria cunninghamii</i>		3
Stylidiaceae	<i>Levenhookia stipitata</i>	Common Stylewort	3
Campanulaceae	<i>Lobelia rhytidosperra</i>	Wrinkle-seeded Lobelia	3
Campanulaceae	<i>Lobelia tenuior</i>	Slender Lobelia	3
Asparagaceae	<i>Lomandra purpurea</i>	Purple Mat Rush	3
Asparagaceae	<i>Lomandra suaveolens</i>		3
Cyperaceae	<i>Machaerina arthropylla</i>	Baumea	3
Euphorbiaceae	<i>Monotaxis grandiflora</i>	Diamond Of The Desert	3
Poaceae	<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass	3
Oxalidaceae	<i>Oxalis glabra</i>	Finger-leaf Wood-sorrel	3
Haemodoraceae	<i>Phlebocarya filifolia</i>		3
Fabaceae	<i>Pultenaea skinneri</i>	Skinner's Pea	3
Asteraceae	<i>Quinetia urvillei</i>	Quinetia	3
Asteraceae	<i>Rhodanthe citrina</i>	Pale Immortelle	3
Stylidiaceae	<i>Stylidium carnosum</i>	Fleshy-leaved Triggerplant	3
Proteaceae	<i>Synaphea floribunda</i>		3
Poaceae	<i>Tetrarrhena laevis</i>	Forest Ricegrass	3
Haemodoraceae	<i>Tribonanthes brachypetala</i>	Nodding Tiurndin	3
Hemerocallidaceae	<i>Tricoryne elatior</i>	Yellow Rush Lily	3
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i> subsp. <i>semibarbata</i>		3
Fabaceae	<i>Acacia lateritica</i>		2
Fabaceae	<i>Acacia preissiana</i>		2
Apiaceae	<i>Actinotus glomeratus</i>		2
Casuarinaceae	<i>Allocasuarina fraseriana</i>	Western Sheoak	2
Euphorbiaceae	<i>Amperea simulans</i>		2
Poaceae	<i>Amphipogon laguroides</i>		2
Asparagaceae	<i>Asparagus asparagoides</i>	Western Cape Bridal Creeper	2
Ericaceae	<i>Astroloma pallidum</i>	Kick Bush	2
Myrtaceae	<i>Babingtonia camphorosmae</i>		2
Orchidaceae	<i>Caladenia flava</i> subsp. <i>sylvestris</i>	Karri Cowslip Orchid	2

Orchidaceae	Caladenia reptans	Little Pink Fairies	2
Orchidaceae	Caladenia	Fairy Orchids	2
Centrolepidaceae	Centrolepis aristata	Pointed Centrolepis	2
Proteaceae	Conospermum flexuosum subsp. laevigatum		2
Myrtaceae	Corymbia haematoxylon	Mountain Marri	2
Asteraceae	Craspedia variabilis	Common Billy-buttons	2
Orchidaceae	Cyanicula sericea	Silky Blue Orchid	2
Dasyopogonaceae	Dasyopogon hookeri	Pineapple Bush	2
Fabaceae	Daviesia decurrens subsp. decurrens		2
Poaceae	Digitaria sanguinalis	Summer Grass	2
Orchidaceae	Diuris longifolia	Common Donkey Orchid	2
Droseraceae	Drosera pulchella	Pretty Sundew	2
Chenopodiaceae	Dysphania pumilio	Small Crumbweed	2
Orchidaceae	Eriochilus dilatatus	White Bunny Orchid	2
Fabaceae	Eutaxia virgata		2
Proteaceae	Franklandia triaristata	Lanoline Bush	2
Fabaceae	Genista linifolia	Flax-leaf Broom	2
Iridaceae	Gladiolus tristis	Evening-flower Gladiolus	2
Apocynaceae	Gomphocarpus fruticosus	Narrow-leaved Cotton Bush	2
Fabaceae	Gompholobium polymorphum		2
Proteaceae	Grevillea quercifolia	Oak-leaf Grevillea	2
Proteaceae	Grevillea		2
Haemodoraceae	Haemodorum laxum	Bloodroot	2
Proteaceae	Hakea amplexicaulis	Prickly Hakea	2
Lamiaceae	Hemiandra pungens	Snakebush	2
Dilleniaceae	Hibbertia glomerata		2
Asparagaceae	Hyacinthoides non-scripta	English Bluebell	2
Violaceae	Hybanthus floribundus	Shrub Spade Flower	2
Araliaceae	Hydrocotyle intertexta	Buttercup Pennywort	2
Myrtaceae	Hypocalymma angustifolium	White Myrtle	2
Cyperaceae	Isolepis marginata	Little Club-rush	2
Campanulaceae	Isotoma hypocrateriformis	Woodbridge Poison	2
Iridaceae	Ixia maculata	Yellow Ixia	2
Fabaceae	Jacksonia lehmannii		2
Hemerocallidaceae	Johnsonia lupulina	Hooded Lily	2
Fabaceae	Kennedia prostrata	Scarlet Runner	2
Dasyopogonaceae	Kingia australis	Drumsticks	2
Myrtaceae	Kunzea rostrata		2
Fabaceae	Labichea punctata	Lance-leaved Cassia	2
Cyperaceae	Lepidosperma angustatum		2
Ericaceae	Leucopogon australis	Spike Beard-heath	2
Ericaceae	Leucopogon oxycedrus		2
Ericaceae	Leucopogon		2
Lindsaeaceae	Lindsaea linearis	Screw Fern	2
Asparagaceae	Lomandra drummondii		2
Orchidaceae	Lyperanthus serratus	Rattle Beaks	2
Myrtaceae	Melaleuca trichophylla		2
Cyperaceae	Mesomelaena tetragona	Semaphore Sedge	2
Asteraceae	Millotia tenuifolia var. tenuifolia	Soft Millotia	2
Portulacaceae	Montia australasica	White Purslane	2
Orchidaceae	Orchidaceae	Orchids	2
Oxalidaceae	Oxalis	Wood Sorrel	2
Iridaceae	Patersonia babianoides		2
Apiaceae	Pentapeltis peltigera		2
Myrtaceae	Pericalymma ellipticum	Swamp Teatree	2
Proteaceae	Persoonia longifolia	Snottygobble	2

Phytolaccaceae	<i>Phytolacca octandra</i>	Red-ink Weed	2
Thymelaeaceae	<i>Pimelea lanata</i>		2
Thymelaeaceae	<i>Pimelea rosea</i>	Rose Banjine	2
Cyperaceae	<i>Schoenus breviculmis</i>	Matted Bog-rush	2
Cyperaceae	<i>Schoenus</i>		2
Stylidiaceae	<i>Stylidium amoenum</i> var. <i>amoenum</i>		2
Stylidiaceae	<i>Stylidium ciliatum</i>	Golden Triggerplant	2
Stylidiaceae	<i>Stylidium neurophyllum</i>	Fan-leaved Triggerplant	2
Stylidiaceae	<i>Stylidium pulchellum</i>	Thumbelina Triggerplant	2
Stylidiaceae	<i>Stylidium spathulatum</i>	Creamy Triggerplant	2
Proteaceae	<i>Synaphea</i>		2
Cyperaceae	<i>Tetraria capillaris</i>	Hair Sedge	2
Elaeocarpaceae	<i>Tetratheca hirsuta</i>	Black-eyed Susan	2
Asparagaceae	<i>Thysanotus thyrsoideus</i>		2
Asparagaceae	<i>Thysanotus</i>	Fringed Lily	2
Asteraceae	<i>Trichocline spathulata</i>	Native Gerbera	2
Goodeniaceae	<i>Velleia trinervis</i>		2
Apocynaceae	<i>Vinca major</i>	Blue Periwinkle	2
Xanthorrhoeaceae	<i>Xanthorrhoea acanthostachya</i>		2
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i> subsp. <i>brunonis</i>	Grasstree	2
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i>		2
Fabaceae	<i>Acacia alata</i>	Winged Wattle	1
Fabaceae	<i>Acacia browniana</i>	Brown's Wattle	1
Fabaceae	<i>Acacia drummondii</i>	Drummond's Wattle	1
Fabaceae	<i>Acacia flagelliformis</i>		1
Fabaceae	<i>Acacia mooreana</i>		1
Fabaceae	<i>Acacia nervosa</i>	Rib Wattle	1
Fabaceae	<i>Acacia obovata</i>		1
Fabaceae	<i>Acacia podalyriifolia</i>	Mount Morgan Wattle	1
Fabaceae	<i>Acacia spectabilis</i>	Pilliga Wattle	1
Fabaceae	<i>Acacia teretifolia</i>		1
Fabaceae	<i>Acacia varia</i> var. <i>varia</i>		1
Myrtaceae	<i>Actinodium cunninghamii</i>	Swamp Daisy	1
Proteaceae	<i>Adenanthos obovatus</i>	Basket Flower	1
Violaceae	<i>Afrohybanthus enneaspermus</i>	Ladys Slipper	1
Myrtaceae	<i>Agonis flexuosa</i> var. <i>flexuosa</i>	Willow Myrtle	1
Poaceae	<i>Aira cupaniana</i>	Quicksilver Grass	1
Casuarinaceae	<i>Allocasuarina thuyoides</i>	Horned Sheoak	1
Poaceae	<i>Amphibromus</i>	Swamp Wallaby Grass	1
Poaceae	<i>Amphipogon amphipogonoides</i>		1
Ericaceae	<i>Andersonia</i>		1
Haemodoraceae	<i>Anigozanthos flavidus</i>	Tall Kangaroo Paw	1
Fabaceae	<i>Aotus cordifolia</i>		1
Centrolepidaceae	<i>Aphelia cyperoides</i>		1
Poaceae	<i>Austrostipa campylachne</i>		1
Poaceae	<i>Austrostipa semibarbata</i>	Fibrous Spear-grass	1
Colchicaceae	<i>Baeometra uniflora</i>	Baeometra	1
Proteaceae	<i>Banksia ilicifolia</i>	Holly Leaved Banksia	1
Proteaceae	<i>Banksia littoralis</i>	Swamp Banksia	1
Proteaceae	<i>Banksia sessilis</i>		1
Pittosporaceae	<i>Billardiera fraseri</i>	Elegant Pronaya	1
Cyperaceae	<i>Bolboschoenus</i>		1
Rutaceae	<i>Boronia fastigiata</i>	Bushy Boronia	1
Fabaceae	<i>Bossiaea linophylla</i>	Narrow-leaved Bossiaea	1
Fabaceae	<i>Bossiaea pulchella</i>		1
Fabaceae	<i>Bossiaea rufa</i>		1

Malvaceae	<i>Brachychiton populneus</i>	Kurrajong	1
Colchicaceae	<i>Burchardia multiflora</i>	Lesser Burchardia	1
Colchicaceae	<i>Burchardia umbellata</i>	Milkmaids	1
Hemerocallidaceae	<i>Caesia occidentalis</i>	Pale Grass Lily	1
Orchidaceae	<i>Caladenia attingens</i>	Forest Mantis Orchid	1
Orchidaceae	<i>Caladenia longiclavata</i>	Clubbed Spider Orchid	1
Orchidaceae	<i>Caladenia nana</i> subsp. <i>unita</i>	Pink Fan Orchid	1
Orchidaceae	<i>Caladenia pendens</i> subsp. <i>pendens</i>	Pendant Spider Orchid	1
Orchidaceae	<i>Caladenia reptans</i> subsp. <i>reptans</i>	Little Pink Fairies	1
Dasypogonaceae	<i>Calectasia cyanea</i>	Blue Tinsel Lily	1
Dasypogonaceae	<i>Calectasia narragara</i>	Star Of Bethlehem	1
Euphorbiaceae	<i>Calycopeplus oligandrus</i>		1
Myrtaceae	<i>Calytrix tetragona</i>	Grampians Fringe-myrtle	1
Leucobryaceae	<i>Campylopus introflexus</i>	Swan-neck Moss	1
	Caryophyllales		1
Lauraceae	<i>Cassytha racemosa</i> f. <i>racemosa</i>		1
Cyperaceae	<i>Caustis</i> sp. <i>Boyanup</i> (G.S.McCutcheon 1706)		1
Poaceae	<i>Cenchrus clandestinus</i>	Kikuyu	1
Poaceae	<i>Cenchrus macrourus</i>	African Feather Grass	1
Caryophyllaceae	<i>Cerastium glomeratum</i>	Common Mouse-ear Chickweed	1
Restionaceae	<i>Chaetanthus aristatus</i>	Bearded Twinerush	1
Fabaceae	<i>Chorizema glycinifolium</i>		1
Fabaceae	<i>Chorizema</i>		1
Proteaceae	<i>Conospermum capitatum</i> subsp. <i>glabratum</i>		1
Proteaceae	<i>Conospermum capitatum</i>		1
Haemodoraceae	<i>Conostylis serrulata</i>		1
Myrtaceae	<i>Corymbia maculata</i>	Spotted Gum	1
Asteraceae	<i>Cotula coronopifolia</i>	Water Buttons	1
Orchidaceae	<i>Cryptostylis ovata</i>	Tongue Orchid	1
Convolvulaceae	<i>Cuscuta suaveolens</i>	Fringed Dodder	1
Cyperaceae	<i>Cyathochaeta avenacea</i>		1
Orchidaceae	<i>Cyrtostylis</i>	Mosquito Orchids	1
Apiaceae	<i>Daucus glochidiatus</i>	Native Carrot	1
Fabaceae	<i>Daviesia divaricata</i> subsp. <i>divaricata</i>		1
Fabaceae	<i>Daviesia incrassata</i> subsp. <i>incrassata</i>		1
Fabaceae	<i>Daviesia inflata</i>		1
Restionaceae	<i>Desmocladus flexuosus</i>		1
Poaceae	<i>Deyeuxia quadriseta</i>	Slender Reed Bent-grass	1
Fabaceae	<i>Dillwynia</i>	Egg And Bacon Peas	1
Asteraceae	<i>Dimorphotheca ecklonis</i>	Cape Daisy	1
Rutaceae	<i>Diplolaena drummondii</i>	Lesser Diplolaena	1
Droseraceae	<i>Drosera glanduligera</i>	Scarlet Sundew	1
Droseraceae	<i>Drosera huegelii</i>	Bold Sundew	1
Droseraceae	<i>Drosera macrantha</i> subsp. <i>macrantha</i>		1
Droseraceae	<i>Drosera paleacea</i>	Dwarf Sundew	1
Droseraceae	<i>Drosera rosulata</i>		1
Droseraceae	<i>Drosera stolonifera</i>	Leafy Sundew	1
Ericaceae	Ericaceae	Austral Heaths	1
Geraniaceae	<i>Erodium botrys</i>	Big Herons-bill	1
Convolvulaceae	<i>Evolvulus alsinoides</i> var. <i>sericeus</i>	Tropical Speedwell	1
Iridaceae	<i>Ferraria crispa</i>	Black Flag	1
Iridaceae	<i>Freesia</i>	Freesia	1
Fabaceae	<i>Gastrolobium bilobum</i>	Heart-leaved Poison	1
Lamiaceae	Genus		1
Iridaceae	<i>Gladiolus communis</i> subsp. <i>byzantinus</i>	Byzantine Gladiolus	1
Haloragaceae	<i>Glischrocaryon angustifolium</i>	Golden Pennants	1

Asteraceae	<i>Gnephosis angianthoides</i>		1
Fabaceae	<i>Gompholobium capitatum</i>	Yellow Pea	1
Fabaceae	<i>Gompholobium shuttleworthii</i>		1
Proteaceae	<i>Grevillea bipinnatifida</i>	Fuchsia Grevillea	1
Proteaceae	<i>Grevillea dryandri</i> subsp. <i>dryandri</i>	Dryander's Grevillea	1
Proteaceae	<i>Grevillea trifida</i>		1
Proteaceae	<i>Grevillea vestita</i> subsp. <i>vestita</i>		1
Haemodoraceae	<i>Haemodorum sparsiflorum</i>	Mardja	1
Proteaceae	<i>Hakea ruscifolia</i>	Candle Hakea	1
Proteaceae	<i>Hakea</i>	Needle Bushes	1
Lamiaceae	<i>Hemiphora bartlingii</i>		1
Dilleniaceae	<i>Hibbertia acerosa</i>	Needle Leaved Guinea Flower	1
Dilleniaceae	<i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>	Yellow Buttercups	1
Dilleniaceae	<i>Hibbertia subvaginata</i>		1
Asteraceae	<i>Hyalosperma simplex</i> subsp. <i>simplex</i>		1
Violaceae	<i>Hybanthus</i>		1
Myrtaceae	<i>Hypocalymma ericifolium</i>		1
Cyperaceae	<i>Isolepis oldfieldiana</i>		1
Fabaceae	<i>Isotropis cuneifolia</i>	Granny Bonnets	1
Iridaceae	<i>Ixia cultivar</i>	<i>Ixia</i>	1
Fabaceae	<i>Jacksonia</i>		1
Fabaceae	<i>Kennedia coccinea</i> subsp. <i>coccinea</i>		1
Myrtaceae	<i>Kunzea glabrescens</i>	Spearwood	1
Asparagaceae	<i>Lachenalia aloides</i>		1
Asparagaceae	<i>Lachenalia flava</i>		1
Poaceae	<i>Lachnagrostis filiformis</i>	Common Blown-grass	1
Asparagaceae	<i>Laxmannia sessiliflora</i>	Nodding Lily	1
Cyperaceae	<i>Lepidosperma</i>	Swordsedges	1
Myrtaceae	<i>Leptospermum sericatum</i>		1
Amaryllidaceae	<i>Leucojum aestivum</i>	Snowflake	1
Ericaceae	<i>Leucopogon cordatus</i>		1
Ericaceae	<i>Leucopogon glabellus</i>		1
Ericaceae	<i>Leucopogon polymorphus</i>		1
Ericaceae	<i>Leucopogon pulchellus</i>	Beard Heath	1
Ericaceae	<i>Leucopogon reflexus</i>		1
Linaceae	<i>Linum trigynum</i>	French Flax	1
Poaceae	<i>Lolium multiflorum</i>	Italian Ryegrass	1
Asparagaceae	<i>Lomandra odora</i>	Fragrant Mat Rush	1
Asparagaceae	<i>Lomandra pauciflora</i>		1
Asparagaceae	<i>Lomandra</i>	Mat Rushes	1
Fabaceae	<i>Lotus angustissimus</i>	Slender Bird's-foot Trefoil	1
Restionaceae	<i>Loxocarya cinerea</i>		1
Anarthriaceae	<i>Lyginia imberbis</i>		1
Pittosporaceae	<i>Marianthus granulatus</i>		1
Marsileaceae	<i>Marsilea drummondii</i>	Clover Fern	1
Asteraceae	<i>Maurantherum paludosum</i>	Ox-eye Daisy	1
Myrtaceae	<i>Melaleuca incana</i> subsp. <i>incana</i>	Grey Honey-myrtle	1
Myrtaceae	<i>Melaleuca lateritia</i>	Robin Redbreast Bush	1
Myrtaceae	<i>Melaleuca parviceps</i>		1
Cyperaceae	<i>Mesomelaena graciliceps</i>		1
Cyperaceae	<i>Mesomelaena stygia</i> subsp. <i>stygia</i>		1
Poaceae	<i>Microlaena stipoides</i>	Weeping Grass	1
Orchidaceae	<i>Microtis cupularis</i>	Cupped Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i> subsp. <i>media</i>	Common Mignonette Orchid	1
Orchidaceae	<i>Microtis media</i>	Common Mignonette Orchid	1
Asteraceae	<i>Millotia myosotidifolia</i>	Broad-leaf Millotia	1

Fabaceae	<i>Mirbelia dilatata</i>	Holly-leaved Mirbelia	1
Caryophyllaceae	<i>Moenchia erecta</i>	Erect Chickweed	1
Iridaceae	<i>Moraea flaccida</i>	One-leaf Cape Tulip	1
Asteraceae	<i>Myriocephalus helichrysoides</i>		1
Haloragaceae	<i>Myriophyllum</i>	Water Milfoil	1
Amaryllidaceae	<i>Narcissus pseudonarcissus</i>	Common Daffodil	1
Amaryllidaceae	<i>Narcissus tazetta</i> subsp. <i>italicus</i>	Tazetta	1
Menyanthaceae	<i>Ornduffia submersa</i>		1
Asparagaceae	<i>Ornithogalum thyrsoides</i>	Chincherinchee	1
Orobanchaceae	<i>Orobanche minor</i>	Lesser Broomrape	1
Iridaceae	<i>Orthrosanthus laxus</i>	Morning Iris	1
Hydrocharitaceae	<i>Ottelia ovalifolia</i>	Swamp Lily	1
Oxalidaceae	<i>Oxalis perennans</i>	Native Sorrel	1
Myrtaceae	<i>Paragonis grandiflora</i>		1
Fabaceae	<i>Paraserianthes lophantha</i> subsp. <i>lophantha</i>	Crested Wattle	1
Poaceae	<i>Paspalum distichum</i>	Water Couch	1
Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>		1
Myrtaceae	<i>Pericalymma ellipticum</i> var. <i>floridum</i>		1
Myrtaceae	<i>Pericalymma spongiocaula</i>		1
Polygonaceae	<i>Persicaria prostrata</i>	Creeping Knotweed	1
Proteaceae	<i>Persoonia saccata</i>	Snottygobble	1
Caryophyllaceae	<i>Petrorhagia dubia</i>	Velvet Pink	1
Poaceae	<i>Phalaris aquatica</i>	Phalaris	1
Marsileaceae	<i>Pilularia novae-hollandiae</i>	Austral Pillwort	1
Thymelaeaceae	<i>Pimelea imbricata</i> var. <i>piligera</i>		1
Thymelaeaceae	<i>Pimelea suaveolens</i>	Scented Banjine	1
	Plantae		1
Apiaceae	<i>Platysace filiformis</i>		1
Elaeocarpaceae	<i>Platytheca galioides</i>		1
Podocarpaceae	<i>Podocarpus drouynianus</i>	Wild Plum	1
Asteraceae	<i>Podotheca angustifolia</i>	Sticky Long-heads	1
Phyllanthaceae	<i>Poranthera microphylla</i>	Small Poranthera	1
Orchidaceae	<i>Praecoxanthus aphyllus</i>	Leafless Orchid	1
Rosaceae	<i>Prunus cerasifera</i>	Purple-leaf Cherry-plum	1
Rosaceae	<i>Prunus persica</i>	Peach	1
Asteraceae	<i>Pseudognaphalium</i>		1
Orchidaceae	<i>Pterostylis barbata</i>	Bird Orchid	1
Orchidaceae	<i>Pterostylis nana</i>	Dwarf Greenhood	1
Orchidaceae	<i>Pterostylis recurva</i>	Recurved Shell Orchid	1
Orchidaceae	<i>Pterostylis sanguinea</i>	Blood Greenhood	1
Orchidaceae	<i>Pterostylis</i> sp. crinkled leaf (G.J.Keighery 13426)		1
Fabaceae	<i>Pultenaea radiata</i>		1
Racopilaceae	<i>Racopilum cuspidigerum</i> var. <i>convolutaceum</i>	Common Carpet-moss	1
Asteraceae	<i>Rhodanthe propinqua</i>		1
Asteraceae	<i>Rhodanthe pyrethrum</i>		1
Rubiaceae	<i>Richardia brasiliensis</i>	White Eye	1
Euphorbiaceae	<i>Ricinus communis</i>	Castor Oil Plant	1
Iridaceae	<i>Romulea rosea</i>	Onion Grass	1
Poaceae	<i>Rytidosperma acerosum</i>		1
Poaceae	<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	1
Poaceae	<i>Rytidosperma occidentale</i>	Western Wallaby Grass	1
Goodeniaceae	<i>Scaevola phlebopetala</i>	Velvet Fanflower	1
Apiaceae	<i>Schoenolaena juncea</i>		1
Cyperaceae	<i>Schoenus bifidus</i>		1
Cyperaceae	<i>Schoenus brevisetis</i>		1
Cyperaceae	<i>Schoenus subbulbosus</i>		1

Selaginellaceae	<i>Selaginella gracillima</i>	Tiny Clubmoss	1
Asteraceae	<i>Senecio diaschides</i>	Shingle Fireweed	1
Asteraceae	<i>Siloxerus humifusus</i>	Procumbent Siloxerus	1
Brassicaceae	<i>Sisymbrium officinale</i>	Hedge Mustard	1
Iridaceae	<i>Sisyrinchium rosulatum</i>	Scourweed	1
Fabaceae	<i>Sphaerolobium macranthum</i>		1
Fabaceae	<i>Sphaerolobium medium</i>		1
Picrodendraceae	<i>Stachystemon virgatus</i>		1
Celastraceae	<i>Stackhousia monogyna</i>	Creamy Candles	1
Stylidiaceae	<i>Stylidium amoenum</i>	Lovely Triggerplant	1
Stylidiaceae	<i>Stylidium lineatum</i>	Sunny Triggerplant	1
Stylidiaceae	<i>Stylidium petiolare</i>	Horn Triggerplant	1
Stylidiaceae	<i>Stylidium schoenoides</i>	Cow Kicks	1
Stylidiaceae	<i>Stylidium utricularioides</i>	Pink Fan Triggerplant	1
Stylidiaceae	<i>Stylidium</i>	Trigger-plants	1
Proteaceae	<i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>		1
Proteaceae	<i>Synaphea</i> sp. <i>Serpentine</i> (G.R.Brand 103)		1
Myrtaceae	<i>Taxandria parviceps</i>	Myrtle	1
Elaeocarpaceae	<i>Tetradlea hispidissima</i>		1
Orchidaceae	<i>Thelymitra crinita</i>	Blue Lady Orchid	1
Orchidaceae	<i>Thelymitra flexuosa</i>	Twisted Sun-orchid	1
Orchidaceae	<i>Thelymitra pauciflora</i>	Slender Sun Orchid	1
Orchidaceae	<i>Thelymitra</i>	Sun Orchids	1
Malvaceae	<i>Thomasia macrocalyx</i>		1
Asparagaceae	<i>Thysanotus dichotomus</i>	Branching Fringe Lily	1
Asparagaceae	<i>Thysanotus gracilis</i>		1
Asparagaceae	<i>Thysanotus manglesianus</i>	Fringed Lily	1
Asparagaceae	<i>Thysanotus patersonii</i>	Twining Fringe-lily	1
Asparagaceae	<i>Thysanotus sparteus</i>	Leafless Fringed Lily	1
Asteraceae	<i>Tolpis barbata</i>	Yellow Hawkweed	1
Hydatellaceae	<i>Trithuria australis</i>		1
Hydatellaceae	<i>Trithuria bibracteata</i>		1
Iridaceae	<i>Tritonia crocata</i>	Orange Tritonia	1
Myrtaceae	<i>Verticordia acerosa</i> var. <i>preissii</i>		1
Myrtaceae	<i>Verticordia densiflora</i>	Compacted Featherflower	1
Myrtaceae	<i>Verticordia drummondii</i>	Drummond's Featherflower	1
Myrtaceae	<i>Verticordia plumosa</i> var. <i>plumosa</i>		1
Fabaceae	<i>Vicia sativa</i> subsp. <i>nigra</i>	Narrow-leaved Vetch	1
Fabaceae	<i>Vicia sativa</i>	Common Vetch	1
Xanthorrhoeaceae	<i>Xanthorrhoea gracilis</i>	Graceful Grass Tree	1
Apiaceae	<i>Xanthosia candida</i>		1

Lifeform - Protozoa

Number of Protozoa 3

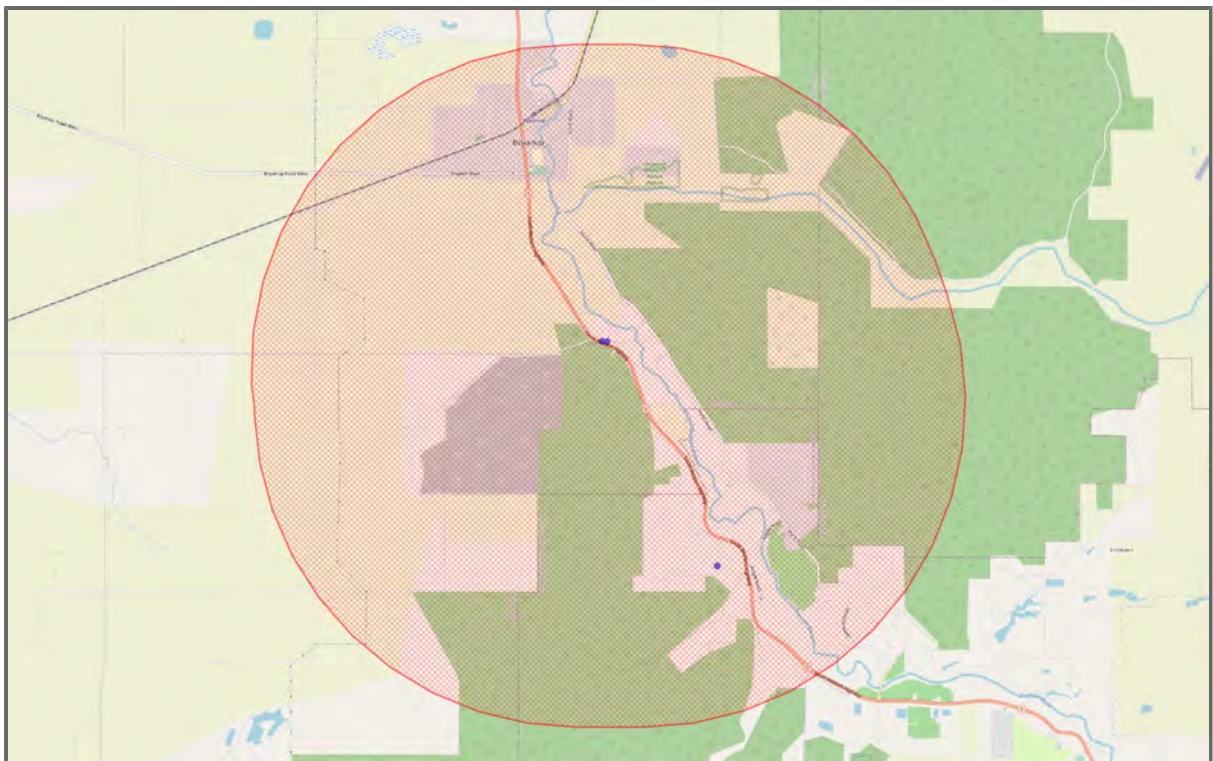


Figure 30 : Map of Lifeform - Protozoa

Table 30: Lifeform - Protozoa ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Arcyriaceae	<i>Arcyria denudata</i>		1
Stemonitidaceae	<i>Stemonitis</i>		1
Tubiferaceae	<i>Tubifera ferruginosa</i>		1

Lifeform - Reptiles

Number of Reptiles 17

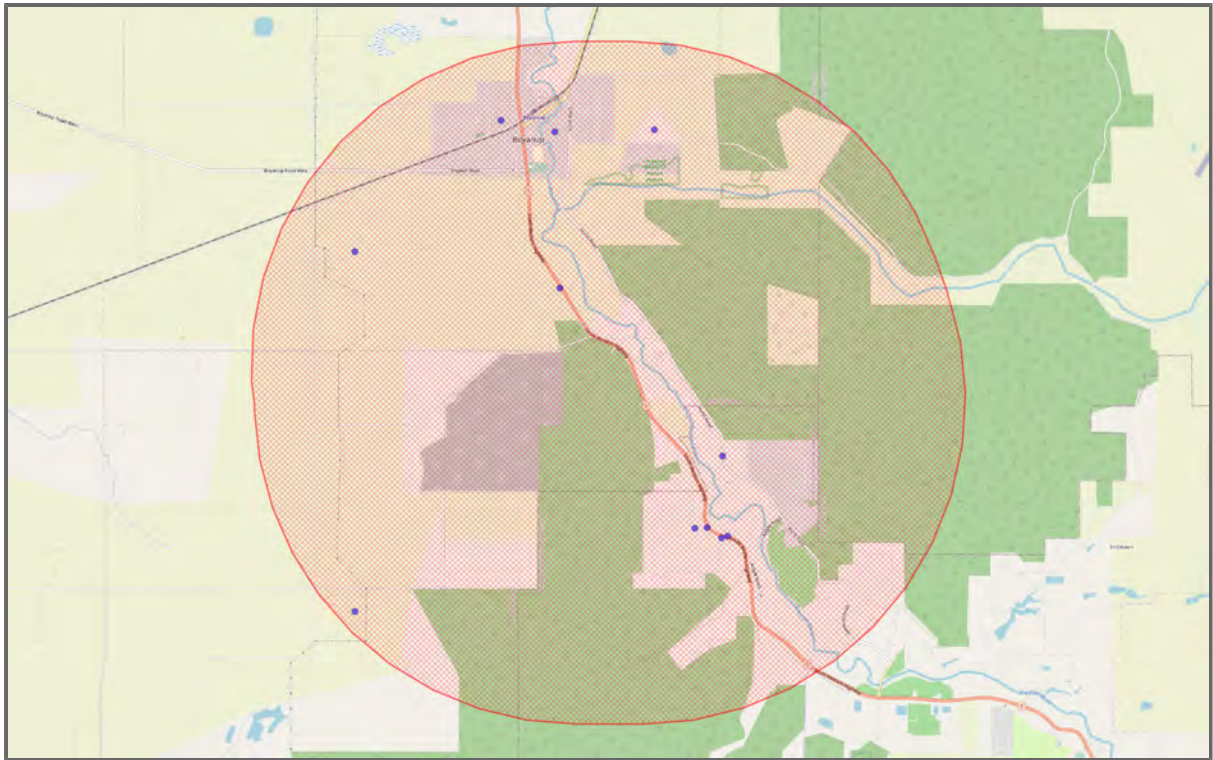


Figure 31 : Map of Lifeform - Reptiles

Table 31: Lifeform - Reptiles ([Link to full list](#))

Family	Scientific Name	Common Name	No. Occurrences
Scincidae	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink	12
Scincidae	<i>Hemiergis initialis</i>	Southwestern Earless Skink	8
Scincidae	<i>Hemiergis quadrilineata</i>	Two-toed Earless Skink	8
Scincidae	<i>Hemiergis peronii</i>	Lowlands Earless Skink	4
Scincidae	<i>Lerista distinguenda</i>	South-western Orange-tailed Slider	4
Gekkonidae	<i>Christinus marmoratus</i>	Marbled Gecko	3
Elapidae	<i>Suta nigriceps</i>	Mitchell's Short-tailed Snake	3
Scincidae	<i>Ctenotus impar</i>	Odd-striped Ctenotus	2
Scincidae	<i>Morethia obscura</i>	Shrubland Morethia Skink	2
Scincidae	<i>Tiliqua rugosa rugosa</i>		2
Typhlopidae	<i>Anilius australis</i>	Southern Blind Snake	1
Chelidae	<i>Chelodina (Macrochelodina) oblonga</i>	Northern Snake-necked Turtle	1
Scincidae	<i>Ctenotus labillardieri</i>	Red-legged Ctenotus	1
Pygopodidae	<i>Lialis burtonis</i>	Burton's Snake-lizard	1
Chelidae	<i>Pseudemydura umbrina</i>	Western Swamp Turtle	1
Scincidae	SCINCIDAE		1
Varanidae	<i>Varanus gouldii</i>	Gould's Goanna	1

Expert Distributions

Number of expert distributions: 476

Table 32: Expert Distributions

Family	Scientific Name	Common Name	Min Depth	Max Depth	Area Name	Area sq km
Proteaceae	<i>Petrophile latericola</i>	Laterite Petrophile			Expert distribution (maybe) <i>Petrophile latericola</i>	2057.72
Proteaceae	<i>Synaphea stenoloba</i>	Dwellingup Synaphea			Expert distribution (maybe) <i>Synaphea stenoloba</i>	2273.89
LABRIDAE	<i>Choerodon rubescens</i>	Baldchin Groper		30.0	Expert distribution <i>Choerodon rubescens</i>	21287.69
Diomedeidae	<i>Diomedea amsterdamensis</i>	Amsterdam Albatross			Expert distribution (maybe) <i>Diomedea amsterdamensis</i>	789019.60
Diomedeidae	<i>Diomedea exulans amsterdamensis</i>	Amsterdam Albatross			Expert distribution (maybe) <i>Diomedea exulans amsterdamensis</i>	789019.60
MELIPHAGIDAE	<i>Acanthorhynchus superciliosus</i>	Western Spinebill			Expert distribution <i>Acanthorhynchus superciliosus</i>	182727.63
Diomedeidae	<i>Phoebastria fusca</i>	Sooty Albatross			Expert distribution (maybe) <i>Phoebastria fusca</i>	2198508.60
PLATYCEPHALIDAE	<i>Platycephalus bassensis</i>	Southern Sand Flathead		100.0	Expert distribution <i>Platycephalus bassensis</i>	448059.57
Diomedeidae	<i>Thalassarche cauta</i> (sensu stricto)	Shy Albatross, Tasmanian Shy Albatross			Expert distribution (likely) <i>Thalassarche cauta</i> (sensu stricto)	3233695.74
UROLOPHIDAE	<i>Urolophus paucimaculatus</i>	Sparsely-spotted Stingaree		150.0	Expert distribution <i>Urolophus paucimaculatus</i>	546665.31
LARIDAE	<i>Chlidonias (Pelodes) hybrida</i>	Whiskered Tern			Expert distribution <i>Chlidonias hybrida</i>	3176691.37
RALLIDAE	<i>Fulica atra</i>	Eurasian Coot			Expert distribution <i>Fulica atra</i>	40213555.69
SCOLOPACIDAE	<i>Tringa (Rhyacophilus) stagnatilis</i>	Marsh Sandpiper			Expert distribution <i>Tringa stagnatilis</i>	32002835.93
SCOLOPACIDAE	<i>Xenus cinereus</i>	Terek Sandpiper			Expert distribution <i>Xenus cinereus</i>	14255785.46
RALLIDAE	<i>Porzana (Porzana) pusilla</i>	Baillon's Crake			Expert distribution <i>Porzana pusilla</i>	23572540.88
Diomedeidae	<i>Diomedea sanfordi</i>	Northern Royal Albatross			Expert distribution (likely) <i>Diomedea sanfordi</i>	3442253.12
	<i>Phalacrocorax melanoleucos</i>				Expert distribution <i>Phalacrocorax melanoleucos</i>	5881748.39
CUCULIDAE	<i>Chrysococcyx lucidus</i>	Shining Bronze Cuckoo			Expert distribution <i>Chrysococcyx lucidus</i>	3617321.76
ARDEIDAE	<i>Ardea (Ardea) pacifica</i>	White-necked Heron			Expert distribution <i>Ardea pacifica</i>	7532467.66
CACATUIDAE	<i>Cacatua (Cacatua) galerita</i>	Sulphur-crested Cockatoo			Expert distribution <i>Cacatua galerita</i>	3951643.10
CACATUIDAE	<i>Cacatua (Licmetis) sanguinea</i>	Little Corella			Expert distribution <i>Cacatua sanguinea</i>	5339700.99
CUCULIDAE	<i>Cacomantis (Vidgenia) flabelliformis</i>	Fan-tailed Cuckoo			Expert distribution <i>Cacomantis flabelliformis</i>	2447973.99
ARDEIDAE	<i>Ixobrychus flavicollis</i>	Black Bittern			Expert distribution <i>Ixobrychus flavicollis</i>	9646142.05
SCOLOPACIDAE	<i>Numenius (Numenius) madagascariensis</i>	Eastern Curlew			Expert distribution <i>Numenius madagascariensis</i>	3601101.26
ARDEIDAE	<i>Nycticorax caledonicus</i>	Nankeen Night-heron			Expert distribution <i>Nycticorax caledonicus</i>	7827831.87

PACHYCEPHALIDAE	Pachycephala (Pachycephala) pectoralis	Golden Whistler			Expert distribution Pachycephala pectoralis	2142705.71
Apodidae	Apus pacificus	Fork-tailed Swift			Expert distribution (likely) Apus pacificus	6850159.42
RECURVIROSTRIDAE	Cladorhynchus leucocephalus	Banded Stilt			Expert distribution Cladorhynchus leucocephalus	1295039.34
ANATIDAE	Anas (Nettion) gracilis	Grey Teal			Expert distribution Anas gracilis	8854807.76
PHASIANIDAE	Coturnix (Synoicus) ypsilophora	Brown Quail			Expert distribution Coturnix ypsilophora	5867626.03
CHARADRIIDAE	Charadrius (Charadrius) ruficapillus	Red-capped Plover			Expert distribution Charadrius ruficapillus	4830132.20
STRIGIDAE	Ninox (Hieracoglaux) connivens	Barking Owl			Expert distribution Ninox connivens	2486340.95
SCOMBRIDAE	Auxis rochei	Bullet Tuna	200.0		Expert distribution Auxis rochei	10408009.84
LAMNIDAE	Carcharodon carcharias	White Shark	1280.0		Expert distribution Carcharodon carcharias	5994960.48
PLATYCEPHALIDAE	Platycephalus endrachtensis	Northern Sand Flathead	1.0	50.0	Expert distribution Platycephalus endrachtensis	688848.18
CASUARIIDAE	Dromaius novaehollandiae	Emu			Expert distribution Dromaius novaehollandiae	6759542.46
RECURVIROSTRIDAE	Recurvirostra novaehollandiae	Red-necked Avocet			Expert distribution Recurvirostra novaehollandiae	3550921.74
CAMPEPHAGIDAE	Coracina (Coracina) novaehollandiae	Black-faced Cuckoo-shrike			Expert distribution Coracina novaehollandiae	8275248.68
NEOSITTIDAE	Daphoenositta (Neositta) chrysoptera	Varied Sittella			Expert distribution Daphoenositta chrysoptera	4916038.89
Dermodochelyidae	Dermodochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth			Expert distribution (likely) Dermodochelys coriacea	6176689.17
ACANTHIZIDAE	Acanthiza (Geobasileus) chrysorrhoa	Yellow-rumped Thornbill			Expert distribution Acanthiza chrysorrhoa	4621303.32
MALURIDAE	Malurus (Malurus) splendens	Splendid Fairy-wren			Expert distribution Malurus splendens	2720327.23
Procellariidae	Puffinus carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater			Expert distribution (likely) Puffinus carneipes	4052379.07
ENGRAULIDAE	Engraulis australis	Australian Anchovy	200.0		Expert distribution Engraulis australis	721338.89
SPARIDAE	Acanthopagrus butcheri	Black Bream	30.0		Expert distribution Acanthopagrus butcheri	58639.05
DASYATIDAE	Dasyatis brevicaudata	Smooth Stingray	150.0		Expert distribution Dasyatis brevicaudata	627024.21
	Climacteris rufus				Expert distribution Climacteris rufus	453651.01
LABRIDAE	Siphonognathus argyrophanes	Tubemouth	1.0	40.0	Expert distribution Siphonognathus argyrophanes	82852.58
Ardeidae	Botaurus poiciloptilus	Australasian Bittern			Expert distribution (maybe) Botaurus poiciloptilus	313499.46
MONARCHIDAE	Myiagra (Seisura) inquieta	Restless Flycatcher			Expert distribution Myiagra inquieta	2505428.00
PARDALOTIDAE	Pardalotus (Pardalotus) punctatus	Spotted Pardalote			Expert distribution Pardalotus punctatus	2177370.82
LARIDAE	Chroicocephalus novaehollandiae novaehollandiae	Silver Gull			Expert distribution Larus novaehollandiae	7828185.18
ACCIPITRIDAE	Circus assimilis	Spotted Harrier			Expert distribution Circus assimilis	7850851.09
PACHYCEPHALIDAE	Colluricincla (Colluricincla)	Grey Shrike-thrush			Expert distribution Colluricincla	6948277.29

	harmonica				harmonica	
PHALACROCORACIDAE	Phalacrocorax (Phalacrocorax) sulcirostris	Little Black Cormorant			Expert distribution Phalacrocorax sulcirostris	4531811.78
THRESKIORNITHIDAE	Platalea (Platalea) regia	Royal Spoonbill			Expert distribution Platalea regia	6253990.16
PODARGIDAE	Podargus strigoides	Tawny Frogmouth			Expert distribution Podargus strigoides	7706572.49
Balaenopteridae	Balaenoptera edeni	Bryde's Whale			Expert distribution (maybe) Balaenoptera edeni	8943204.54
Cheloniidae	Chelonia mydas	Green Turtle			Expert distribution (likely) Chelonia mydas	5522768.79
ANATIDAE	Malacorhynchus membranaceus	Pink-eared Duck			Expert distribution Malacorhynchus membranaceus	7027203.52
Mobulidae	Manta birostris	Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray			Expert distribution (maybe) Manta birostris	5002091.45
Diomedeidae	Thalassarche cauta steadi	White-capped Albatross			Expert distribution (likely) Thalassarche cauta steadi	6038445.64
Fabaceae	Daviesia elongata subsp. elongata	Long-leaved Daviesia			Expert distribution (likely) Daviesia elongata subsp. elongata	1232.48
CORVIDAE	Corvus bennetti	Little Crow			Expert distribution Corvus bennetti	5705338.98
ORECTOLOBIDAE	Orectolobus halei	Gulf Wobbegong	100.0		Expert distribution Orectolobus halei	482397.24
CHEILODACTYLIDAE	Cheilodactylus rubrolabiatus	Redlip Morwong	30.0		Expert distribution Cheilodactylus rubrolabiatus	31140.17
Otariidae	Neophoca cinerea	Australian Sea-lion			Expert distribution (maybe) Neophoca cinerea	87738.13
SERRANIDAE	Othos dentex	Harlequin Fish	30.0		Expert distribution Othos dentex	36357.94
PLATYCEPHALIDAE	Platycephalus speculator	Southern Bluespotted Flathead	30.0		Expert distribution Platycephalus speculator	51759.72
ELOPIDAE	Elops machnata	Australian Giant Herring	40.0		Expert distribution Elops machnata	30621.36
CLUPEIDAE	Sardinella lemuru	Scaly Mackerel	1.0	50.0	Expert distribution Sardinella lemuru	219840.10
TETRAODONTIDAE	Torquigener vicinus	Orangespotted Puffer	33.0		Expert distribution Torquigener vicinus	6923.56
Proteaceae	Banksia nivea subsp. uliginosa	Swamp Honeypot			Expert distribution (maybe) Banksia nivea subsp. uliginosa	3796.09
Orchidaceae	Caladenia huegelii	King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid			Expert distribution (maybe) Caladenia huegelii	19439.87
Cacatuidae	Calyptorhynchus banksii naso	Forest Red-tailed Black-Cockatoo, Karrak			Expert distribution (maybe) Calyptorhynchus banksii naso	69024.65
CACATUIDAE	Calyptorhynchus (Zanda) latirostris	Carnaby's Black-cockatoo			Expert distribution Calyptorhynchus latirostris	249305.58
SCORPAENIDAE	Scorpaena sumptuosa	Western Red Scorpionfish	1.0	60.0	Expert distribution Scorpaena sumptuosa	60834.15
LABRIDAE	Suezichthys cyanolaemus	Bluethroat Rainbow Wrasse	1.0	40.0	Expert distribution Suezichthys cyanolaemus	35805.11
UROLOPHIDAE	Trygonoptera personata	Masked Stingaree	115.0		Expert distribution Trygonoptera personata	71273.61
UROLOPHIDAE	Urolophus lobatus	Lobed Stingaree	30.0		Expert distribution Urolophus lobatus	5168.00
ARDEIDAE	Ardea (Bubulcus) ibis	Cattle Egret			Expert distribution Bubulcus ibis	63736830.48
ARDEIDAE	Ardea alba	Great White Egret			Expert distribution Casmerodius albus	75783095.10
SCOLOPACIDAE	Arenaria interpres	Ruddy Turnstone			Expert distribution Arenaria interpres	13110297.20

SCOLOPACIDAE	Calidris (Calidris) canutus	Red Knot	Expert distribution Calidris canutus	6909656.74
SCOLOPACIDAE	Calidris (Calidris) tenuirostris	Great Knot	Expert distribution Calidris tenuirostris	3582115.30
SCOLOPACIDAE	Calidris (Crocethia) alba	Sanderling	Expert distribution Calidris alba	12943524.46
SCOLOPACIDAE	Calidris (Ereunetes) ruficollis	Red-necked Stint	Expert distribution Calidris ruficollis	9890575.48
SCOLOPACIDAE	Calidris (Erolia) acuminata	Sharp-tailed Sandpiper	Expert distribution Calidris acuminata	12325741.41
CHARADRIIDAE	Charadrius (Charadrius) mongolus	Lesser Sand Plover	Expert distribution Charadrius mongolus	7799309.27
COLUMBIDAE	Columba (Columba) livia	Rock Dove	Expert distribution Columba livia	40132736.33
ARDEIDAE	Egretta garzetta	Little Egret	Expert distribution Egretta garzetta	40036024.12
ARDEIDAE	Egretta sacra	Eastern Reef Egret	Expert distribution Egretta sacra	4120498.08
LARIDAE	Hydroprogne caspia	Caspian Tern	Expert distribution Sterna caspia	13971242.26
SCOLOPACIDAE	Limosa lapponica	Bar-tailed Godwit	Expert distribution Limosa lapponica	9217521.21
PHALACROCORACIDAE	Phalacrocorax (Phalacrocorax) carbo	Great Cormorant	Expert distribution Phalacrocorax carbo	29810439.37
THRESKIORNITHIDAE	Plegadis falcinellus	Glossy Ibis	Expert distribution Plegadis falcinellus	28613832.12
CHARADRIIDAE	Pluvialis fulva	Pacific Golden Plover	Expert distribution Pluvialis fulva	7571696.64
CHARADRIIDAE	Pluvialis squatarola	Grey Plover	Expert distribution Pluvialis squatarola	15219550.69
RALLIDAE	Porphyrio (Porphyrio) porphyrio	Purple Swamphen	Expert distribution Porphyrio porphyrio	18612466.94
SCOLOPACIDAE	Steganopus tricolor	Wilson's Phalarope	Expert distribution Steganopus tricolor	43981867.07
LARIDAE	Sterna (Sterna) dougallii	Roseate Tern	Expert distribution Sterna dougallii	35272496.90
SCOLOPACIDAE	Tringa (Rhyacophilus) glareola	Wood Sandpiper	Expert distribution Tringa glareola	45716932.72
	Stigmatopelia senegalensis		Expert distribution Stigmatopelia senegalensis	25578484.33
	Heteroscelus brevipes	Grey-tailed Tattler	Expert distribution Heteroscelus brevipes	4921697.20
ANATIDAE	Anas (Anas) platyrhynchos	Northern Mallard	Expert distribution Anas platyrhynchos	49456016.35
RALLIDAE	Gallirallus (Hypotaenidia) philippensis	Buff-banded Rail	Expert distribution Gallirallus philippensis	2526398.57
TYTONIDAE	Tyto alba	Barn Owl	Expert distribution Tyto alba	63421904.27
	Stigmatopelia chinensis		Expert distribution Stigmatopelia chinensis	11412223.27
PROCELLARIIDAE	Puffinus (Puffinus) assimilis	Little Shearwater	Expert distribution Puffinus assimilis	58559943.05
ALCEDINIDAE	Todiramphus (Todiramphus) sanctus	Sacred Kingfisher	Expert distribution Todiramphus sanctus	8251815.38
ANATIDAE	Anas (Anas) superciliosa	Pacific Black Duck	Expert distribution Anas superciliosa	8885221.53
RALLIDAE	Porzana (Porzana) tabuensis	Spotless Crane	Expert distribution Porzana tabuensis	2328613.11
ALCEDINIDAE	Dacelo (Dacelo) novaeguineae	Laughing Kookaburra	Expert distribution Dacelo novaeguineae	2777117.73
Lamnidae	Carcharodon carcharias	Great White Shark	Expert distribution (likely) Carcharodon carcharias	5210447.28
			Expert distribution Corvus	

CORVIDAE	<i>Corvus coronoides</i>	Australian Raven			coronoides	4821723.12
ARTAMIDAE	<i>Cracticus nigrogularis</i>	Pied Butcherbird			Expert distribution <i>Cracticus nigrogularis</i>	6375272.64
CUCULIDAE	<i>Cuculus pallidus</i>	Palid Cuckoo			Expert distribution <i>Cuculus pallidus</i>	7788647.90
NECTARINIIDAE	<i>Dicaeum (Dicaeum) hirundinaceum</i>	Mistletoebird			Expert distribution <i>Dicaeum hirundinaceum</i>	6504923.75
PELECANIDAE	<i>Pelecanus conspicillatus</i>	Australian Pelican			Expert distribution <i>Pelecanus conspicillatus</i>	6627953.98
CACATUIDAE	<i>Cacatua (Licmetis) pastinator</i>	Western Corella			Expert distribution <i>Cacatua pastinator</i>	201175.82
PETROICIDAE	<i>Eopsaltria (Eopsaltria) griseogularis</i>	Western Yellow Robin			Expert distribution <i>Eopsaltria griseogularis</i>	589536.32
OPHICHTHIDAE	<i>Ophisurus serpens</i>	Serpent Eel	550.0		Expert distribution <i>Ophisurus serpens</i>	783705.69
CARANGIDAE	<i>Seriola hippos</i>	Samsonfish	1.0	70.0	Expert distribution <i>Seriola hippos</i>	426488.31
RHINOBATIDAE	<i>Trygonorrhina dumerilii</i>	Southern Fiddler Ray	120.0		Expert distribution <i>Trygonorrhina dumerilii</i>	469412.14
ARRIPIDAE	<i>Arripis georgianus</i>	Australian Herring	50.0		Expert distribution <i>Arripis georgianus</i>	636810.43
ANATIDAE	<i>Biziura lobata</i>	Musk Duck			Expert distribution <i>Biziura lobata</i>	2745184.89
ANATIDAE	<i>Oxyura australis</i>	Blue-billed Duck			Expert distribution <i>Oxyura australis</i>	2220865.40
MICROCANTHIDAE	<i>Microcanthus strigatus</i>	Stripey	50.0		Expert distribution <i>Microcanthus strigatus</i>	250000.15
LABRIDAE	<i>Olisthops cyanomelas</i>	Herring Cale	1.0	30.0	Expert distribution <i>Olisthops cyanomelas</i>	47509.57
APOGONIDAE	<i>Siphamia cephalotes</i>	Wood's Siphonfish	1.0	30.0	Expert distribution <i>Siphamia cephalotes</i>	64831.58
LABRIDAE	<i>Siphonognathus attenuatus</i>	Slender Weed Whiting	1.0	40.0	Expert distribution <i>Siphonognathus attenuatus</i>	73760.34
Centrolepidaceae	<i>Centrolepis caespitosa</i>				Expert distribution (likely) <i>Centrolepis caespitosa</i>	50478.89
ACROCEPHALIDAE	<i>Acrocephalus (Acrocephalus) australis</i>	Australian Reed-warbler			Expert distribution <i>Acrocephalus australis</i>	3900510.52
ANHINGIDAE	<i>Anhinga novaehollandiae</i>	Australasian Darter			Expert distribution <i>Anhinga novaehollandiae</i>	7220532.85
PSITTACIDAE	<i>Barnardius zonarius</i>	Australian Ringneck			Expert distribution <i>Barnardius zonarius</i>	5326116.85
ANATIDAE	<i>Aythya (Nyroca) australis</i>	Hardhead			Expert distribution <i>Aythya australis</i>	8179872.96
ANATIDAE	<i>Tadorna (Casarca) tadornoides</i>	Australian Shelduck			Expert distribution <i>Tadorna tadornoides</i>	3310144.12
MELIPHAGIDAE	<i>Anthochaera (Anellobia) lunulata</i>	Western Wattlebird			Expert distribution <i>Anthochaera lunulata</i>	237773.25
PSITTACIDAE	<i>Platycercus (Violania) icterotis</i>	Western Rosella			Expert distribution <i>Platycercus icterotis</i>	214600.22
KYPHOSIDAE	<i>Kyphosus cornelii</i>	Western Buffalo Bream	3.0	40.0	Expert distribution <i>Kyphosus cornelii</i>	18268.52
GOBIESOCIDAE	<i>Alabes occidentalis</i>	Western Shore Eel	37.0		Expert distribution <i>Alabes occidentalis</i>	16228.22
Centrolepidaceae	<i>Centrolepis caespitosa</i>				Expert distribution (maybe) <i>Centrolepis caespitosa</i>	69830.42
Dasyuridae	<i>Dasyurus geoffroi</i>	Chuditch, Western Quoll			Expert distribution (likely) <i>Dasyurus geoffroi</i>	168509.46
Cacatuidae	<i>Calyptorhynchus latirostris</i>	Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo			Expert distribution (likely) <i>Calyptorhynchus latirostris</i>	242986.70
					Expert distribution (likely)	

Carcharhinidae	Carcharias taurus (west coast population)	Grey Nurse Shark (west coast population)		Carcharias taurus (west coast population)	137409.18
SERRANIDAE	Hypoplectrodes cardinalis	Red Seaperch	35.0	Expert distribution Hypoplectrodes cardinalis	27140.23
Macropodidae	Setonix brachyurus	Quokka		Expert distribution (maybe) Setonix brachyurus	54277.68
PLATYCEPHALIDAE	Platycephalus chauliodous	Bigtooth Flathead	40.0	Expert distribution Platycephalus chauliodous	7688.11
Proteaceae	Synaphea stenoloba	Dwellingup Synaphea		Expert distribution (likely) Synaphea stenoloba	1869.02
SILLAGINIDAE	Sillago schomburgkii	Yellowfin Whiting	30.0	Expert distribution Sillago schomburgkii	45858.79
Laridae	Sternula nereis nereis	Australian Fairy Tern		Expert distribution (likely) Sternula nereis nereis	700314.94
CARANGIDAE	Trachurus novaezelandiae	Yellowtail Scad	200.0	Expert distribution Trachurus novaezelandiae	681803.05
GOBIESOCIDAE	Cochleoceps bicolor	Western Cleaner Clingfish	40.0	Expert distribution Cochleoceps bicolor	71641.79
Diomedeidae	Diomedea epomophora sanfordi	Northern Royal Albatross		Expert distribution (likely) Diomedea epomophora sanfordi	3442253.12
Procellariidae	Macronectes giganteus	Southern Giant-Petrel		Expert distribution (maybe) Macronectes giganteus	5074155.78
ARDEIDAE	Botaurus poiciloptilus	Australasian Bittern		Expert distribution Botaurus poiciloptilus	1428949.90
PHASIANIDAE	Coturnix (Coturnix) pectoralis	Stubble Quail		Expert distribution Coturnix pectoralis	6348551.61
ARTAMIDAE	Cracticus torquatus	Grey Butcherbird		Expert distribution Cracticus torquatus	6428212.34
THRESKIORNITHIDAE	Platalea (Platibis) flavipes	Yellow-billed Spoonbill		Expert distribution Platalea flavipes	4717240.77
ACANTHIZIDAE	Acanthiza (Geobasileus) inornata	Western Thornbill		Expert distribution Acanthiza inornata	137793.01
PETROICIDAE	Eopsaltria (Quoyornis) georgiana	White-breasted Robin		Expert distribution Eopsaltria georgiana	45384.46
NEMIPTERIDAE	Pentapodus vitta	Western Butterfish	30.0	Expert distribution Pentapodus vitta	37973.17
CALLIONYMIDAE	Pseudocallurichthys goodladi	Longspine Dragonet	50.0	Expert distribution Pseudocallurichthys goodladi	100452.23
BYTHITIDAE	Dipulus caecus	Orange Eelpout	32.0	Expert distribution Dipulus caecus	20262.75
SERRANIDAE	Acanthistius pardalotus	Leopard Wirrah	30.0	Expert distribution Acanthistius pardalotus	19861.50
SERRANIDAE	Caesiocorpius theagenes	Blowhole Perch	30.0	Expert distribution Caesiocorpius theagenes	19861.50
Orchidaceae	Caladenia hoffmanii	Hoffman's Spider-orchid		Expert distribution (maybe) Caladenia hoffmanii	55297.93
Myrtaceae	Chamelaucium sp. C Coastal Plain (R.D.Royce 4872)	Royce's Waxflower		Expert distribution (maybe) Chamelaucium sp. C Coastal Plain (R.D.Royce 4872)	1647.65
Epacridaceae	Sphenotoma drummondii	Mountain Paper-heath		Expert distribution (maybe) Sphenotoma drummondii	24717.10
Proteaceae	Synaphea sp. Fairbridge Farm (D.Papenfus 696)	Selena's Synaphea		Expert distribution (maybe) Synaphea sp. Fairbridge Farm (D.Papenfus 696)	625.61
Myrtaceae	Verticordia densiflora var. pedunculata	Long-stalked Featherflower		Expert distribution (likely) Verticordia densiflora var. pedunculata	1229.32
ARTAMIDAE	Artamus (Angroyan) cyanopterus	Dusky Woodswallow		Expert distribution Artamus cyanopterus	3910611.37

Epacridaceae	<i>Andersonia gracilis</i>	Slender <i>Andersonia</i>		Expert distribution (maybe) <i>Andersonia gracilis</i>	9970.21
Proteaceae	<i>Banksia nivea</i> subsp. <i>uliginosa</i>	Swamp Honeypot		Expert distribution (likely) <i>Banksia nivea</i> subsp. <i>uliginosa</i>	4514.94
Proteaceae	<i>Banksia squarrosa</i> subsp. <i>argillacea</i>	Whicher Range <i>Dryandra</i>		Expert distribution (maybe) <i>Banksia squarrosa</i> subsp. <i>argillacea</i>	3386.85
Orchidaceae	<i>Caladenia huegelii</i>	King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid		Expert distribution (likely) <i>Caladenia huegelii</i>	13465.23
Myrtaceae	<i>Chamelaucium</i> sp. C Coastal Plain (R.D.Royce 4872)	Royce's Waxflower		Expert distribution (likely) <i>Chamelaucium</i> sp. C Coastal Plain (R.D.Royce 4872)	1337.06
Myrtaceae	<i>Darwinia foetida</i>	Muchea Bell		Expert distribution (maybe) <i>Darwinia foetida</i>	3340.91
Myrtaceae	<i>Darwinia foetida</i>	Muchea Bell		Expert distribution (likely) <i>Darwinia foetida</i>	11535.85
Myrtaceae	<i>Darwinia whicherensis</i>	Abba Bell		Expert distribution (maybe) <i>Darwinia whicherensis</i>	2163.35
Orchidaceae	<i>Diuris micrantha</i>	Dwarf Bee-orchid		Expert distribution (likely) <i>Diuris</i> <i>micrantha</i>	19373.82
Cyperaceae	<i>Eleocharis keigheryi</i>	Keighery's <i>Eleocharis</i>		Expert distribution (likely) <i>Eleocharis keigheryi</i>	4205.19
CUCULIDAE	<i>Chrysococcyx basalis</i>	Horsfield's Bronze Cuckoo		Expert distribution <i>Chrysococcyx</i> <i>basalis</i>	7963191.79
CHARADRIIDAE	<i>Erythrogonys cinctus</i>	Red-kneed Dotterel		Expert distribution <i>Erythrogonys</i> <i>cinctus</i>	5131877.29
ACCIPITRIDAE	<i>Lophoictinia isura</i>	Square-tailed Kite		Expert distribution <i>Lophoictinia</i> <i>isura</i>	5787193.90
MELIPHAGIDAE	<i>Melithreptus</i> (<i>Melithreptus</i>) <i>lunatus</i>	White-naped Honeyeater		Expert distribution <i>Melithreptus</i> <i>lunatus</i>	1464130.07
MEROPIDAE	<i>Merops</i> (<i>Merops</i>) <i>ornatus</i>	Rainbow Bee-eater		Expert distribution <i>Merops</i> <i>ornatus</i>	7656493.44
CLUPEIDAE	<i>Spratelloides delicatulus</i>	Blueback Sprat	30.0	Expert distribution <i>Spratelloides</i> <i>delicatulus</i>	1567355.88
CARCHARHINIDAE	<i>Carcharhinus limbatus</i>	Common Blacktip Shark	200.0	Expert distribution <i>Carcharhinus</i> <i>limbatus</i>	1670111.96
MONACANTHIDAE	<i>Chaetodermis</i> <i>penicilligera</i>	Tasselled Leatherjacket	1.0 73.0	Expert distribution <i>Chaetodermis</i> <i>penicilligera</i>	1201393.23
EXOCOETIDAE	<i>Cheilopogon olgae</i>	[a flyingfish]	200.0	Expert distribution <i>Cheilopogon</i> <i>olgae</i>	691655.40
MEGALURIDAE	<i>Megalurus gramineus</i>	Little Grassbird		Expert distribution <i>Megalurus</i> <i>gramineus</i>	3287342.46
Diomedeidae	<i>Diomedea epomophora</i> (sensu stricto)	Southern Royal Albatross		Expert distribution (likely) <i>Diomedea epomophora</i> (sensu stricto)	4754544.71
Diomedeidae	<i>Diomedea exulans</i> (sensu lato)	Wandering Albatross		Expert distribution (likely) <i>Diomedea exulans</i> (sensu lato)	5777829.17
ANATIDAE	<i>Anas</i> (<i>Spatula</i>) <i>rhynchotis</i>	Australasian Shoveler		Expert distribution <i>Anas</i> <i>rhynchotis</i>	4469444.80
MEGALURIDAE	<i>Cincloramphus</i> (<i>Cincloramphus</i>) <i>cruralis</i>	Brown Songlark		Expert distribution <i>Cincloramphus cruralis</i>	6413759.53
MEGALURIDAE	<i>Cincloramphus</i> (<i>Maclennania</i>) <i>mathewsi</i>	Rufous Songlark		Expert distribution <i>Cincloramphus mathewsi</i>	6703622.88
Delphinidae	<i>Lagenorhynchus</i> <i>obscurus</i>	Dusky Dolphin		Expert distribution (maybe) <i>Lagenorhynchus obscurus</i>	5799338.34
Procellariidae	<i>Macronectes halli</i>	Northern Giant-Petrel		Expert distribution (maybe) <i>Macronectes halli</i>	9394416.84
Diomedeidae	<i>Thalassarche</i> <i>melanophris</i>	Black-browed Albatross		Expert distribution (maybe) <i>Thalassarche melanophris</i>	4656757.47

Diomedeidae	<i>Thalassarche melanophris impavida</i>	Campbell Albatross			Expert distribution (maybe) <i>Thalassarche melanophris impavida</i>	5369022.49
SILLAGINIDAE	<i>Sillaginodes punctatus</i>	King George Whiting	200.0		Expert distribution <i>Sillaginodes punctatus</i>	562120.07
LABRIDAE	<i>Dotalabrus aurantiacus</i>	Castelnau's Wrasse	1.0	47.0	Expert distribution <i>Dotalabrus aurantiacus</i>	111690.51
SERRANIDAE	<i>Hypoplectrodes nigroruber</i>	Banded Seaperch	40.0		Expert distribution <i>Hypoplectrodes nigroruber</i>	83444.15
PATAECIDAE	<i>Neopataecus waterhousii</i>	Whiskered Prowfish	40.0		Expert distribution <i>Neopataecus waterhousii</i>	69349.61
Diomedeidae	<i>Thalassarche cauta cauta</i>	Shy Albatross, Tasmanian Shy Albatross			Expert distribution (likely) <i>Thalassarche cauta cauta</i>	3233695.74
MICROCANTHIDAE	<i>Tilodon sexfasciatus</i>	Moonlighter	1.0	30.0	Expert distribution <i>Tilodon sexfasciatus</i>	40120.86
UROLOPHIDAE	<i>Trygonoptera mucosa</i>	Western Shovelnose Stingaree	40.0		Expert distribution <i>Trygonoptera mucosa</i>	60511.05
APOGONIDAE	<i>Vincentia badia</i>	Scarlet Cardinalfish	55.0		Expert distribution <i>Vincentia badia</i>	117707.33
MELIPHAGIDAE	<i>Phylidonyris (Meliornis) novaehollandiae</i>	New Holland Honeyeater			Expert distribution <i>Phylidonyris novaehollandiae</i>	853809.19
ANTENNARIIDAE	<i>Phyllophryne scortea</i>	Whitespotted Anglerfish	1.0	44.0	Expert distribution <i>Phyllophryne scortea</i>	82600.84
OPHICHTHIDAE	<i>Scolecenchelys tasmaniensis</i>	Tasmanian Worm Eel	50.0		Expert distribution <i>Scolecenchelys tasmaniensis</i>	138371.84
SCORPIDIDAE	<i>Scorpis aequipinnis</i>	Sea Sweep	1.0	25.0	Expert distribution <i>Scorpis aequipinnis</i>	44351.72
SQUATINIDAE	<i>Squatina australis</i>	Australian Angelshark	130.0		Expert distribution <i>Squatina australis</i>	501962.86
CARANGIDAE	<i>Trachurus declivis</i>	Common Jack Mackerel	500.0		Expert distribution <i>Trachurus declivis</i>	5599669.16
TRICHIURIDAE	<i>Trichiurus lepturus</i>	Largehead Hairtail	384.0		Expert distribution <i>Trichiurus lepturus</i>	623817.36
BATRACHOIDIDAE	<i>Batrachomoeus rubricephalus</i>	Pinkhead Frogfish	1.0	50.0	Expert distribution <i>Batrachomoeus rubricephalus</i>	58787.51
GOBIIDAE	<i>Callogobius depressus</i>	Flathead Goby	30.0		Expert distribution <i>Callogobius depressus</i>	47904.82
PLOTOSIDAE	<i>Cnidoglanis macrocephalus</i>	Estuary Cobbler	30.0		Expert distribution <i>Cnidoglanis macrocephalus</i>	37386.01
DINOLESTIDAE	<i>Dinolestes lewini</i>	Longfin Pike	1.0	64.0	Expert distribution <i>Dinolestes lewini</i>	239215.07
SERRANIDAE	<i>Acanthistius serratus</i>	Western Wirrah	40.0		Expert distribution <i>Acanthistius serratus</i>	45486.97
LABRIDAE	<i>Achoerodus gouldii</i>	Western Blue Groper	40.0		Expert distribution <i>Achoerodus gouldii</i>	61936.83
PATAECIDAE	<i>Aetapcus maculatus</i>	Warty Prowfish	1.0	45.0	Expert distribution <i>Aetapcus maculatus</i>	97321.20
APLOACTINIDAE	<i>Aploactisoma milesii</i>	Southern Velvetfish	1.0	20.0	Expert distribution <i>Aploactisoma milesii</i>	33272.94
LABRIDAE	<i>Austrolabrus maculatus</i>	Blackspotted Wrasse	1.0	40.0	Expert distribution <i>Austrolabrus maculatus</i>	82438.30
PERCOPHIDAE	<i>Enigmapercis reducta</i>	Broad Duckbill	1.0	60.0	Expert distribution <i>Enigmapercis reducta</i>	239190.70
NOTOCHEIRIDAE	<i>Iso rathophilus</i>	Surf Sardine	20.0		Expert distribution <i>Iso rathophilus</i>	70334.47
LAMNIDAE	<i>Lamna nasus</i>	Porbeagle	370.0		Expert distribution <i>Lamna nasus</i>	4867752.18
MONACANTHIDAE	<i>Meuschenia galii</i>	Bluelined Leatherjacket	30.0		Expert distribution <i>Meuschenia galii</i>	40601.60
					Expert distribution <i>Meuschenia</i>	

MONACANTHIDAE	<i>Meuschenia hippocrepis</i>	Horseshoe Leatherjacket		30.0	hippocrepis	41582.72
PINGUIPEDIDAE	<i>Parapercis haackei</i>	Wavy Grubfish	1.0	45.0	Expert distribution <i>Parapercis haackei</i>	85788.66
PLESIOPIDAE	<i>Paraplesiops sinclairi</i>	Western Blue Devil		30.0	Expert distribution <i>Paraplesiops sinclairi</i>	6763.26
PEGASIDAE	<i>Pegasus lancifer</i>	Sculptured Seamothing		55.0	Expert distribution <i>Pegasus lancifer</i>	173314.73
MORIDAE	<i>Pseudophycis barbata</i>	Bearded Rock Cod	1.0	275.0	Expert distribution <i>Pseudophycis barbata</i>	552666.49
OPHICHTHIDAE	<i>Scolecenchelys breviceps</i>	Shorthead Worm Eel	1.0	156.0	Expert distribution <i>Scolecenchelys breviceps</i>	527480.66
SYNGNATHIDAE	<i>Stigmatopora nigra</i>	Widebody Pipefish		35.0	Expert distribution <i>Stigmatopora nigra</i>	62910.72
MONACANTHIDAE	<i>Acanthaluteres vittiger</i>	Toothbrush Leatherjacket	1.0	40.0	Expert distribution <i>Acanthaluteres vittiger</i>	82906.98
ARRIPIDAE	<i>Arripis truttaceus</i>	Western Australian Salmon		30.0	Expert distribution <i>Arripis truttaceus</i>	498966.08
ATHERINIDAE	<i>Atherinosoma elongata</i>	Elongate Hardyhead	1.0	30.0	Expert distribution <i>Atherinosoma elongata</i>	232490.52
MONACANTHIDAE	<i>Brachaluteres jacksonianus</i>	Southern Pygmy Leatherjacket		40.0	Expert distribution <i>Brachaluteres jacksonianus</i>	80512.24
GOBIIDAE	<i>Callogobius mucosus</i>	Sculptured Goby		30.0	Expert distribution <i>Callogobius mucosus</i>	44573.52
OSTRACIIDAE	<i>Caprichthys gymnura</i>	Rigid Boxfish	1.0	200.0	Expert distribution <i>Caprichthys gymnura</i>	205121.71
CARCHARHINIDAE	<i>Carcharhinus brachyurus</i>	Bronze Whaler		100.0	Expert distribution <i>Carcharhinus brachyurus</i>	530038.75
THRESKIORNITHIDAE	<i>Threskiornis spinicollis</i>	Straw-necked Ibis			Expert distribution <i>Threskiornis spinicollis</i>	6591872.02
TETRAODONTIDAE	<i>Lagocephalus sceleratus</i>	Silver Toadfish		107.0	Expert distribution <i>Lagocephalus sceleratus</i>	1971986.98
SCOMBRIDAE	<i>Scomberomorus commerson</i>	Spanish Mackerel		200.0	Expert distribution <i>Scomberomorus commerson</i>	1731457.25
SPHYRNIDAE	<i>Sphyrna lewini</i>	Scalloped Hammerhead		275.0	Expert distribution <i>Sphyrna lewini</i>	5717940.14
Laridae	<i>Sterna anaethetus</i>	Bridled Tern			Expert distribution (likely) <i>Sterna anaethetus</i>	172801.30
BELONIDAE	<i>Strongylura leiura</i>	Slender Longtom	1.0	10.0	Expert distribution <i>Strongylura leiura</i>	1719554.35
Laridae	<i>Anous tenuirostris melanops</i>	Australian Lesser Noddy			Expert distribution (maybe) <i>Anous tenuirostris melanops</i>	308476.14
FALCONIDAE	<i>Falco (Ieracidea) berigora</i>	Brown Falcon			Expert distribution <i>Falco berigora</i>	8309376.46
FALCONIDAE	<i>Falco (Tinnunculus) cenchroides</i>	Nankeen Kestrel			Expert distribution <i>Falco cenchroides</i>	8092779.67
ACCIPITRIDAE	<i>Haliaeetus (Pontoaetus) leucogaster</i>	White-bellied Sea-eagle			Expert distribution <i>Haliaeetus leucogaster</i>	5153916.36
RECURVIROSTRIDAE	<i>Himantopus himantopus leucocephalus</i>	Banded Stilt			Expert distribution <i>Himantopus leucocephalus</i>	8909101.48
CAMPEPHAGIDAE	<i>Lalage tricolor</i>	Australian White-winged Triller			Expert distribution <i>Lalage tricolor</i>	7665912.79
RALLIDAE	<i>Lewinia pectoralis</i>	Lewin's Rail			Expert distribution <i>Lewinia pectoralis</i>	1006182.01
MELIPHAGIDAE	<i>Lichmera (Lichmera) indistincta</i>	Brown Honeyeater			Expert distribution <i>Lichmera indistincta</i>	5289757.25
PETROICIDAE	<i>Microeca (Microeca) fascinans</i>	Jacky Winter			Expert distribution <i>Microeca fascinans</i>	5323897.16
PETROICIDAE	<i>Melanodryas (Melanodryas) cucullata</i>	Hooded Robin			Expert distribution <i>Melanodryas cucullata</i>	6386250.78
					Expert distribution <i>Naucrates</i>	

CARANGIDAE	<i>Naucrates ductor</i>	Pilotfish	200.0		ductor	10408286.75
OSTRACIIDAE	<i>Tetrosomus reipublicae</i>	Smallspine Turretfish	180.0		Expert distribution <i>Tetrosomus reipublicae</i>	1669342.42
ATHERINIDAE	<i>Atherinomorus vaigiensis</i>	Common Hardyhead	50.0		Expert distribution <i>Atherinomorus vaigiensis</i>	387487.73
LARIDAE	<i>Larus (Larus) pacificus</i>	Pacific Gull			Expert distribution <i>Larus pacificus</i>	393068.72
UROLOPHIDAE	<i>Trygonoptera ovalis</i>	Striped Stingaree	43.0		Expert distribution <i>Trygonoptera ovalis</i>	35318.46
MELIPHAGIDAE	<i>Anthochaera (Anthochaera) carunculata</i>	Red Wattlebird			Expert distribution <i>Anthochaera carunculata</i>	2179417.91
GEOTRIIDAE	<i>Geotria australis</i>	Pouch Lamprey	50.0		Expert distribution <i>Geotria australis</i>	139932.73
EXOCOETIDAE	<i>Hirundichthys rufipinnis</i>	Rondelet's Flyingfish	200.0		Expert distribution <i>Hirundichthys rufipinnis</i>	5502610.83
SPHYRAENIDAE	<i>Sphyaena novaehollandiae</i>	Snook	30.0		Expert distribution <i>Sphyaena novaehollandiae</i>	524289.13
Neobalaenidae	<i>Caperea marginata</i>	Pygmy Right Whale			Expert distribution (maybe) <i>Caperea marginata</i>	4174566.74
POMACENTRIDAE	<i>Chromis klunzingeri</i>	Blackhead Puller	40.0		Expert distribution <i>Chromis klunzingeri</i>	20068.62
MALURIDAE	<i>Stipiturus malachurus</i>	Southern Emu-wren			Expert distribution <i>Stipiturus malachurus</i>	688746.16
CHARADRIIDAE	<i>Thinornis rubricollis</i>	Hooded Plover			Expert distribution <i>Thinornis rubricollis</i>	609957.58
GNATHANACANTHIDAE	<i>Gnathanacanthus goetzei</i>	Red Velvetfish	55.0		Expert distribution <i>Gnathanacanthus goetzei</i>	155042.82
TETRAROGIDAE	<i>Gymnapistes marmoratus</i>	Soldier	35.0		Expert distribution <i>Gymnapistes marmoratus</i>	60701.10
LABRIDAE	<i>Heteroscarus acroptilus</i>	Rainbow Cade	1.0	25.0	Expert distribution <i>Heteroscarus acroptilus</i>	29129.19
PETROICIDAE	<i>Petroica (Petroica) multicolor</i>	Pacific Robin			Expert distribution <i>Petroica multicolor</i>	1010505.57
HIRUNDINIDAE	<i>Petrochelidon (Hylochelidon) nigricans nigricans</i>	Australian Tree Martin			Expert distribution <i>Hirundo nigricans</i>	8367826.45
ANATIDAE	<i>Cygnus (Chenopsis) atratus</i>	Black Swan			Expert distribution <i>Cygnus atratus</i>	7281302.88
ARDEIDAE	<i>Egretta novaehollandiae</i>	White-faced Heron			Expert distribution <i>Egretta novaehollandiae</i>	7554193.63
Diomedeidae	<i>Diomedea exulans exulans</i>	Tristan Albatross			Expert distribution (maybe) <i>Diomedea exulans exulans</i>	10024155.85
SYNGNATHIDAE	<i>Lissocampus caudalis</i>	Smooth Pipefish	37.0		Expert distribution <i>Lissocampus caudalis</i>	56476.87
MONACANTHIDAE	<i>Meuschenia flavolineata</i>	Yellowstriped Leatherjacket	1.0	30.0	Expert distribution <i>Meuschenia flavolineata</i>	42869.54
PARASCYLLIIDAE	<i>Parascyllium variolatum</i>	Varied Carpetshark	1.0	180.0	Expert distribution <i>Parascyllium variolatum</i>	481947.36
PEMPHERIDAE	<i>Pempheris ornata</i>	Orangelined Bullseye	1.0	40.0	Expert distribution <i>Pempheris ornata</i>	60810.63
SYNGNATHIDAE	<i>Phycodurus eques</i>	Leafy Seadragon	35.0		Expert distribution <i>Phycodurus eques</i>	46369.10
SILLAGINIDAE	<i>Sillago bassensis</i>	Southern School Whiting	40.0		Expert distribution <i>Sillago bassensis</i>	66131.07
SYNGNATHIDAE	<i>Vanacampus phillipi</i>	Port Phillip Pipefish	25.0		Expert distribution <i>Vanacampus phillipi</i>	29858.87
APODIDAE	<i>Apus (Apus) pacificus</i>	Fork-tailed Swift			Expert distribution <i>Apus pacificus</i>	25317218.87

ARTAMIDAE	<i>Cracticus tibicen</i>	Australian Magpie			Expert distribution <i>Gymnorhina tibicen</i>	6938575.86
CHARADRIIDAE	<i>Euseyonis melanops</i>	Black-fronted Dotterel			Expert distribution <i>Euseyonis melanops</i>	7384843.66
CAPRIMULGIDAE	<i>Eurostopodus (Eurostopodus) argus</i>	Spotted Nightjar			Expert distribution <i>Eurostopodus argus</i>	7043900.66
PHALACROCORACIDAE	<i>Phalacrocorax (Phalacrocorax) varius</i>	Pied Cormorant			Expert distribution <i>Phalacrocorax varius</i>	4427211.02
GERREIDAE	<i>Gerres subfasciatus</i>	Common Silverbiddy	40.0		Expert distribution <i>Gerres subfasciatus</i>	527768.02
TETRAODONTIDAE	<i>Lagocephalus lagocephalus</i>	Ocean Puffer	200.0		Expert distribution <i>Lagocephalus lagocephalus</i>	2016571.85
ECHENEIDAE	<i>Remora brachyptera</i>	Spearfish Remora	200.0		Expert distribution <i>Remora brachyptera</i>	10321133.47
Rhincodontidae	<i>Rhincodon typus</i>	Whale Shark			Expert distribution (maybe) <i>Rhincodon typus</i>	3009959.26
RHINCODONTIDAE	<i>Rhincodon typus</i>	Whale Shark	5000.0		Expert distribution <i>Rhincodon typus</i>	7105282.57
SILLAGINIDAE	<i>Sillago burrus</i>	Western Trumpeter Whiting	36.0		Expert distribution <i>Sillago burrus</i>	427210.62
SPHYRAENIDAE	<i>Sphyræna barracuda</i>	Great Barracuda	50.0		Expert distribution <i>Sphyræna barracuda</i>	1658999.26
Laridae	<i>Sterna caspia</i>	Caspian Tern			Expert distribution (likely) <i>Sterna caspia</i>	214316.30
Scombridae	<i>Thunnus maccoyii</i>	Southern Bluefin Tuna			Expert distribution (likely) <i>Thunnus maccoyii</i>	7908287.79
BELONIDAE	<i>Tylosurus crocodilus</i>	Crocodile Longtom	1.0	20.0	Expert distribution <i>Tylosurus crocodilus</i>	1645150.28
CARANGIDAE	<i>Alectis ciliaris</i>	Pennantfish	100.0		Expert distribution <i>Alectis ciliaris</i>	1666285.43
SCOMBRIDAE	<i>Auxis thazard</i>	Frigate Mackerel	200.0		Expert distribution <i>Auxis thazard</i>	9777115.87
CARCHARHINIDAE	<i>Carcharhinus brevipinna</i>	Spinner Shark	1.0	75.0	Expert distribution <i>Carcharhinus brevipinna</i>	1669311.21
CARCHARHINIDAE	<i>Carcharhinus obscurus</i>	Dusky Whaler	400.0		Expert distribution <i>Carcharhinus obscurus</i>	10407414.10
ODONTASPIDIDAE	<i>Carcharias taurus</i>	Grey nurse Shark	190.0		Expert distribution <i>Carcharias taurus</i>	2067772.63
Cheloniidae	<i>Caretta caretta</i>	Loggerhead Turtle			Expert distribution (likely) <i>Caretta caretta</i>	5378049.38
ACCIPITRIDAE	<i>Elanus scriptus</i>	Letter-winged Kite			Expert distribution <i>Elanus scriptus</i>	4311293.02
CACATUIDAE	<i>Eolophus roseicapillus roseicapillus</i>	Galah			Expert distribution <i>Cacatua roseicapilla</i>	7705836.89
MELIPHAGIDAE	<i>Epthianura (Epthianura) albifrons</i>	White-fronted Chat			Expert distribution <i>Epthianura albifrons</i>	2675057.83
COLUMBIDAE	<i>Phaps (Phaps) chalcoptera</i>	Common Bronzewing			Expert distribution <i>Phaps chalcoptera</i>	5913133.12
SPARIDAE	<i>Pagrus auratus</i>	Snapper	200.0		Expert distribution <i>Pagrus auratus</i>	870675.71
SOLEIDAE	<i>Phyllichthys punctatus</i>	Spotted Sole	200.0		Expert distribution <i>Phyllichthys punctatus</i>	265499.75
RHINOBATIDAE	<i>Aptychotrema vincentiana</i>	Western Shovelnose Ray	125.0		Expert distribution <i>Aptychotrema vincentiana</i>	603447.60
Ardeidae	<i>Ardea ibis</i>	Cattle Egret			Expert distribution (maybe) <i>Ardea ibis</i>	6474803.97
OPHICHTHIDAE	<i>Cirrhimuraena calamus</i>	Fringelip Snake Eel	1.0	50.0	Expert distribution <i>Cirrhimuraena calamus</i>	218855.08
ANATIDAE	<i>Anas (Nettion) castanea</i>	Chestnut Teal			Expert distribution <i>Anas castanea</i>	3142293.12
ACANTHIZIDAE	<i>Acanthiza (Acanthiza) apicalis</i>	Inland Thornbill			Expert distribution <i>Acanthiza apicalis</i>	4140081.56

CARCHARHINIDAE	<i>Carcharhinus plumbeus</i>	Sandbar Shark	1.0	280.0	Expert distribution <i>Carcharhinus plumbeus</i>	4498865.55
SPHYRNIDAE	<i>Sphyrna zygaena</i>	Smooth Hammerhead		20.0	Expert distribution <i>Sphyrna zygaena</i>	6431583.30
Cacatuidae	<i>Calyptorhynchus baudinii</i>	Baudin's Black-Cockatoo, Long-billed Black-Cockatoo			Expert distribution (likely) <i>Calyptorhynchus baudinii</i>	66073.94
Apiaceae	<i>Brachyscias verecundus</i>	Ironstone Brachyscias			Expert distribution (maybe) <i>Brachyscias verecundus</i>	3687.99
Orchidaceae	<i>Caladenia winfieldii</i>	Majestic Spider-orchid			Expert distribution (maybe) <i>Caladenia winfieldii</i>	13896.56
Orchidaceae	<i>Diuris purdiei</i>	Purdie's Donkey-orchid			Expert distribution (maybe) <i>Diuris purdiei</i>	12414.69
Orchidaceae	<i>Drakaea micrantha</i>	Dwarf Hammer-orchid			Expert distribution (maybe) <i>Drakaea micrantha</i>	15241.67
POMATOSTOMIDAE	<i>Pomatostomus (Morganornis) superciliosus</i>	White-browed Babbler			Expert distribution <i>Pomatostomus superciliosus</i>	4638332.32
CLUPEIDAE	<i>Etrumeus teres</i>	Maray		200.0	Expert distribution <i>Etrumeus teres</i>	590384.64
SPARIDAE	<i>Rhabdosargus sarba</i>	Tarwhine		60.0	Expert distribution <i>Rhabdosargus sarba</i>	143156.08
MONODACTYLIDAE	<i>Schuettea woodwardi</i>	Western Pomfred		30.0	Expert distribution <i>Schuettea woodwardi</i>	26151.83
MONACANTHIDAE	<i>Scobinichthys granulatus</i>	Rough Leatherjacket		30.0	Expert distribution <i>Scobinichthys granulatus</i>	59200.46
CARANGIDAE	<i>Seriola lalandi</i>	Yellowtail Kingfish		50.0	Expert distribution <i>Seriola lalandi</i>	703458.17
CLUPEIDAE	<i>Spratelloides robustus</i>	Blue Sprat		60.0	Expert distribution <i>Spratelloides robustus</i>	700015.08
TETRAODONTIDAE	<i>Torquigener pleurogramma</i>	Weeping Toadfish		27.0	Expert distribution <i>Torquigener pleurogramma</i>	54557.20
ZEIDAE	<i>Zeus faber</i>	John Dory	1.0	237.0	Expert distribution <i>Zeus faber</i>	763930.50
SCIAENIDAE	<i>Argyrosomus japonicus</i>	Mulloway		150.0	Expert distribution <i>Argyrosomus japonicus</i>	652861.96
CHAETODONTIDAE	<i>Chaetodon assarius</i>	Western Butterflyfish		40.0	Expert distribution <i>Chaetodon assarius</i>	73212.08
CLINIDAE	<i>Cristiceps australis</i>	Southern Crested Weedfish		40.0	Expert distribution <i>Cristiceps australis</i>	85343.55
DIODONTIDAE	<i>Diodon nictemerus</i>	Globefish		84.0	Expert distribution <i>Diodon nictemerus</i>	732230.57
Squalidae	<i>Centrophorus zeehaani</i>	Southern Dogfish, Endeavour Dogfish, Little Gulper Shark			Expert distribution (maybe) <i>Centrophorus zeehaani</i>	609830.06
DASYATIDAE	<i>Dasyatis thetidis</i>	Black Stingray		360.0	Expert distribution <i>Dasyatis thetidis</i>	698400.13
ANATIDAE	<i>Stictonetta naevosa</i>	Freckled Duck			Expert distribution <i>Stictonetta naevosa</i>	2088858.97
SERRANIDAE	<i>Epinephelides armatus</i>	Breaksea Cod		100.0	Expert distribution <i>Epinephelides armatus</i>	112389.66
LABRIDAE	<i>Halichoeres brownfieldi</i>	Brownfield's Wrasse	1.0	30.0	Expert distribution <i>Halichoeres brownfieldi</i>	23911.51
PLATYCEPHALIDAE	<i>Leviprora inops</i>	Longhead Flathead		30.0	Expert distribution <i>Leviprora inops</i>	45701.58
MYLIOBATIDAE	<i>Myliobatis tenuicaudatus</i>	Southern Eagle Ray		130.0	Expert distribution <i>Myliobatis tenuicaudatus</i>	531537.23
LABRIDAE	<i>Neodax balteatus</i>	Little Weed Whiting	1.0	22.0	Expert distribution <i>Neodax balteatus</i>	27726.15
	<i>Phylidonyris melanops</i>				Expert distribution <i>Phylidonyris melanops</i>	1138857.63
HAEMATOPODIDAE	<i>Haematopus fuliginosus</i>	Sooty Oystercatcher			Expert distribution <i>Haematopus fuliginosus</i>	814979.94

MELIPHAGIDAE	Lichenostomus (Gavicalis) virescens	Singing Honeyeater			Expert distribution Lichenostomus virescens	7337047.11
LETHRINIDAE	Lethrinus nebulosus	Spangled Emperor	84.0		Expert distribution Lethrinus nebulosus	1304746.62
SILLAGINIDAE	Sillago maculata	Trumpeter Whiting	50.0		Expert distribution Sillago maculata	681406.77
PSITTACIDAE	Neophema (Neonanodes) elegans	Elegant Parrot			Expert distribution Neophema elegans	868300.05
ENOPLOSIDAE	Enoplosus armatus	Old Wife	83.0		Expert distribution Enoplosus armatus	452398.61
Balaenidae	Eubalaena australis	Southern Right Whale			Expert distribution (likely) Eubalaena australis	2503565.50
GONORYNCHIDAE	Gonorynchus greyi	Beaked Salmon	200.0		Expert distribution Gonorynchus greyi	850492.46
MURAENIDAE	Gymnothorax prasinus	Green Moray	40.0		Expert distribution Gymnothorax prasinus	104042.45
CLINIDAE	Heteroclinus roseus	Rosy Weedfish	35.0		Expert distribution Heteroclinus roseus	66009.95
HEMIRAMPHIDAE	Hyporhamphus melanochir	Southern Garfish	20.0		Expert distribution Hyporhamphus melanochir	570714.34
HEXANCHIDAE	Notorynchus cepedianus	Broadnose Shark	136.0		Expert distribution Notorynchus cepedianus	507579.56
TETRAODONTIDAE	Omegophora armilla	Ringed Toadfish	1.0	146.0	Expert distribution Omegophora armilla	431248.04
ORECTOLOBIDAE	Orectolobus maculatus	Spotted Wobbegong	280.0		Expert distribution Orectolobus maculatus	689878.06
GERREIDAE	Parequula melbournensis	Silverbelly	100.0		Expert distribution Parequula melbournensis	432379.96
POMATOMIDAE	Pomatomus saltatrix	Tailor	15.0		Expert distribution Pomatomus saltatrix	707762.80
CLUPEIDAE	Sardinops sagax	Australian Sardine	135.0		Expert distribution Sardinops sagax	700712.09
Diomedidae	Diomedea dabbenena	Tristan Albatross			Expert distribution (maybe) Diomedea dabbenena	10024155.85
PSITTACIDAE	Glossopsitta porphyrocephala	Purple-crowned Lorikeet			Expert distribution Glossopsitta porphyrocephala	947168.82
TRIAKIDAE	Galeorhinus galeus	School Shark	1.0	600.0	Expert distribution Galeorhinus galeus	623689.70
HETERODONTIDAE	Heterodontus portusjacksoni	Port Jackson Shark	275.0		Expert distribution Heterodontus portusjacksoni	602196.58
CLUPEIDAE	Hyperlophus vittatus	Sandy Sprat	29.0		Expert distribution Hyperlophus vittatus	605243.65
ATHERINIDAE	Leptatherina presbyteroides	Silver Fish	20.0		Expert distribution Leptatherina presbyteroides	445641.71
SYNGNATHIDAE	Maroubra perserrata	Sawtooth Pipefish	25.0		Expert distribution Maroubra perserrata	33553.33
MONACANTHIDAE	Meuschenia freycineti	Sixspine Leatherjacket	146.0		Expert distribution Meuschenia freycineti	528586.84
TETRAODONTIDAE	Omegophora cyanopunctata	Bluespotted Toadfish	1.0	25.0	Expert distribution Omegophora cyanopunctata	22150.05
PEMPHERIDAE	Parapriacanthus elongatus	Elongate Bullseye	1.0	70.0	Expert distribution Parapriacanthus elongatus	272772.24
SYNGNATHIDAE	Phyllopteryx taeniolatus	Common Seadragon	1.0	50.0	Expert distribution Phyllopteryx taeniolatus	149656.94
TETRAODONTIDAE	Polyspina piosae	Orangebarred Puffer	37.0		Expert distribution Polyspina piosae	44781.94
CARANGIDAE	Pseudocaranx georgianus	Silver Trevally	200.0		Expert distribution Pseudocaranx georgianus	549927.37
					Expert distribution Remora	

ECHENEIDAE	<i>Remora australis</i>	Whalesucker	200.0		australis	3325978.81
ANTENNARIIDAE	<i>Rhycherus gloveri</i>	Glover's Anglerfish	149.0		Expert distribution <i>Rhycherus gloveri</i>	315735.26
ORECTOLOBIDAE	<i>Sutorectus tentaculatus</i>	Cobbler Wobbegong	35.0		Expert distribution <i>Sutorectus tentaculatus</i>	43912.17
ELEOTRIDAE	<i>Thalasseleotris adela</i>	Cryptic Sea Gudgeon	24.0		Expert distribution <i>Thalasseleotris adela</i>	30427.99
TRACHICHTHYIDAE	<i>Trachichthys australis</i>	Southern Roughy	30.0		Expert distribution <i>Trachichthys australis</i>	45149.64
ACCIPITRIDAE	<i>Accipiter (Paraspizias) cirrocephalus</i>	Collared Sparrowhawk			Expert distribution <i>Accipiter cirrocephalus</i>	5512908.79
AEGOTHELIDAE	<i>Aegotheles (Aegotheles) cristatus</i>	Australian Owlet-nightjar			Expert distribution <i>Aegotheles cristatus</i>	7734887.23
PLATYCEPHALIDAE	<i>Platycephalus westraliae</i>	Yellowtail Flathead	50.0		Expert distribution <i>Platycephalus westraliae</i>	672237.10
CACATUIDAE	<i>Calyptorhynchus (Zanda) baudinii</i>	Baudin's Black-cockatoo			Expert distribution <i>Calyptorhynchus baudinii</i>	61367.73
Petauridae	<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum, Ngwayir			Expert distribution (likely) <i>Pseudocheirus occidentalis</i>	22055.29
Proteaceae	<i>Banksia squarrosa</i> subsp. <i>argillacea</i>	Whicher Range Dryandra			Expert distribution (likely) <i>Banksia squarrosa</i> subsp. <i>argillacea</i>	4003.12
Orchidaceae	<i>Drakaea elastica</i>	Glossy-leaved Hammer-orchid, Praying Virgin			Expert distribution (likely) <i>Drakaea elastica</i>	10569.36
Orchidaceae	<i>Drakaea micrantha</i>	Dwarf Hammer-orchid			Expert distribution (likely) <i>Drakaea micrantha</i>	19667.03
MALURIDAE	<i>Malurus (Leggeornis) elegans</i>	Red-winged Fairy-wren			Expert distribution <i>Malurus elegans</i>	71500.28
Fabaceae	<i>Gastrolobium papilio</i>	Butterfly-leaved <i>Gastrolobium</i>			Expert distribution (maybe) <i>Gastrolobium papilio</i>	6977.48
Proteaceae	<i>Lambertia echinata</i> subsp. <i>occidentalis</i>	Western Prickly Honeysuckle			Expert distribution (maybe) <i>Lambertia echinata</i> subsp. <i>occidentalis</i>	7291.55
MONARCHIDAE	<i>Grallina cyanoleuca</i>	Magpie-lark			Expert distribution <i>Grallina cyanoleuca</i>	6774362.21
ELOPIDAE	<i>Elops hawaiiensis</i>	Hawaiian Giant Herring	40.0		Expert distribution <i>Elops hawaiiensis</i>	563320.47
LOBOTIDAE	<i>Lobotes surinamensis</i>	Tripletail	50.0		Expert distribution <i>Lobotes surinamensis</i>	673074.38
OPHICHTHIDAE	<i>Phyllophichthus xenodontus</i>	Flappy Snake Eel	21.0		Expert distribution <i>Phyllophichthus xenodontus</i>	248377.85
BLENNIIDAE	<i>Plagiotremus rhinorhynchos</i>	Bluestriped Fangblenny	1.0	30.0	Expert distribution <i>Plagiotremus rhinorhynchos</i>	328157.83
CARCHARHINIDAE	<i>Galeocerdo cuvier</i>	Tiger Shark	150.0		Expert distribution <i>Galeocerdo cuvier</i>	1683606.22
SERRANIDAE	<i>Epinephelus rivulatus</i>	Chinaman Rockcod	1.0	150.0	Expert distribution <i>Epinephelus rivulatus</i>	1608788.93
ACCIPITRIDAE	<i>Circus approximans</i>	Swamp Harrier			Expert distribution <i>Circus approximans</i>	5155720.31
MOTACILLIDAE	<i>Anthus (Anthus) novaeseelandiae</i>	Australasian Pipit			Expert distribution <i>Anthus novaeseelandiae</i>	6504213.91
ESTRILDIDAE	<i>Neochmia (Aegintha) temporalis</i>	Red-browed Finch			Expert distribution <i>Neochmia temporalis</i>	1125930.56
STRIGIDAE	<i>Ninox (Ninox) novaeseelandiae</i>	Southern Boobook			Expert distribution <i>Ninox novaeseelandiae</i>	8080194.91
PETROICIDAE	<i>Petroica (Petroica) goodenovii</i>	Red-capped Robin			Expert distribution <i>Petroica goodenovii</i>	6577525.66
ACANTHIZIDAE	<i>Sericornis (Sericornis) frontalis</i>	White-browed Scrubwren			Expert distribution <i>Sericornis frontalis</i>	1687669.44

ACANTHIZIDAE	Smicromis brevirostris	Weebill		Expert distribution Smicromis brevirostris	7261150.12
RALLIDAE	Tribonyx ventralis	Black-tailed Native-hen		Expert distribution Gallinula ventralis	4636120.02
TURNICIDAE	Turnix (Australturnix) varius	Painted Button-quail		Expert distribution Turnix varius	2300628.94
CHARADRIIDAE	Vanellus (Lobivanellus) tricolor	Banded Lapwing		Expert distribution Vanellus tricolor	5665395.23
ECHENEIDAE	Echeneis naucrates	Sharksucker	200.0	Expert distribution Echeneis naucrates	10343940.42
FISTULARIIDAE	Fistularia petimba	Rough Flutemouth	1.0 200.0	Expert distribution Fistularia petimba	2008451.06
Diomedeidae	Diomedea epomophora epomophora	Southern Royal Albatross		Expert distribution (likely) Diomedea epomophora epomophora	4754544.71
Delphinidae	Orcinus orca	Killer Whale, Orca		Expert distribution (maybe) Orcinus orca	11843233.78
MELIPHAGIDAE	Melithreptus (Eidopsarus) brevirostris	Brown-headed Honeyeater		Expert distribution Melithreptus brevirostris	2009064.71
Diomedeidae	Thalassarche impavida	Campbell Albatross		Expert distribution (maybe) Thalassarche impavida	5369022.49
ACCIPITRIDAE	Accipiter (Leucospiza) fasciatus	Brown Goshawk		Expert distribution Accipiter fasciatus	8215601.74
ACCIPITRIDAE	Aquila (Uroaetus) audax	Wedge-tailed Eagle		Expert distribution Aquila audax	7711600.67
Ardeidae	Ardea alba	Great Egret, White Egret		Expert distribution (likely) Ardea alba	7998335.02
ARTAMIDAE	Artamus (Angroyan) cinereus	Black-faced Woodswallow		Expert distribution Artamus cinereus	7455889.31
ARTAMIDAE	Artamus (Campbellornis) personatus	Masked Woodswallow		Expert distribution Artamus personatus	7602300.12
SCOMBRIDAE	Cybiosarda elegans	Leaping Bonito	200.0	Expert distribution Cybiosarda elegans	6035775.65
CACATUIDAE	Calyptorhynchus (Calyptorhynchus) banksii	Red-tailed Black-cockatoo		Expert distribution Calyptorhynchus banksii	2812291.69
ANATIDAE	Chenonetta jubata	Australian Wood Duck		Expert distribution Chenonetta jubata	6020637.70
PSITTACIDAE	Neophema (Neonanodes) petrophila	Rock Parrot		Expert distribution Neophema petrophila	142510.53
COLUMBIDAE	Phaps (Phaps) elegans	Brush Bronzewing		Expert distribution Phaps elegans	696122.82
CARANGIDAE	Pseudocaranx wrighti	Skipjack Trevally	30.0	Expert distribution Pseudocaranx wrighti	550919.79
PSITTACIDAE	Purpureicephalus spurius	Red-capped Parrot		Expert distribution Purpureicephalus spurius	126600.50
CHARADRIIDAE	Charadrius (Charadrius) leschenaultii	Greater Sand Plover		Expert distribution Charadrius leschenaultii	9559817.29
PODICIPEDIDAE	Tachybaptus novaehollandiae	Australasian Grebe		Expert distribution Tachybaptus novaehollandiae	8158001.38
HEMIGALEIDAE	Hemipristis elongata	Fossil Shark	1.0 130.0	Expert distribution Hemipristis elongata	1529854.87
PRIACANTHIDAE	Heteropriacanthus cruentatus	Blotched Bigeye	20.0	Expert distribution Heteropriacanthus cruentatus	319410.76
ISTIOPHORIDAE	Istiophorus platypterus	Sailfish	200.0	Expert distribution Istiophorus platypterus	6312696.51
Meropidae	Merops ornatus	Rainbow Bee-eater		Expert distribution (maybe) Merops ornatus	7784899.62

MURAENESOCIDAE	<i>Muraenesox bagio</i>	Common Pike Eel	1.0	100.0	Expert distribution <i>Muraenesox bagio</i>	1429854.53
Cheloniidae	<i>Natator depressus</i>	Flatback Turtle			Expert distribution (likely) <i>Natator depressus</i>	4457761.25
CYNOGLOSSIDAE	<i>Paraplagusia bilineata</i>	Lemon Tongue Sole		200.0	Expert distribution <i>Paraplagusia bilineata</i>	1670927.49
HAEMULIDAE	<i>Plectorhinchus flavomaculatus</i>	Goldspotted Sweetlips	1.0	30.0	Expert distribution <i>Plectorhinchus flavomaculatus</i>	390320.59
PARALICHTHYIDAE	<i>Pseudorhombus jenynsii</i>	Smalltooth Flounder	1.0	172.0	Expert distribution <i>Pseudorhombus jenynsii</i>	1732997.92
PSOPHODIDAE	<i>Psophodes (Phodopses) nigrogularis</i>	Western Whipbird			Expert distribution <i>Psophodes nigrogularis</i>	210564.58
ESTRILDIDAE	<i>Stagonopleura (Zonaeginthus) oculata</i>	Red-eared Firetail			Expert distribution <i>Stagonopleura oculata</i>	82529.94
MORIDAE	<i>Eeyorius hutchinsi</i>	Finetooth Beardie		25.0	Expert distribution <i>Eeyorius hutchinsi</i>	28744.40
OPHIDIIDAE	<i>Genypterus tigerinus</i>	Rock Ling	1.0	60.0	Expert distribution <i>Genypterus tigerinus</i>	214524.55
MOLIDAE	<i>Mola ramsayi</i>	Short Sunfish		5000.0	Expert distribution <i>Mola ramsayi</i>	4953284.83
TRIAKIDAE	<i>Mustelus antarcticus</i>	Gummy Shark		350.0	Expert distribution <i>Mustelus antarcticus</i>	575063.41
CHEILODACTYLIDAE	<i>Nemadactylus macropterus</i>	Jackass Morwong		400.0	Expert distribution <i>Nemadactylus macropterus</i>	585358.16
HIRUNDINIDAE	<i>Hirundo (Hirundo) neoxena</i>	Welcome Swallow			Expert distribution <i>Hirundo neoxena</i>	6051281.36
COLUMBIDAE	<i>Ocyphaps lophotes</i>	Crested Pigeon			Expert distribution <i>Ocyphaps lophotes</i>	7413153.51
PACHYCEPHALIDAE	<i>Pachycephala (Alisterornis) rufiventris</i>	Rufous Whistler			Expert distribution <i>Pachycephala rufiventris</i>	7241012.34
PARDALOTIDAE	<i>Pardalotus (Pardalotinus) striatus</i>	Striated Pardalote			Expert distribution <i>Pardalotus striatus</i>	6172513.14
MELIPHAGIDAE	<i>Phylidonyris (Meliornis) niger</i>	White-cheeked Honeyeater			Expert distribution <i>Phylidonyris niger</i>	1050960.21
PODICIPEDIDAE	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe			Expert distribution <i>Poliiocephalus poliocephalus</i>	7076105.52
RALLIDAE	<i>Porzana (Porzana) fluminea</i>	Australian Spotted Crake			Expert distribution <i>Porzana fluminea</i>	1982268.46
RHIPIDURIDAE	<i>Rhipidura (Rhipidura) fuliginosa</i>	New Zealand Fantail			Expert distribution <i>Rhipidura fuliginosa</i>	5840029.33
ARTAMIDAE	<i>Strepera (Neostrepera) versicolor</i>	Grey Currawong			Expert distribution <i>Strepera versicolor</i>	2109344.39
TURNICIDAE	<i>Turnix (Alphaturnia) velox</i>	Little Button-quail			Expert distribution <i>Turnix velox</i>	7007734.60
TIMALIIDAE	<i>Zosterops lateralis</i>	Silvereeye			Expert distribution <i>Zosterops lateralis</i>	2710961.04
CREEDIIDAE	<i>Limnichthys fasciatus</i>	Tommyfish		150.0	Expert distribution <i>Limnichthys fasciatus</i>	430594.44
Diomedeidae	<i>Thalassarche steadi</i>	White-capped Albatross			Expert distribution (likely) <i>Thalassarche steadi</i>	6038445.64
PODICIPEDIDAE	<i>Podiceps cristatus</i>	Great Crested Grebe			Expert distribution <i>Podiceps cristatus</i>	30644062.36
SCOLOPACIDAE	<i>Actitis hypoleucos</i>	Common Sandpiper			Expert distribution <i>Actitis hypoleucos</i>	61323916.68
SCOLOPACIDAE	<i>Calidris (Erolia) ferruginea</i>	Curlew Sandpiper			Expert distribution <i>Calidris ferruginea</i>	17993095.28
Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle			Expert distribution (likely) <i>Haliaeetus leucogaster</i>	1987188.30
					Expert distribution <i>Isurus</i>	

LAMNIDAE	<i>Isurus oxyrinchus</i>	Shortfin Mako	650.0	oxyrinchus	9604891.44
SCOMBRIDAE	<i>Katsuwonus pelamis</i>	Skipjack Tuna	200.0	Expert distribution <i>Katsuwonus pelamis</i>	10002927.39
FALCONIDAE	<i>Falco (Falco) longipennis</i>	Australian Hobby		Expert distribution <i>Falco longipennis</i>	8298592.48
RALLIDAE	<i>Gallinula (Gallinula) tenebrosa</i>	Dusky Moorhen		Expert distribution <i>Gallinula tenebrosa</i>	3818628.75
HAEMATOPODIDAE	<i>Haematopus longirostris</i>	Australian Pied Oystercatcher		Expert distribution <i>Haematopus longirostris</i>	871291.53
ACCIPITRIDAE	<i>Haliastur sphenurus</i>	Whistling Kite		Expert distribution <i>Haliastur sphenurus</i>	5610016.45
ACCIPITRIDAE	<i>Hieraaetus (Hieraaetus) morphnoides</i>	Little Eagle		Expert distribution <i>Hieraaetus morphnoides</i>	7295760.24
RHIPIDURIDAE	<i>Rhipidura (Sauloprocta) leucophrys</i>	Willie Wagtail		Expert distribution <i>Rhipidura leucophrys</i>	8437314.02
THRESKIORNITHIDAE	<i>Threskiornis molucca</i>	Australian White Ibis		Expert distribution <i>Threskiornis molucca</i>	5606446.57
TYTONIDAE	<i>Tyto (Megastrix) novaehollandiae</i>	Masked Owl		Expert distribution <i>Tyto novaehollandiae</i>	5149773.71
ACCIPITRIDAE	<i>Elanus axillaris</i>	Black-shouldered Kite		Expert distribution <i>Elanus axillaris</i>	7680926.93
ACANTHIZIDAE	<i>Gerygone fusca</i>	Western Gerygone		Expert distribution <i>Gerygone fusca</i>	3763661.46

Checklist Areas

Number of checklist areas: 0

Table 33: Checklist Areas

Family	Scientific Name	Common Name	Area Name	Area sq km
--------	-----------------	-------------	-----------	------------

JournalMap Articles

Number of JournalMap articles: 0

Table 34: JournalMap Articles

Author/s	Year	Title	Publication	DOI	URL
----------	------	-------	-------------	-----	-----

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/>

References

1. Lymburner, L., Tan, P., Mueller, N., Thackway, R., Lewis, A., Thankappan, M., Randall, L., Islam, A. and Senarath, U. (2010). 250 metre Dynamic Land Cover Dataset of Australia (1st Edition), Geoscience Australia, Canberra.
2. Olson, D. M., Dinerstein, E., Wikramanayake, E. D., Burgess, N. D., Powell, G. V. N., Underwood, E. C., D'Amico, J. A., Itoua, I., Strand, H. E., Morrison, J. C., Loucks, C. J., Allnutt, T. F., Ricketts, T. H., Kura, Y., Lamoreux, J. F., Wettengel, W. W., Hedao, P. and Kassem, K. R. (2001). Terrestrial ecoregions of the world: a new map of life on Earth. *Bioscience* 51(11):933-938.
3. Commonwealth of Australia (2006). A Guide to the Integrated Marine and Coastal Regionalisation of Australia Version 4.0. Department of the Environment and Heritage, Canberra, Australia.
4. Spalding, M.D., Fox, H.E., Allen, G.R., Davidson, N., Ferdaña, Z.A., Finlayson, M., Halpern, B.S., Jorge, M.A., Lombana, A., Lourie, S.A., Martin, K.D., McManus, E., Molnar, Jennifer, Recchia, C.A. and Robertson, J. (2007). Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas. *Bioscience* 57(7): 573–583.
<https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/colorado/scienceandstrategy/marine-ecoregions-of-the-world.pdf>
5. Abell, R., Thieme, M.L., Revenga, C., Bryer, M., Kottelat, M., Bogutskaya, N., Coad, B., Mandrak, N., Contreras Balderas, S., Bussing, W., Stiassny, M.L.J., Skelton, P., Allen, G.R., Unmack, P., Naseka, A., Ng, R., Sindorf, N., Robertson, J., Armijo, E., Higgins, J.V., Heibel, T.J., Wikramanayake, E., Olson, D., Lopez, H.L., Reis, R.E., Lundberg, J.G., Sabaj Pérez, M.H. and Petry, P. (2008). Freshwater Ecoregions of the World: A new map of biogeographic units for freshwater biodiversity conservation. *BioScience* 58(5): 403-414.
http://www.feow.org/download/Abell_et_al_08_BioScience.pdf
6. Crisp, M.D., Laffan, S. Linder, H.P. and Monro, A. (2001). Endemism in the Australian flora. *Journal of Biogeography* 28: 183-198.
7. Atlas of Living Australia (2013). Spatial Portal Help: Area Report. <https://www.ala.org.au/spatial-portal-help/area-report/>
8. Commonwealth of Australia (2013). Migratory Species in Australia. Department of the Environment, Canberra.
<https://www.environment.gov.au/topics/biodiversity/migratory-species>
9. Atlas of Living Australia (2013). FAQ: Data Sensitivity. <https://www.ala.org.au/faq/data-sensitivity/>
10. Commonwealth of Australia (2010). Gazetteer of Australia Place Name Search. Geoscience Australia, Canberra.
<http://www.ga.gov.au/place-names/>
11. NASA Earth Observatory (2000). Net Primary Productivity. https://earthobservatory.nasa.gov/GlobalMaps/view.php?d1=MOD17A2_M_PSN



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: 12-Aug-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)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	37
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <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:	11
Whales and Other Cetaceans:	None
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:	2
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	8
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[\[Resource Information \]](#)

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Empodisma peatlands of southwestern Australia	Endangered	Community may 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	Threatened Category	Presence Text
BIRD		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding likely to occur within area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area
CRUSTACEAN		
Engaewa pseudoreducta Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat may occur within area
MAMMAL		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Myrmecobius fasciatus Numbat [294]	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
Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat may occur within area
OTHER		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
PLANT		
Banksia mimica Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area
Banksia nivea subsp. uliginosa Swamp Honeypot [82766]	Endangered	Species or species habitat may occur within area
Banksia squarrosa subsp. argillacea Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat may occur within area
Brachyscias verecundus Ironstone Brachyscias [81321]	Critically Endangered	Species or species habitat may occur within area
Caladenia hoffmanii Hoffman's Spider-orchid [56719]	Endangered	Species or species habitat may occur within area
Chamelaucium sp. S coastal plain (R.D.Royce 4872) Royce's Waxflower [87814]	Vulnerable	Species or species habitat may occur within area
Daviesia elongata subsp. elongata Long-leaved Daviesia [64883]	Vulnerable	Species or species habitat known 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 likely to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
Drakaea elastica Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat likely to occur within area
Gastrolobium papilio Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area
Lambertia echinata subsp. occidentalis Western Prickly Honeysuckle [64528]	Endangered	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
Petrophile latericola Laterite Petrophile [64532]	Endangered	Species or species habitat may occur within area
Synaphea sp. Fairbridge Farm (D.Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
Synaphea sp. Pinjarra Plain (A.S.George 17182) [86878]	Endangered	Species or species habitat likely to occur within area
Synaphea sp. Serpentine (G.R.Brand 103) [86879]	Critically Endangered	Species or species habitat may occur within area
Synaphea stenoloba Dwellingup Synaphea [66311]	Endangered	Species or species habitat likely to occur within area
Verticordia densiflora var. pedunculata Long-stalked Featherflower [55689]	Endangered	Species or species habitat may occur within area

Listed Migratory Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
-----------------	---------------------	---------------

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely 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 - [50435]	WA

Listed Marine Species	[Resource Information]	
Scientific Name	Threatened Category	Presence Text

Scientific Name	Threatened Category	Presence Text
-----------------	---------------------	---------------

Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area

Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine 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	Species or species habitat may occur within area
--	------------	--

Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
---	-----------------------	--

Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
--	--	--

Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
---	--	--

Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
---	--	--

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 may occur within area
---	-----------------------	--

Scientific Name	Threatened Category	Presence Text
Tringa nebularia		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area

Extra Information

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

Protected Area Name	Reserve Type	State
NTWA Bushland covenant (0107)	Conservation Covenant	WA
Unnamed WA49857	Nature Reserve	WA

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

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State
South West WA RFA	Western Australia

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Mining of titaninum mineral sands from four deposits located on both private la	2004/1628	Controlled Action	Completed
Mining of titanium mineral sands in Happy Valley north and south, on private ...	2006/2597	Controlled Action	Completed
Yarragadee Water Supply Development	2005/2073	Controlled Action	Completed
Not controlled action			
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
Not controlled action (particular manner)			
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Titanium mineral sands from M70/895 and M70/899	2005/2031	Not Controlled Action (Particular Manner)	Post-Approval
Waterloo to Busselton 132kV Transmission Line	2002/816	Not Controlled Action (Particular Manner)	Post-Approval

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.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111

Appendix 9. Pre and post likelihood of occurrence

#	SPECIES	WA STATUS	FLOWERING	DESCRIPTION AND HABITAT	PRE-SURVEY LIKELIHOOD	POST SURVEY LIKELIHOOD
1	<i>Morelotia australiensis</i>	T (VU)	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.	Unlikely	Unlikely (U1)
2	<i>Caladenia procera</i>	T (CR)	Sep-Oct	Tuberous, perennial, herb, 0.35-0.9 m high. Fl. yellow. Rich clay loam. Alluvial loamy flats, jarrah/marri/peppermint woodland, dense heath, sedges.	Unlikely	Unlikely (U1)
3	<i>Brachyscias verecundus</i>	T (CR)	Nov to early December	Annual (or ephemeral), herb, 0.012-0.022 m high, entirely glabrous. Fl. white/cream. Recorded in winter-wet clay over ironstone in open to tall shrubland, other occurrence in moss sward in granite outcrop in Shannon River National Park has been officially disregarded, according the EPBC Act conservation advice (2006) for this species.	Unlikely	Unlikely (U1)
4	<i>Caladenia huegelii</i>	T (CR)	Sep-Oct	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green, cream, red. Grey or brown sand, clay loam. (Jarrah banksia woodland usually associated with the Bassendean sand-dune system, rarely in the Spearwood system).	Unlikely	Unlikely (U1)
5	<i>Drakaea elastica</i>	T (CR)	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.	Unlikely	Unlikely (U1)
6	<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	T (CR)	Oct	Dense, clumped shrub, to 0.3 m high, to 0.4 m wide. Fl. Yellow. Sandy with lateritic pebbles. Near winter-wet flats, in low woodland with weedy grasses.	Unlikely	Unlikely (U1)
7	<i>Synaphea</i> sp. Serpentine	T (CR)	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.	Unlikely	Unlikely (U1)
8	<i>Banksia nivea</i> subsp. <i>uliginosa</i>	T (EN)	July-Sep	Dense, erect, non-lignotuberous shrub, 0.2–1.5 m high. Fl. yellow, brown. Sandy clay, gravel.(red, sandy, shallow loams over ironstone in thick scrub, in winter wet southern and Scott ironstones.)	Unlikely	Unlikely (U1)
9	<i>Darwinia whicherensis</i>	T (EN)	Oct-Nov	Erect low shrub to 30 cm, flowers green, outer red. Winter-wet area of shrubland over shallow red clay over ironstone	Unlikely	Unlikely (U1)
10	<i>Diuris drummondii</i>	T (EN)	Nov-Jan	Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow. Low-lying depressions, swamps.	Unlikely	Unlikely (U1)
11	<i>Diuris purdiei</i>	T (EN)	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.	Unlikely	Unlikely (U1)

#	SPECIES	WA STATUS	FLOWERING	DESCRIPTION AND HABITAT	PRE-SURVEY LIKELIHOOD	POST SURVEY LIKELIHOOD
12	<i>Gastrolobium papilio</i>	T (EN)	Oct-Dec	Tangled, clumped shrub, to 1.5 m high. Fl. cream-red. Sandy clay over ironstone and laterite. Flat plains.	Unlikely	Unlikely (U1)
13	<i>Lambertia echinata</i> subsp. <i>occidentalis</i>	T (EN)	Feb/May-Jun/Oct	Prickly, much-branched, non-lignotuberous shrub, to 3 m high. Fl. yellow. White sandy soils over laterite, orange/brown-red clay over ironstone.	Unlikely	Unlikely (U1)
14	<i>Petrophile latericola</i>	T (EN)	Nov	Multi-stemmed shrub, 0.4-1.5 m high. Fl. yellow. Red lateritic clay. Winter-wet flats.	Unlikely	Unlikely (U1)
15	<i>Synaphea</i> sp. Pinjarra Plain (A.S. George 17182)	T (EN)	Sep to Nov	Erect, clumped shrub (sub-shrub), to 0.8 m high. Fl. yellow. 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.	Unlikely	Unlikely (U1)
16	<i>Synaphea stenoloba</i>	T (EN)	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.	Unlikely	Unlikely (U1)
17	<i>Verticordia densiflora</i> var. <i>pedunculata</i>	T (EN)	Dec-Jan	Erect to spreading shrub, 0.3-0.6 m high. Fl. pink/pink-white. Grey/yellow sand, sandy loam. Winter-wet low-lying areas.	Unlikely	Unlikely (U1)
18	<i>Caladenia hoffmanii</i>	T (EN)	Aug-Oct	Tuberous, perennial, herb, 0.13-0.3 m high. Fl. green & yellow & red. Clay, loam, laterite, granite. Rocky outcrops and hillsides, ridges, swamps and gullies.	Possible	Unlikely (U2)
19	<i>Drakaea micrantha</i>	T (EN)	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.	Possible	Unlikely (U2)
20	<i>Banksia squarrosa</i> subsp. <i>argillacea</i>	T (VU)	Jun-Nov	Erect, open, non-lignotuberous shrub, 1.2–4 m high. Fl. yellow, Jun–Nov. White/grey sand, gravelly clay or loam. Winter-wet flats, clay flats.	Unlikely	Unlikely (U1)
21	<i>Chamelaucium roycei</i>	T (VU)	Oct-Dec	Winter-wet areas, loams and ironstone.	Unlikely	Unlikely (U1)
22	<i>Diuris micrantha</i>	T (VU)	Sep-Oct	Tuberous, perennial, herb, 0.3–0.6 m high. Fl. yellow, brown. Brown loamy clay. Winter-wet swamps, in shallow water.	Unlikely	Unlikely (U1)
23	<i>Eleocharis keigheryi</i>	T (VU)	Aug-Nov	Rhizomatous, clumped perennial, grass-like or herb (sedge), to 0.4 m high. Fl. green. Clay, sandy loam. Emergent in freshwater: creeks, claypans	Unlikely	Unlikely (U1)
24	<i>Daviesia elongata</i> subsp. <i>elongata</i>	T (VU)	Dec-Feb	Spreading shrub, 0.4–1 m high. Fl. yellow, orange, red. Sandy soils.	Possible	Unlikely (U2)
25	<i>Andersonia ferricola</i>	P1	Oct	Shrub, 0.2-0.5 m high. Fl. purple. White sand or red-brown loam over ironstone. Seasonally wet flats.	Unlikely	Unlikely (U1)
26	<i>Carex tereticaulis</i>	P1	Sep-Oct	Monoecious, rhizomatous, tufted perennial, grass-like or herb (sedge), 0.7 m high. Fl. brown. Black peaty sand.	Unlikely	Unlikely (U1)

#	SPECIES	WA STATUS	FLOWERING	DESCRIPTION AND HABITAT	PRE-SURVEY LIKELIHOOD	POST SURVEY LIKELIHOOD
27	<i>Synaphea odocoileops</i>	P1	Aug-Oct	Tufted, compact shrub, 0.2–0.5 m high. Fl. yellow. Brown-orange loam & sandy clay, granite. Swamps, winter-wet areas.	Unlikely	Unlikely (U1)
28	<i>Synaphea</i> sp. Argyle (R. Butcher RB 1323)	P1	Oct	No information available	Unlikely	Unlikely (U1)
29	<i>Boronia humifusa</i>	P1	Jun/Sep	Low-growing, wiry perennial, herb, 0.1–0.2 m high. Fl. pink, red. Gravelly clay loam over laterite. Jarrah-marri open forest.	Possible	Unlikely (U2)
30	<i>Caladenia uliginosa</i> subsp. <i>patulens</i>	P1	Sep-Oct	Tuberous, perennial, herb, 0.2-0.35 m high. Fl. green-cream. Clay loam and gravel. Well drained soils amongst dense shrubs.	Possible	Unlikely (U2)
31	<i>Dillwynia</i> sp. Capel (P.A. Jurjevich 1771)	P1	Sep-Oct	Erect, open, spreading shrub, to 2 m high. Fl. yellow, orange, red, pink. Littered grey loamy sand, rocky soils. Valleys,	Possible	Unlikely (U2)
32	<i>Gastrolobium</i> sp. Yoongarillup (S. Dilkes s.n. 1/9/1969)	P1	Aug-Oct	Erect, perennial shrub; 0.5 m high, 1.0 m wide; flowers yellow/orange. Jarrah-Marri forest, white sand, gravel	Possible	Unlikely (U2)
33	<i>Orianthera wendyae</i>	P1		Decumbent perennial subshrub, decumbent to 10 cm. Flowers white, foetid scent, in full flower. Brown sandy clay. Eucalyptus haematoxylon, E. marginata low woodland. locally common.	Possible	Unlikely (U2)
34	<i>Stylidium acuminatum</i> (Carlquist) Wege subsp. <i>acuminatum</i>	P1	Oct-Dec/Jan	Rosetted perennial, herb, Leaves oblanceolate. Inflorescence racemose. Fl. yellow. Clayey sand over laterite. Hillslopes, ridges and valleys. Eucalypt forest, open woodland, Agonis shrubland.	Possible	Unlikely (U2)
35	<i>Stylidium nitidum</i>	P1	Oct to Nov	Perennial herb, 18–28 cm tall, with basin-like rosettes of irregularly arranged leaves. Corolla cream, abaxial surface creamy yellow with a faint red mid-vein near base, sparsely glandular. <i>Stylidium nitidum</i> is distinguished from all other species within the <i>S. piliferum</i> complex by its glabrous scape and inflorescence, and its glossy, glabrous hypanthium and calyx lobes. Occurs in the southern Jarrah Forest. Grows in grey sand mostly under <i>Casuarina</i> and <i>Baeckea</i> species amongst <i>Casuarina</i> needle litter in low open woodland.	Possible	Unlikely (U2)
36	<i>Stylidium perplexum</i>	P1	Nov - Dec	Cushionlike plant to 20 cm tall with scapes extending higher, flowers white. Known from remnant bushland on the Whicher Scarp south-east of Dardanup where it grows in lateritic soils. It is apparently confined to, but common within, a narrow altitudinal gradient on an upper ridge slope bearing <i>Eucalyptus marginata</i> and <i>Corymbia haematoxylon</i> woodland over <i>Banksia grandis</i> and <i>Xanthorrhoea</i> .	Possible	Unlikely (U2)
37	<i>Leptomeria furtiva</i>	P2	Jan, Aug-Oct	Lax, sprawling shrub, 0.2–0.45 m high. Fl. orange, brown. Grey or black peaty sand. Winter-wet flats.	Unlikely	Unlikely (U1)

#	SPECIES	WA STATUS	FLOWERING	DESCRIPTION AND HABITAT	PRE-SURVEY LIKELIHOOD	POST SURVEY LIKELIHOOD
38	<i>Schoenus loliaceus</i>	P2	Aug-Nov	Annual, grass-like or herb (sedge), 0.03–0.06 m high. Sandy soils. Winter-wet depressions.	Unlikely	Unlikely (U1)
39	<i>Stenanthemum sublineare</i>	P2	Oct-Dec	Erect shrub, to 0.1 m high. Fl. green. Littered white sand. Coastal plain.	Unlikely	Unlikely (U1)
40	<i>Synaphea petiolaris</i> subsp. <i>simplex</i>	P2	Sep-Oct	Tufted shrub, 0.1–0.6 m high. Fl. yellow. Sandy soils. Flats, winter-wet areas.	Unlikely	Unlikely (U1)
41	<i>Gastrolobium whicherense</i>	P2	Oct	Slender, open shrub, to 1.6 m high. Fl. orange/yellow/red. Red-grey sandy clay over quartzite. Steep westerly slopes.	Possible	Unlikely (U2)
42	<i>Leucopogon</i> sp. Busselton (D. Cooper 243)	P2	Aug-Sep	Slender, erect shrub to 70 cm; flowers white. Pericalymma ellipticum wet shrubland, Marri-Jarrah woodland.	Possible	Unlikely (U2)
43	<i>Platytheca anasima</i>	P2	Oct-Dec	Sprawling to erect shrub, 0.5–1.5 m high, 0.6–1.0 m wide. Fl. blue or purple with a magenta flare at base above a distinct yellow spot. Distribution and habitat. <i>Platytheca anasima</i> has been collected from State Forest c. 15 km east-south-east of Capel (Figure 2). It grows on gentle slopes of white-grey sand or brown sandy loam in mixed <i>Eucalyptus marginata</i> , <i>Corymbia haematoxylon</i> , <i>C. calophylla</i> and <i>Allocasuarina fraseriana</i> low woodland over <i>Banksia grandis</i> , <i>Kingia australis</i> , <i>Persoonia longifolia</i> and <i>Xylomelum occidentale</i> .	Possible	Unlikely (U2)
44	<i>Thelymitra variegata</i>	P2	Jun-Sep	Tuberous, perennial, herb, 0.1–0.35 m high. Fl. orange, red, purple, pink. Sandy clay, sand, laterite.	Possible	Unlikely (U2)
45	<i>Banksia mimica</i>	P3	Dec-Feb	Prostrate, lignotuberous shrub, 0.15–0.4 m high. Fl. yellow, brown. White or grey sand over laterite, sandy loam.	Unlikely	Unlikely (U1)
46	<i>Boronia capitata</i> subsp. <i>gracilis</i>	P3	Jun-Nov	Slender shrub, 0.3-0.6(-3) m high, branches pilose. Fl. pink. White/grey or black sand. Winter-wet swamps,	Unlikely	Unlikely (U1)
47	<i>Chamaescilla gibsonii</i>	P3	Sep	Clumped tuberous, herb. Fl. blue. Clay to sandy clay. Winter-wet flats, shallow water-filled claypans.	Unlikely	Unlikely (U1)
48	<i>Anzybas abditus</i>	P3	Oct-Nov	Tuberous, perennial, dwarf herb, 0.01-0.02 m high. Fl. red-purple. Black peaty soils. Winter-wet swamps.	Unlikely	Unlikely (U1)
49	<i>Loxocarya magna</i>	P3	Sep-Nov	Rhizomatous, perennial, herb (sedge-like), 0.5-1.5 m high. Sand, loam, clay, ironstone. Seasonally inundated or damp habitats.	Unlikely	Unlikely (U1)
50	<i>Schoenus pennisetis</i>	P3	Aug-Sep	Tufted annual, grass-like or herb (sedge), 0.05-0.15 m high. Fl. purple-black. Grey or peaty sand, sandy clay. Swamps, winter-wet depressions.	Unlikely	Unlikely (U1)

#	SPECIES	WA STATUS	FLOWERING	DESCRIPTION AND HABITAT	PRE-SURVEY LIKELIHOOD	POST SURVEY LIKELIHOOD
51	<i>Stylidium paludicola</i>	P3	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.	Unlikely	Unlikely (U1)
52	<i>Synaphea polypodioides</i>	P3	Sep-Oct	Clumped shrub (sunshrub), 0.35-0.4 m high. Light brown loam, red-brown sandy loam, gravelly, brown sandy clay over laterite. In undulating areas.	Unlikely	Unlikely (U1)
53	<i>Verticordia attenuata</i>	P3	Dec-May	Shrub, 0.4–1 m high. Fl. pink. White or grey sand. Winter-wet depressions	Unlikely	Unlikely (U1)
54	<i>Wurmbea</i> sp. Cranbrook (A.R. Annels 3819)	P3	Sep - Oct	Growing in wetter depressions in swamp in silty clay sediments.	Unlikely	Unlikely (U1)
55	<i>Adelphacme minima</i>	P3	Oct-Nov	Annual 10-20 cm tall. Leaves sessile Fl. white. Sandy soils, sandy loam swamp situations	Possible	Unlikely (U2)
56	<i>Cyathochaeta teretifolia</i>	P3	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.	Possible	Unlikely (U2)
57	<i>Grevillea bronwenae</i>	P3	Jun-Dec	Slender, erect shrub, 0.5–1.6 m high. Fl. red. Grey sand over laterite, lateritic loam. Hillslopes.	Possible	Unlikely (U2)
58	<i>Isopogon formosus</i> subsp. <i>dasylepis</i>	P3	Jun-Dec	Low, bushy or slender, upright, non-lignotuberous shrub, 0.2–2 m high. Fl. pink, purple, red. Sand, sandy clay, gravelly sandy soils over laterite. Often swampy areas.	Possible	Unlikely (U2)
59	<i>Jacksonia gracillima</i>	P3	Oct-Nov	Decumbent shrub - 20 cm high and 50 cm wide. Flowers standard orange-yellow; eye yellow with red halo; wings/keel red. Seasonally damp shrublands and woodlands, on sandy loams or clay loams	Possible	Unlikely (U2)
60	<i>Lasiopetalum laxiflorum</i>	P3	Sep-Oct	Jarrah forest, lateritic soils. 2-3 ft high. Mauve flowers. Brown on underside of leaf.	Possible	Unlikely (U2)
61	<i>Lomandra whicherensis</i>	P3	Nov-Dec	Tufted rhizomatous herb 20 cm high x 30 cm wide. Flowers yellow with purple stripe. Jarrah-marri forest, lateritic soils, sandy clay.	Possible	Unlikely (U2)
62	<i>Synaphea hians</i>	P3	Jul-Nov	Prostrate or decumbent shrub, 0.15-0.6 m high, to 1 m wide. Fl. Yellow. Sandy soils. Rises.	Possible	Unlikely (U2)
63	<i>Tetratheca parvifolia</i>	P3	Oct	Small shrub, 0.2-0.3 m high. Fl. pink. Jarrah, woodland, wandoo woodland, gravelly soils.	Possible	Unlikely (U2)
64	<i>Caustis</i> sp. Boyanup (G.S. McCutcheon 1706)	P3	Dec-Jan	Rhizomatous, clumped perennial, grass-like or herb (sedge), 0.7–1 m high. White or grey sand.	Possible	Unlikely (U2)

#	SPECIES	WA STATUS	FLOWERING	DESCRIPTION AND HABITAT	PRE-SURVEY LIKELIHOOD	POST SURVEY LIKELIHOOD
65	<i>Angianthus drummondii</i>	P3	Oct-Dec	Erect annual, herb, to 0.1 m high. Fl. yellow. Grey or brown clay soils, ironstone. Seasonally wet flats.	Unlikely	Unlikely (U2)
66	<i>Acacia flagelliformis</i>	P4	May-Sep	Rush-like, erect or sprawling shrub, 0.3-0.75(-1.6) m high. Fl. yellow. Sandy soils. Winter-wet areas.	Unlikely	Unlikely (U1)
67	<i>Acacia semitrullata</i>	P4	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.	Unlikely	Unlikely (U1)
68	<i>Aponogeton hexatepalus</i>	P4	Jul-Oct	Rhizomatous or cormous, aquatic perennial, herb, leaves floating. Fl. green, white. Mud. Freshwater: ponds, rivers, claypans.	Unlikely	Unlikely (U1)
69	<i>Caladenia speciosa</i>	P4	Sep-Oct	Tuberous, perennial, herb, 0.35-0.6 m high. Fl. white, pink. White, grey or black sand.	Unlikely	Unlikely (U1)
70	<i>Ornduffia submersa</i>	P4	Sep-Oct	Tuberous emergent aquatic perennial dwarf shrub, height to 35 cm; flowers white; leaves floating on surface of water. Clay-based ponds and swamps (semi-aquatic)	Unlikely	Unlikely (U1)
71	<i>Pultenaea skinneri</i>	P4	Jul-Sep	Slender shrub, 1-2 m high. Fl. yellow, orange, red. Sandy or clayey soils. Winter-wet depressions.	Unlikely	Unlikely (U1)
72	<i>Stylidium longitubum</i>	P4	Oct-Dec	Erect annual (ephemeral), herb, 0.05-0.12 m high. Fl. Pink. Sandy clay, clay. Seasonal wetlands.	Unlikely	Unlikely (U1)
73	<i>Trithuria australis</i>	P4	Nov - Dec	Small reddish aquatic herb. Ponds, pools	Unlikely	Unlikely (U1)
74	<i>Chamelaucium</i> sp. S coastal plain (R.D.Royce 4872)	P4	Jul-Oct	Non-lignotuberous shrub, to 2.5 m high. Fl. cream, yellow. Jarrah-marri forest. Loams, sandy clays. Riverbanks, lower slopes, below laterite breakaways.	Possible	Unlikely (U2)
75	<i>Franklandia triaristata</i>	P4	Aug-Oct	Erect, lignotuberous shrub, 0.2-1 m high. Fl. white, cream, yellow, brown, purple. White or grey sand.	Possible	Unlikely (U2)

Appendix 10. List of vascular flora found within the survey area.

#	FAMILY_NAME	TAXON	NATURALISED
1	Apiaceae	<i>Daucus glochidiatus</i>	
2	Apiaceae	<i>Pentapeltis peltigera</i>	
3	Apiaceae	<i>Xanthosia huegelii</i>	
4	Araliaceae	<i>Hydrocotyle callicarpa</i>	
5	Araliaceae	<i>Trachymene pilosa</i>	
6	Asparagaceae	<i>Asparagus asparagoides</i>	*
7	Asparagaceae	<i>Lomandra caespitosa</i>	
8	Asparagaceae	<i>Lomandra hermaphrodita</i>	
9	Asparagaceae	<i>Lomandra integra</i>	
10	Asparagaceae	<i>Lomandra micrantha</i>	
11	Asparagaceae	<i>Lomandra purpurea</i>	
12	Asparagaceae	<i>Lomandra sericea</i>	
13	Asparagaceae	<i>Thysanotus manglesianus</i>	
14	Asteraceae	<i>Arctotheca calendula</i>	*
15	Asteraceae	<i>Cotula turbinata</i>	*
16	Asteraceae	<i>Hypochaeris glabra</i>	*
17	Asteraceae	<i>Lagenophora huegelii</i>	
18	Asteraceae	<i>Millotia tenuifolia</i>	
19	Asteraceae	<i>Podolepis gracilis</i>	
20	Asteraceae	<i>Quinetia urvillei</i>	
21	Asteraceae	<i>Senecio quadridentatus</i>	
22	Asteraceae	<i>Trichocline spathulata</i>	
23	Asteraceae	<i>Ursinia anthemoides</i>	*
24	Campanulaceae	<i>Lobelia tenuior</i>	
25	Celastraceae	<i>Stackhousia monogyna</i>	
26	Colchicaceae	<i>Burchardia congesta</i>	
27	Crassulaceae	<i>Crassula colorata</i>	
28	Cyperaceae	<i>Ficinia marginata</i>	*
29	Cyperaceae	<i>Lepidosperma squamatum</i>	
30	Cyperaceae	<i>Mesomelaena tetragona</i>	
31	Cyperaceae	<i>Morelotia octandra</i>	
32	Cyperaceae	<i>Netrostylis</i> sp. Jarrah Forest (R. Davis 7391)	
33	Dilleniaceae	<i>Hibbertia amplexicaulis</i>	
34	Dilleniaceae	<i>Hibbertia hypericoides</i>	
35	Dilleniaceae	<i>Hibbertia mylnei</i>	
36	Droseraceae	<i>Drosera erythrorhiza</i>	
37	Droseraceae	<i>Drosera pallida</i>	
38	Droseraceae	<i>Drosera porrecta</i>	
39	Droseraceae	<i>Drosera stolonifera</i>	
40	Droseraceae	<i>Drosera modesta</i>	
41	Elaeocarpaceae	<i>Tetratheca hispidissima</i>	
42	Ericaceae	<i>Leucopogon capitellatus</i>	
43	Ericaceae	<i>Styphelia tenuiflora</i>	

#	FAMILY_NAME	TAXON	NATURALISED
44	Euphorbiaceae	<i>Monotaxis occidentalis</i>	
45	Fabaceae	<i>Acacia extensa</i>	
46	Fabaceae	<i>Acacia pulchella</i> var. <i>pulchella</i>	
47	Fabaceae	<i>Acacia podalyriifolia</i>	
48	Fabaceae	<i>Bossiaea angustifolia</i>	
49	Fabaceae	<i>Gompholobium knightianum</i>	
50	Fabaceae	<i>Gompholobium marginatum</i>	
51	Fabaceae	<i>Hovea chorizemifolia</i>	
52	Fabaceae	<i>Hovea trisperma</i>	
53	Fabaceae	<i>Kennedia prostrata</i>	
54	Fabaceae	<i>Labichea punctata</i>	
55	Goodeniaceae	<i>Dampiera linearis</i>	
56	Goodeniaceae	<i>Lechenaultia biloba</i>	
57	Goodeniaceae	<i>Scaevola calliptera</i>	
58	Hemerocallidaceae	<i>Chamaescilla corymbosa</i>	
59	Hemerocallidaceae	<i>Chamaescilla versicolor</i>	
60	Iridaceae	<i>Orthrosanthus laxus</i>	
61	Iridaceae	<i>Patersonia babianoides</i>	
62	Iridaceae	<i>Patersonia umbrosa</i> var. <i>xanthina</i>	
63	Iridaceae	<i>Romulea rosea</i>	*
64	Lamiaceae	<i>Lavandula stoechas</i>	*
65	Lindsaeaceae	<i>Lindsaea linearis</i>	
66	Myrtaceae	<i>Babingtonia camphorosmae</i>	
67	Myrtaceae	<i>Corymbia calophylla</i>	
68	Myrtaceae	<i>Corymbia haematoxylon</i>	
69	Myrtaceae	<i>Eucalyptus marginata</i>	
70	Myrtaceae	<i>Hypocalymma robustum</i>	
71	Myrtaceae	<i>Kunzea glabrescens</i>	
72	Myrtaceae	<i>Kunzea recurva</i>	
73	Orchidaceae	<i>Caladenia flava</i>	
74	Orchidaceae	<i>Caladenia reptans</i>	
75	Orchidaceae	<i>Caladenia reptans</i> subsp. <i>reptans</i>	
76	Orchidaceae	<i>Cryptostylis ovata</i>	
77	Orchidaceae	<i>Leporella fimbriata</i>	
78	Orchidaceae	<i>Pterostylis</i> sp. Bloated snail orchid (W. Jackson BJ 486)	
79	Orchidaceae	<i>Pyrorchis nigricans</i>	
80	Orchidaceae	<i>Thelymitra graminea</i>	
81	Oxalidaceae	<i>Oxalis exilis</i>	
82	Phyllanthaceae	<i>Poranthera microphylla</i>	
83	Phyllanthaceae	<i>Lysiandra calycina</i>	
84	Poaceae	<i>Austrostipa campylachne</i>	
85	Poaceae	<i>Tetrarrhena laevis</i>	
86	Primulaceae	<i>Lysimachia arvensis</i>	*
87	Proteaceae	<i>Banksia bipinnatifida</i>	
88	Proteaceae	<i>Banksia dallanneyi</i>	
89	Proteaceae	<i>Banksia grandis</i>	
90	Proteaceae	<i>Banksia dallanneyi</i> subsp. <i>sylvestris</i>	

#	FAMILY_NAME	TAXON	NATURALISED
91	Proteaceae	<i>Hakea amplexicaulis</i>	
92	Proteaceae	<i>Hakea lissocarpha</i>	
93	Proteaceae	<i>Hakea stenocarpa</i>	
94	Proteaceae	<i>Persoonia elliptica</i>	
95	Proteaceae	<i>Xylomelum occidentale</i>	
96	Restionaceae	<i>Desmocladius fasciculatus</i>	
97	Restionaceae	<i>Hypolaena exsulca</i>	
98	Rhamnaceae	<i>Spyridium globulosum</i>	
99	Rubiaceae	<i>Opercularia apiciflora</i>	
100	Rubiaceae	<i>Opercularia hispidula</i>	
101	Rutaceae	<i>Boronia dichotoma</i>	
102	Rutaceae	<i>Boronia spathulata</i>	
103	Scrophulariaceae	<i>Verbascum virgatum</i>	*
104	Solanaceae	<i>Solanum nigrum</i>	*
105	Stylidiaceae	<i>Levenhookia stipitata</i>	
106	Stylidiaceae	<i>Stylidium androsaceum</i>	
107	Stylidiaceae	<i>Stylidium ciliatum</i>	
108	Thymelaeaceae	<i>Pimelea rosea subsp. rosea</i>	
109	Thymelaeaceae	<i>Pimelea spectabilis</i>	
110	Violaceae	<i>Pigea floribunda</i>	
111	Xanthorrhoeaceae	<i>Xanthorrhoea gracilis</i>	
112	Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>	

Appendix 11. Quadrat details.



Quadrat	GWIN01	Date	29/09/2023	
Latitude	-33.520	Longitude	115.738	
Veg. Condition	Excellent	Landscape Position	Upper Slope	
Time Since Fire	>10 years	Disturbance	Logging	
Soil Colour	Grey-Brown	Soil Type	Heavy Gravel	
Taxon	Cover (%)	Height (m)	Abundance	
<i>Eucalyptus marginata</i>	70 to 100	>10 m	19*	
<i>Corymbia haematoxylon</i>	10 to 30	<10 m	6*	
<i>Xylomelum occidentale</i>	<10	>2 m	2	
<i>Xanthorrhoea gracilis</i>	30 to 70	1 to 2 m	55	
<i>Hypocalymma robustum</i>	0 to 5	<1m	1	
<i>Hakea amplexicaulis</i>	0 to 5	1 to 2 m	3	
<i>Hibbertia amplexicaulis</i>	0 to 5	<1 m	6	
<i>Hibbertia hypericoides</i>	<10	<1 m	6	
<i>Patersonia umbrosa</i>	0 to 5	<1 m	2	
<i>Banksia dallanneyi</i>	0 to 5	<1 m	9	
<i>Lagenophora huegelii</i>	0 to 5	<0.5 m	6	
<i>Hovea trisperma</i>	0 to 5	<0.5 m	1	
<i>Burchardia congesta</i>	0 to 5	<1 m	1	
<i>Drosera porrecta</i>	0 to 5	<0.5 m	2	
<i>Opercularia hispidula</i>	0 to 5	<0.5 m	1	
<i>Desmocladus fasciculatus</i>	0 to 5	<0.5 m	10	
<i>Lomandra purpurea</i>	0 to 5	<0.5 m	1	
<i>Drosera pallida</i>	0 to 5	<1 m	2	
<i>Thelymitra cornicina</i>	0 to 5	<0.5 m	3	

<i>Lomandra hermaphrodita</i>	0 to 5	<0.5 m	1
-------------------------------	--------	--------	---

*Tree abundance within a 20 m x 20 m quadrat, otherwise 10 m x 10 x quadrat



Quadrat	GWIN02	Date	29/09/2023	
Latitude	-33.520	Longitude	115.740	
Veg. Condition	Excellent	Landscape Position	Upper Slope	
Time Since Fire	>10 years	Disturbance	Logging	
Soil Colour	Grey-Brown	Soil Type	Heavy Gravel	
Taxon	Cover (%)	Height (m)	Abundance	
<i>Eucalyptus marginata</i> *	30 to 70	>10 m	15	
<i>Corymbia haematoxylon</i>	<10	<10 m	6	
<i>Xanthorrhoea gracilis</i>	30 to 70	<1m	50	
<i>Hypocalymma robustum</i>	0 to 5	1 to 2m	1	
<i>Hibbertia hypericoides</i>	10 to 30	<1m	15	
<i>Caladenia flava</i>	0 to 5	<0.5m	1	
<i>Hakea amplexicaulis</i>	0 to 5	1 to 2m	2	
<i>Banksia dallanneyi</i>	10 to 30	<0.5m	15	
<i>Lagenophora huegelii</i>	0 to 5	<0.5m	10	
<i>Trichocline spathulata</i>	0 to 5	<0.5m	5	
<i>Chamaescilla corymbosa</i>	0 to 5	<0.5m	10	
<i>Labichea punctata</i>	0 to 5	<0.5m	2	
<i>Banksia bipinnatifida</i>	0 to 5	<0.5m	1	
<i>Boronia spathulata</i>	0 to 5	<1m	1	
<i>Hibbertia amplexicaulis</i>	0 to 5	<0.5m	2	
<i>Morelotia octandra</i>	0 to 5	<0.5m	1	
<i>Thelymitra graminea</i>	0 to 5	<0.5m	5	
<i>Desmocladus fasciculatus</i>	0 to 5	<0.5m	5	
<i>Lomandra sericea</i>	0 to 5	<0.5m	2	

<i>Lechenaultia biloba</i>	0 to 5	<0.5m	1
<i>Netrostylis</i> sp. Jarrah Forest (R. Davis 7391)	0 to 5	<1m	2
<i>Burchardia congesta</i>	0 to 5	<0.5m	1
<i>Lomandra hermaphrodita</i>	0 to 5	<0.5m	1
<i>Lomandra purpurea</i>	0 to 5	<0.5m	1
<i>Stylidium ciliatum</i>	0 to 5	<0.5m	1
<i>Stylidium androsaceum</i>	0 to 5	<0.5m	2
<i>Scaevola calliptera</i>	0 to 5	<0.5m	1
<i>Monotaxis occidentalis</i>	0 to 5	<0.5m	2
<i>Drosera erythrorhiza</i>	0 to 5	<0.5m	1
<i>Xanthosia huegelii</i>	0 to 5	<0.5m	1

*Tree abundance within a 20 m x 20 m quadrat, otherwise 10 m x 10 x quadrat



Quadrat	GWIN01	Date	29/09/2023	
Latitude	-33.519	Longitude	115.743	
Veg. Condition	Very Good	Landscape Position	Mid-Slope	
Time Since Fire	>10 years	Disturbance	Logging	
Soil Colour	Grey-Brown	Soil Type	Gravelly loam	
Taxon	Cover (%)	Height (m)	Abundance	
<i>Eucalyptus marginata</i> *	10 to 30	>10 m	3	
<i>Corymbia calophylla</i> *	10 to 30	>10 m	2	
<i>Corymbia haematoxylon</i> *	<10	<10m	3	
<i>Xanthorrhoea gracilis</i>	30 to 70	<1m	40	
<i>Banksia dallanneyi</i>	<10	<0.5m	20	
<i>Hibbertia hypericoides</i>	<10	<1m	11	
<i>Boronia spathulata</i>	0 to 5	<1m	5	
<i>Lagenophora huegelii</i>	<10	<0.5m	10	
<i>Trachymene pilosa</i>	0 to 5	<0.5m	20	
<i>Stylidium androsaceum</i>	0 to 5	<0.5m	10	
<i>Lomandra sericea</i>	0 to 5	<0.5m	2	
<i>Lomandra purpurea</i>	0 to 5	<1m	2	
<i>Chamaescilla corymbosa</i>	0 to 5	<0.5m	20	
<i>Trichocline spathulata</i>	0 to 5	<0.5m	10	
<i>Lomandra caespitosa</i>	0 to 5	<0.5m	1	
<i>Millotia tenuifolia</i>	0 to 5	<0.5m	100	
<i>Xanthosia huegelii</i>	0 to 5	<0.5m	2	
<i>Hypocalymma robustum</i>	0 to 5	<1m	1	
<i>Morelotia octandra</i>	0 to 5	<0.5m	1	
<i>Gompholobium knightianum</i>	0 to 5	<0.5m	2	
<i>Hovea trisperma</i>	0 to 5	<0.5m	1	
<i>Hibbertia amplexicaulis</i>	0 to 5	<0.5m	3	

<i>Tetrarrhena laevis</i>	0 to 5	<0.5m	2
<i>Stylidium ciliatum</i>	0 to 5	<0.5m	5
<i>Thelymitra graminea</i>	0 to 5	<0.5m	1
<i>Lomandra purpurea</i>	0 to 5	<1m	3
<i>Netrostylis</i> sp. Jarrah Forest (R. Davis 7391)	0 to 5	<1m	5
<i>Styphelia tenuiflora</i>	0 to 5	<1m	1
<i>Austrostipa campylachne</i>	0 to 5	<1m	1

*Tree abundance within a 20 m x 20 m quadrat, otherwise 10 m x 10 x quadrat

APPENDIX 2: FAUNA ASSESSMENT 2019

Fauna Assessment

Lot 287



South Western Highway Gwindinup

March 2019

V1

On behalf of:

Mario Michel Giacci
C/- MBS ENVIRONMENTAL
4 Cook Street
WEST PERTH WA 6005

Prepared by:

Greg Harewood
Zoologist
PO Box 755
BUNBURY WA 6231
M: 0402 141 197
E: gharewood@iinet.net.au

TABLE OF CONTENTS

SUMMARY

1.	INTRODUCTION	1
2.	SCOPE OF WORKS.....	1
3.	METHODS.....	1
3.1	POTENTIAL FAUNA INVENTORY - LITERATURE REVIEW.....	1
3.1.1	Database Searches	1
3.1.2	Previous Fauna Surveys in the Area	2
3.1.3	Existing Publications.....	3
3.1.4	Fauna of Conservation Significance	4
3.1.5	Invertebrate Fauna of Conservation Significance.....	6
3.1.6	Likelihood of Occurrence – Fauna of Conservation Significance	6
3.1.7	Taxonomy and Nomenclature.....	7
3.2	SITE SURVEYS.....	7
3.2.1	Fauna Habitat Assessment.....	7
3.2.2	Opportunistic Fauna Observations	8
3.2.3	Black Cockatoo Habitat Assessment.....	8
3.2.3.1	Black Cockatoo Breeding Habitat	9
3.2.3.2	Black Cockatoo Foraging Habitat.....	10
3.2.3.3	Black Cockatoo Roosting Habitat.....	10
3.2.4	Other Species of Conservation Significance	10
4.	SURVEY CONSTRAINTS	10
5.	RESULTS	12
5.1	POTENTIAL FAUNA INVENTORY – LITERATURE REVIEW	12
5.2	SITE SURVEYS.....	12

5.2.1	Fauna Habitat Assessment.....	12
5.2.2	Opportunistic Fauna Observations	15
5.2.3	Black Cockatoo Habitat Assessment.....	15
5.2.3.1	Black Cockatoo Breeding Habitat	15
5.2.3.2	Black Cockatoo Foraging Habitat.....	16
5.2.3.3	Black Cockatoo Roosting Habitat.....	17
5.2.4	Other Species of Conservation Significance	17
5.3	FAUNA INVENTORY – SUMMARY	17
5.3.1	Vertebrate Fauna.....	17
5.3.2	Vertebrate Fauna of Conservation Significance	18
5.3.3	Invertebrate Fauna of Conservation Significance.....	3
6.	CONCLUSION.....	3
7.	REFERENCES	5

TABLES

TABLE 1:	Main Fauna Habitats within the Subject Site
TABLE 2:	Summary of Potential Black Cockatoo Habitat Trees within the Subject Site
TABLE 3:	Summary of Potential Vertebrate Fauna Species (as listed in Appendix B)
TABLE 4:	Likelihood of Occurrence – Fauna Species of Conservation Significance

FIGURES

FIGURE 1:	Subject Site & Surrounds
FIGURE 2:	Subject Site – Aerial Photograph
FIGURE 3:	Vegetation Units (Courtesy DMBC 2019)
FIGURE 4:	Habitat Trees (DBH \geq 50cm)

APPENDICES

- APPENDIX A: Conservation Categories
- APPENDIX B: Fauna Observed or Potentially Present
- APPENDIX C: DBCA & EPBC Database Search Results
- APPENDIX D: Black Cockatoo Habitat Tree Details

Acronyms/Abbreviations:

ALA: Atlas of Living Australia www.ala.org.au

BA: Birdlife Australia (Formerly RAOU, Birds Australia).

BC Act: Biodiversity Conservation Act 2016. WA Government.

°C: Degrees Celsius.

CALM: Department of Conservation and Land Management (now DPaW), WA Government.

CAMBA: China Australia Migratory Bird Agreement 1998.

CBD: Central Business District.

DBH: Diametre at Breast Height – tree measurement.

DEC: Department of Environment and Conservation (now DPaW), WA Government.

DEH: Department of Environment and Heritage (now DotEE), Australian Government.

DEP: Department of Environment Protection (now DER), WA Government.

DER: Department of Environment Regulation (formerly DEC, DoE), WA Government.

DEWHA: Department of the Environment, Water, Heritage and the Arts (now DotEE), Australian Government

DMP: Department of Mines and Petroleum (formerly DoIR), WA Government.

DoE: Department of Environment (now DER/DPaW), WA Government.

DoP: Department of Planning, WA Government.

DotE: Department of the Environment (now DotEE), Australian Government.

DotEE: Department of the Environment and Energy (formerly SEWPaC, DWEHA, DEH & DotE), Australian Government.

DoIR: Department of Industry and Resources (now DMP), WA Government.

DPaW: Department of Parks and Wildlife (formerly DEC, CALM, DoE), WA Government.

EP Act: *Environmental Protection Act 1986*, WA Government.

EPA: Environmental Protection Authority, WA Government.

EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999*, Australian Government.

ha: Hectare (10,000 square metres).

IBRA: Interim Biogeographic Regionalisation for Australia.

IUCN: International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union.

JAMBA: Japan Australia Migratory Bird Agreement 1981.

km: Kilometre.

m: Metre.

mm: Millimetre.

P: Priority - DPaW fauna conservation ranking.

POS: Public Open Space.

RAOU: Royal Australia Ornithologist Union.

ROKAMBA: Republic of Korea-Australia Migratory Bird Agreement 2007.

S: Schedule - Western Australian *Wildlife Conservation Act (1950)* Threatened Fauna Category.

SEWPaC: Department of Sustainability, Environment, Water, Population and Communities (now DotEE), Australian Government.

SRE: Short Range Endemic.

SSC: Species Survival Commission, International.

WA: Western Australia.

WAM: Western Australian Museum, WA Government.

WAPC: Western Australian Planning Commission, WA Government.

WC Act: *Wildlife Conservation Act 1950*, WA Government.

WRP: Western Ringtail Possum

SUMMARY

This report details the results of a fauna assessment Lot 287, South Western Highway Gwindinup (the subject site). Lot 287 has a total area of about 60 ha. About 31 ha of the subject site was historically cleared and subsequently used for an extraction industry operation and bluegum plantations. The balance of the area (~19 ha) contains remnant native vegetation (~19 ha).

It is understood that the landowner (Mr Mario Giacci) is investigating the potential to expand the existing extractive industry operation within the subject site. The fauna assessment reported on here represents one of several technical reports that will be used to provide an understanding of the suite of environmental values present within the subject site which will be used during the ongoing planning and approval process.

The scope of works was to conduct a level 1 fauna survey as defined by the EPA (EPA 2016). Because some listed threatened species (i.e. three species of black cockatoo) are known to occur in the general area, the scope of the survey work was expanded to include targeted assessment of the site's significance to these particular species. The assessment has included a literature review ("desktop study"), a series of day time surveys carried out in February 2018.

With respect to native vertebrate fauna, 29 mammal (including nine bat species), 92 bird, 36 reptile and three frog species have previously been recorded in the general area, some of which have the potential to occur in or utilise sections of the subject site at times, a conclusion largely based on the presence of apparently suitable habitat.

Descriptions and example images of the main fauna habitats/dominant vegetation present within the subject site are provided in Table 1, with the location and extent of each unit being depicted in Figure 3.

The remnant native vegetation remaining within the subject site is in general terms comprised of various densities of jarrah, marri/mountain marri and banksia over shrubland on pisolitic gravel or sandy pisolitic gravel. The majority appears to have been subject to historical logging with most trees being relatively young in age. Groundcover is generally sparse suggesting historical clearing, grazing and/or frequent fires. Some small areas have been subject to gravel extraction in the past and subsequently partially regenerated.

Overall fauna habitat quality appears to be good and it can be expected that a high percentage of the predicted species (Appendix B) would utilise the subject site.

Opportunistic fauna observations made during the survey period are listed in Appendix B. A total of 25 fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the subject site during the day time surveys.

The black cockatoo habitat assessment identified 405 trees within the subject site with a DBH of >50cm. Most (330 – 81.5%) of these trees did not appear to contain hollows of any size. Forty nine (~12.1%) were assessed as possibly having hollows, but of a likely size or orientation

that was deemed unsuitable for black cockatoos to utilise. Twenty six (6.4%) appeared to contain hollows possibly large enough for black cockatoos to use for nesting, though this assessment was based on the size of the entrance into an apparent hollow only. No conclusive evidence of any hollows being used by black cockatoos for nesting (currently or previously) was seen though two hollows appeared to have significant rub marks which indicates use by fauna of some type, possibly common brushtail possums.

Additional details on each habitat tree observed can be found in Appendix D.

Evidence of all two species of black cockatoos foraging within the subject site was observed. The main foraging evidence left was in the form of chewed marri/mountain fruits, with most of this evidence being attributed to the forest red-tailed black-cockatoo. A small number of examples of Baudin's foraging on marri was also seen.

Almost all (~19 ha) of the remnant native vegetation within the subject site can be regarded as foraging habitat for black cockatoos given the presence of the marri, jarrah and banksia in various concentrations in all remnants. No existing roosting trees (trees used at night by black cockatoos to rest) were positively identified during the survey.

Besides the two species of black cockatoo recorded, evidence of one additional fauna species of conservation significance was observed during the survey period, this being the western ringtail possum. Evidence of this species was found in the form of some scats under a tree and a nearby drey (unoccupied).

In summary three vertebrate fauna species of conservation significance were positively identified as utilising the subject site for some purpose during the survey period, these being:

- forest red-tailed black cockatoo – Vulnerable (WA/Federal);
- Baudin's black cockatoo – Endangered (WA/Federal); and
- western ringtail possum – Critically Endangered (WA/Federal).

An additional nine species of conservation significance may also utilise the subject site, though, as no evidence of these species presence was identified during the field survey, the status of some in the area remains uncertain. These species are:

- coastal plains skink – P3 (DBCA Priority Species);
- masked owl – P3 (DBCA Priority Species);
- south-western brush-tailed phascogale - S6 (WC Act);
- Carnaby's cockatoo – Endangered (WA/Federal);
- peregrine falcon – Schedule 7 (WA);
- quenda – Priority 4 (WA);

- western brush wallaby - Priority 4 (WA); and
- western false pipistrelle – P4 (DBCA Priority Species).

One invertebrate species of conservation significance has also been assessed as possibly occurring based on available information. The western pygmy trapdoor spider (Priority 3) has been collected in a state forest near the subject site (DBCA 2019) so it must be regarded as a potential species though its actual status within the subject site is unknown.

The exact location of proposed development within the subject site is yet to be finalise. Ongoing planning will need to take into account the potential presence of habitat used by some species of conservation significance and fauna in general so that any direct and indirect impacts can be avoided or minimised. Management plans and protocols that aim to minimise impact on fauna and fauna habitat should be employed if considered warranted.

1. INTRODUCTION

This report details the results of a fauna assessment of Lot 287, South Western Highway Gwindinup (the subject site) (Figures 1 and 2).

Lot 287 has a total area of about 60 ha. About 14 ha of the subject site was historically cleared and subsequently used for an extraction industry operation with the balance of the area containing a bluegum plantation (~27 ha) and remnant native vegetation (~19 ha).

It is understood that the landowner (Mr Mario Giacci) is investigating the potential to expand the existing extractive industry operation within the subject site. The fauna assessment reported on here represents one of several technical reports that will be used to provide an understanding of the suite of environmental values present within the subject site which will be used during the ongoing planning and approval process.

2. SCOPE OF WORKS

The scope of works was to conduct a Level 1 fauna survey as defined by the EPA (EPA 2016). Because the general area is known to be utilised by black cockatoos the scope of the survey work was expanded to include a baseline assessment of the sites significance to these species as well. The fauna assessment has therefore included:

1. Level 1 fauna assessment (in accordance with EPA (2016) guidelines);
2. Targeted searches for black cockatoo habitat/site use (habitat trees, existing and potential nest hollows, foraging and roosting habitat);
3. Report summarising methods, results and conclusions.

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

3. METHODS

3.1 POTENTIAL FAUNA INVENTORY - LITERATURE REVIEW

3.1.1 Database Searches

Searches of the following databases were undertaken to aid in the compilation of a list of conservation significant fauna potentially occurring within the subject site:

- DBCA's NatureMap Database Search (combined data from DBCA, ALA, WAM, BA and consultant's reports) (DBCA 2019); and
- Protected Matters Search Tool (DotEE 2019).

It should be noted that lists produced during the abovementioned database searches contain observations/inferred distributions from a broader area than the subject site and therefore may include species that would only ever occur as vagrants due to a lack of suitable habitat or the presence of only marginal habitat within the subject site itself. The databases also often include or are based on very old records and in some cases certain species have become locally or regionally extinct.

Information from these sources should therefore be taken as indicative only and local knowledge and information also needs to be taken into consideration when determining what actual species may be present within the specific area being investigated.

3.1.2 Previous Fauna Surveys in the Area

Fauna surveys, assessments and reviews have been undertaken in nearby areas in the past, though not all are publicly available and could not be referenced. The most significant of those available have been used as the primary reference material for compiling the potential fauna assemblage for the general area.

Those reports referred to included, but were not limited to:

- Bamford, M.J and A.R. (2000). Proposed Gwindinup Mineral Sands Mine. Fauna Surveys; August and December 1999. Unpublished report for Cable Sands WA. January 2000.
- Bancroft, W. and Bamford, M. (2008). Fauna values of Bemax's Happy Valley mineral sands deposit. Unpublished report for Bemax Resources Limited. January 2008.
- Biologic (2014). Wonnerup North Vertebrate Fauna Assessment. Unpublished report for Cristal Mining Australia Ltd.
- Biota (2009). Tutunup Fauna Assemblage and Fauna Habitat Seasonal Survey. Unpublished report for Iluka Resources. March 2009.
- Biota (2007a). Yoganup 215 Strand Fauna and Faunal Assemblage Survey. Unpublished report for Iluka Resources. February 2007.
- Biota (2007b). Tutunup South Fauna Habitat and Fauna Assemblage Seasonal Survey. Unpublished report for Iluka Resources. December 2007.
- Harewood, G. (2009). Western Ringtail Possum Baseline Assessment. Tutunup. Unpublished report for Iluka Resources. August 2009.

- Harewood, G. (2012). Phase 1 and 2 Seasonal Fauna Surveys (Level 2). Yoongarillup Mineral Sands Project. Unpublished report for Doral Mineral Sands Pty Ltd.
- Harewood, G. (2013). Fauna Assessment of Yoganup Extended. Unpublished report for Iluka Resources Ltd.
- Harewood, G. (2017). Fauna Assessment of Lot 3833 (Part) Hyder Road – Yoganup Extended. Unpublished report for Iluka Resources Ltd.
- Harewood, G. (2018). Western Ringtail Possum 2018 Monitoring Survey, Gwindinup North Mineral Sands Mine, June/July 2018. Unpublished report for Cristal Mining Australia Limited. September 2016.
- Hart, Simpson and Assoc. (1997). Wonnerup -Tutunup Road - Vertebrate Fauna. Unpublished report for Westralian Sands Ltd.
- Ninox (2006). A Vertebrate Fauna Assessment of the Yoganup Mineral Sands Project Area. Unpublished report for Iluka Resources. March 2006.

As with the database searches some reports refer to species that would not occur in the subject site due to a lack of suitable habitat (extent and/or quality) and this fact was taken into consideration when compiling the potential fauna species list. It should also be noted that the NatureMap database is likely to include some records from previous fauna surveys in the area, including some of those listed above.

3.1.3 Existing Publications

The following represent the main publications used to identify and refine the potential fauna species list for the subject site:

- Anstis, M. (2013). Tadpoles and Frogs of Australia. New Holland Publishers, Sydney.
- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Royal Australasian Ornithologists Union, Victoria.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2007). Reptiles and Frogs in the Bush: Southwestern Australia. UWA Press, Nedlands.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2010). Field Guide to Reptiles and Frogs of the Perth Region. UWA Press, Nedlands.
- Churchill, S. (2008). Australian Bats. Second Edition, Allen & Unwin.
- Cogger, H.G. (2014). Reptiles and Amphibians of Australia. 7th Edition. CSIRO Publishing.

- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth Western Australia.
- Johnstone, R.E. and Storr, G.M. (2004). Handbook of Western Australian Birds: Volume 2 – Passerines (Blue-winged Pitta to Goldfinch). Western Australian Museum, Perth Western Australia.
- Menkhorst, P. and Knight, F. (2011). A Field Guide to the Mammals of Australia. Oxford University Press, Melbourne.
- Morgan, D.L., Beatty, S.J., Klunzinger, M.W, Allen, M.G. and Burnham, Q.E (2011). Field Guide to the Freshwater Fishes, Crayfishes and Mussels of South Western Australia. Published by SERCUL.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1983). Lizards of Western Australia II: Dragons and Monitors. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1990). Lizards of Western Australia III: Geckos and Pygopods. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1999). Lizards of Western Australia I: Skinks. Revised Edition, WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (2002). Snakes of Western Australia. Revised Edition, WA Museum, Perth.
- Tyler M.J. & Doughty P. (2009). Field Guide to Frogs of Western Australia, Fourth Edition, WA Museum, Perth.
- Van Dyck, S., Gynther, I. & Baker, A. Eds (2013). Field Companion to The Mammals of Australia. Queensland Museum.
- Wilson, S. and Swan, G. (2017). A Complete Guide to Reptiles of Australia. Reed, New Holland, Sydney.
- Woinarski, J., Burbidge, A. & Harrison, P. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing.

3.1.4 Fauna of Conservation Significance

The conservation significance of fauna species has been assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. Administered by the Australian Government Department of the Environment and Energy (DotEE);

- *Wildlife Conservation Act 1950 (WC Act)*. Administered by the Western Australian DBCA (Govt. of WA 2018). Note: The Wildlife Conservation (Specially Protected Fauna) Notice 2018 has been transitioned under regulations 170, 171 and 172 of the Biodiversity Conservation Regulations 2018 to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016 (BC Act)*;
- Red List produced by the Species Survival Commission (SSC) of the World Conservation Union (also known as the IUCN Red List - the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria; and the
- DBCA Priority Fauna list. A non-statutory list maintained by the DBCA for management purposes (DBCA 2018).

The *EPBC Act* also requires the compilation of a list of migratory species that are recognised under international treaties including the:

- Japan Australia Migratory Bird Agreement 1981 (JAMBA);
- China Australia Migratory Bird Agreement 1998 (CAMBA);
- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA); and
- Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).

(Note – Some but not all species listed under JAMBA are also protected under Schedule 5 of the BC/WC Act.)

Most, but not all migratory bird species listed in the annexes to these bilateral agreements are also protected in Australia as matters of national environmental significance (NES) under the *EPBC Act*.

The conservation status of all vertebrate fauna species listed as occurring or possibly occurring in the vicinity of the subject site has been assessed using the most recent lists published in accordance with the above-mentioned instruments and is indicated as such in the fauna listings of this report. A full listing of conservation codes are provided in Appendix A.

A number of other species not listed in official lists can also be considered of local or regional conservation significance. These include species that have a restricted range, those that occur in breeding colonies and those at the limit of their range.

3.1.5 Invertebrate Fauna of Conservation Significance

For this assessment the review of potential conservation significant invertebrates has been limited to those listed by the DBCA and *EPBC Act* database searches (which rely on distribution records and known habitat preferences).

No assessment of the potential for SREs to be present has been made as it can be difficult to identify significant invertebrate species due to uncertainties in determining the range-restrictions of many species due to lack of surveys, lack of taxonomic resolutions within target taxa and problems in identifying certain life stages.

Where invertebrates are collected during surveys, a high percentage are likely to be unknown, or for known species there can be limited knowledge or information on their distribution (Harvey 2002).

3.1.6 Likelihood of Occurrence – Fauna of Conservation Significance

Fauna of conservation significance identified during the literature review as previously being recorded in the general area were assessed and ranked for their likelihood of occurrence within the subject site itself. The rankings and criteria used were:

- **Would Not Occur:** There is no suitable habitat for the species in the subject site and/or there is no documented record of the species in the general area since records have been kept and/or the species is generally accepted as being locally/regionally extinct (supported by a lack of recent records).
 - **Locally Extinct:** Populations no longer occur within a small part of the species natural range, in this case within 10 or 20km of the subject site. Populations do however persist outside of this area.
 - **Regionally Extinct:** Populations no longer occur in a large part of the species natural range, in this case within the southern/central forest region. Populations do however persist outside of this area.
- **Unlikely to Occur:** The subject site is outside of the currently documented distribution for the species in question, or no suitable habitat (type, quality and extent) was identified as being present during the field assessment. Individuals of some species may occur occasionally as vagrants/transients especially if suitable habitat is located nearby but the subject site itself would not support a population or part population of the species.
- **Possibly Occurs:** The subject site is within the known distribution of the species in question and habitat of at least marginal quality was identified as being present during the field assessment, supported in some cases by recent records being documented in literature from within or near the subject site. In some cases, while a species may be classified as possibly being present at times, habitat may be marginal (e.g. poor

quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

- **Known to Occur:** The species in question was positively identified as being present (for sedentary species) or as using the subject site as habitat for some other purpose (for non-sedentary/mobile species) during the field survey. This information may have been obtained by direct observation of individuals or by way of secondary evidence (e.g. foraging debris, tracks and scats). In some cases, while a species may be classified as known to occur, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

3.1.7 Taxonomy and Nomenclature

Taxonomy and nomenclature for vertebrate fauna species used in this report is generally taken from the DBCA's WA Fauna Census Database which is assumed to follow Aplin and Smith (2001) for amphibians and reptiles and Johnstone (2001) for birds. Jackson and Groves (2015) has been used for mammals.

Common names are taken from the Western Australia Museum (WAM) recognised primary common name listings when specified, though where common names are not provided, they have been acquired from other publications. Sources include Cogger (2014), Wilson and Swan (2017), Van Dyck & Strahan (2013), Christidis and Boles (2008), Bush *et al.* (2010), Bush *et al.* (2007), Tyler & Doughty (2009), and Glauret (1961). Not all common names are generally accepted.

3.2 SITE SURVEYS

Daytime field survey work at the subject site was carried out on the 27 and 28 February 2019. All survey work was done by Greg Harewood (Zoologist).

3.2.1 Fauna Habitat Assessment

The vegetation communities mapped by DMBC (DMBC 2019) during the flora and vegetation survey have been used to classify the area into broad habitat types. This information has been supplemented by observations made during the field assessment undertaken during the fauna assessment.

As part of the literature review, available information on the habitat requirements of the species of conservation significance listed as possibly occurring in the area was researched. During the daytime reconnaissance survey the habitats within the subject site were assessed and specific elements identified, if present, to determine the likelihood of listed species of conservation significance occurring and its likely overall value to them on a local and regional scale.

The vegetation communities and landforms present have been used to classify the area into broad habitat types. As part of the literature review, available information on the habitat requirements of the species of conservation significance listed as possibly occurring in the area was researched. During the daytime survey the habitats within the subject site were assessed and specific elements identified, if present, to determine the likelihood of listed species of conservation significance occurring and its likely overall value to them on a local and regional scale.

3.2.2 Opportunistic Fauna Observations

Opportunistic observations of fauna species were made during all field survey work which primarily involved a series of transects across the subject site during the day while searching microhabitats such as logs, rocks, leaf litter and observations of bird species with binoculars. Secondary evidence of a species presence such as tracks, scats, skeletal remains, foraging evidence or calls were also noted if observed/heard.

3.2.3 Black Cockatoo Habitat Assessment

The following methods were employed to comply with the defined scope of works and are based on guidelines published by the federal DotEE (Commonwealth of Australia 2012) which states that surveys for Carnaby's, Baudin's and forest red-tailed black cockatoo habitat should:

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

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

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

So as to comply with the requested scope of works and in line with the published guidelines the following was carried out.

3.2.3.1 Black Cockatoo Breeding Habitat

The black cockatoo breeding habitat assessment has involved the identification of all suitable breeding tree species within the subject site that have a Diameter at Breast Height (DBH) of equal to or over 50cm. The DBH of each tree was estimated using a pre-made 50 cm “caliper”.

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

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

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

- Small = ~<5cm diameter (i.e. entrance too small for a black cockatoo);
- Medium = ~5cm-10cm diameter (i.e. entrance too small for a black cockatoo);
- Large = ~>10cm diameter (entrance large enough for a black cockatoo but possible hollow appears to be unsuitable for nesting i.e. wrong orientation, too small, too low or too shallow); or
- Large (cockatoo) = ~>10cm diameter (entrance appears big enough to provide access to a possible hollow that may be suitable for a black cockatoo to use for nesting).

Based on this assessment trees present within the subject site have then been placed into one of four categories:

- Tree < 50cm DBH or an unsuitable species (not assessed/recorded);
- Tree >50cm DBH, no hollows seen;
- Tree >50cm DBH, one or more hollows seen, none of which were considered suitable for black cockatoos to use for nesting; or
- Tree >50cm DBH, one or more hollows seen, with at least one considered suitable or possibly for black cockatoos to use for nesting.

For the purposes of this study a tree containing a potential cockatoo nest hollow was defined as:

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

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

3.2.3.2 Black Cockatoo Foraging Habitat

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

3.2.3.3 Black Cockatoo Roosting Habitat

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

3.2.4 Other Species of Conservation Significance

Evidence of the presence or likely presence of other species of conservation significance (including suitable habitat) was searched for and recorded concurrent with other field work. The aim was to obtain sufficient information to make a definitive comment on the likely significance of the subject site to other species of conservation significance which may be present.

4. SURVEY CONSTRAINTS

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

Some fauna species are reported as potentially occurring within the subject site based on there being suitable habitat (quality and extent) within the subject site or immediately

adjacent. With respect to opportunistic observations, the possibility exists that certain species may not have been detected during field investigations due to:

- seasonal inactivity during the field survey;
- species present within micro habitats not surveyed;
- cryptic species able to avoid detection; and
- transient wide-ranging species not present during the survey period.

Lack of observational data on some species should therefore not necessarily be taken as an indication that a species is absent from the subject site.

The habitat requirements and ecology of many of the species known to occur in the wider area are often not well understood or documented. It can therefore be difficult to exclude species from the potential list based on a lack of a specific habitat or microhabitat within the subject site. As a consequence of this limitation the potential fauna list produced is most likely an overestimation of those species that actually utilise the subject site for some purpose. Some species may be present in the general area but may only use the subject site itself on rare occasions or as vagrants/transients.

In recognition of survey limitations, a precautionary approach has been adopted for this assessment. Any fauna species that would possibly occur within the subject site (or immediately adjacent), as identified through ecological databases, publications, discussions with local experts/residents and the habitat knowledge of the Author, has been assumed to potentially occur in the subject site.

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

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

5. RESULTS

5.1 POTENTIAL FAUNA INVENTORY – LITERATURE REVIEW

A list of fauna species considered most likely to occur in the subject site has been compiled from information obtained during the literature review and is presented in Appendix B. This listing was refined after information gathered during the site reconnaissance survey was assessed.

The results of some previous fauna surveys carried out in the general area are summarised in this species listing as are the DBCA NatureMap database search results. Species considered unlikely to occur with the subject site but previously recorded in other surveys and/or which appear in the DBCA database search are not listed. The raw database search results from NatureMap (DBCA 2019) and the Protected Matters Search Tool (DotEE 2019) are contained within Appendix C.

The list of potential fauna takes into consideration that firstly the species in question is not known to be locally extinct and secondly that suitable habitat for each species, as identified during the habitat assessment, is present within the subject site. Compiling an accurate fauna list has limitations (see Section 4 above) and therefore the listing is likely to be an overestimation of the fauna species actually present within the subject site at any one time.

With respect to native vertebrate fauna, 29 mammals (includes nine bat species), 92 bird, 36 reptile and three frog species have previously been recorded in the general area, some of which have the potential to occur in or utilise sections of the subject area at times. Nine species of introduced animals could also frequent the area.

Of the 154 native animals that are listed as potentially occurring in the area, seven are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law. In addition, five DBCA priority species have also been listed as potentially present.

5.2 SITE SURVEYS

5.2.1 Fauna Habitat Assessment

The western section of the subject site located on the upper slope of the Whicher Scarp which is an arcuate north-facing scarp formed during the late Tertiary and early Pleistocene by marine erosion of underlying sedimentary rocks and in this area marks the inland limit of the Swan Coastal Plain (Note: in some documents the Whicher Scarp is referred to as being entirely within the Southern Jarrah Forest Biogeographic Sub-region e.g. EPA 2009). The eastern section of Lot 287 slopes down to a valley created by the Preston River.

The Swan Coastal Plain (SWA) was classified as part of the Interim Biogeographical Regionalisation for Australia and is in broad terms described as a:

“Low lying coastal plain mainly covered with Woodlands. It is dominated by *Banksia* or Tuart on sandy soils, *Allocasuarina obesa* on outwash plains, and paperbark in swampy areas. In the east, the plain rises to duricrusted Mesozoic sediments dominated by Jarrah Woodland. Warm Mediterranean. Three phases of marine sand dune development provide relief. The outwash plains, once dominated by *A. obesa* – Marri Woodlands and *Melaleuca* shrublands, are extensive only in the south.” (Thackway and Cresswell, 1996; IBRA, 2000).


The subject site itself is within a further defined subregion of the SWA referred to as the Swan Coastal Plain subregion or the Perth subregion (SWA2). This is defined as:




“Colluvial and aeolian sands, alluvial river flats, coastal limestone. Heath and/or Tuart woodlands on limestone, *Banksia* and Jarrah - *Banksia* woodlands on Quaternary marine dunes of various ages, Marri on colluvial and alluvials. Includes a complex series of seasonal wetlands and also includes Rottnest, Carnac and Garden Islands etc. Rainfall ranges between 600 and 1000 mm annually and the climate is Mediterranean”. The subregion has an area of about 1, 333,900 ha (Mitchell *et al.* 2002).

The remnant native vegetation remaining within the subject site is in general terms comprised of various densities of jarrah, marri/mountain marri and *banksia* over shrubland on pisolitic gravel or sandy pisolitic gravel. The majority appears to have been subject to historical logging with most trees being relatively young in age. Groundcover is generally sparse suggesting historical clearing, grazing and/or frequent fires. Some small areas have been subject to gravel extraction in the past and subsequently partially regenerated.

Descriptions and example images of the main fauna habitats/dominant vegetation present within the subject site are provided in Table 1. The location and extent of each of the identified habitat/vegetation units is shown in Figure 3 (data courtesy DMBC 2019).

Table 1: Main Fauna Habitats within the Subject Site

Unit	Fauna Habitat Description	Example Image
VT1	Tall woodland of jarrah (<i>Eucalyptus marginata</i>) and marri (<i>Corymbia calophylla</i>) over low woodland of <i>Banksia grandis</i> over tall sparse shrubland of <i>Kunzea glabrescens</i> over low sparse shrubland of <i>Xanthorrhoea preissii</i> . Total Area = ~0.79 ha (1.7%)	

Unit	Fauna Habitat Description	Example Image
VT2	<p>Tall woodland of jarrah (<i>E. marginata</i>) and marri (<i>C. calophylla</i>) over tall sparse shrubland of <i>Kunzea glabrescens</i> over low sparse shrubland of <i>Xanthorrhoea preissii</i> and <i>Xanthorrhoea gracilis</i>.</p> <p>Total Area = ~0.84 ha (~1.4%)</p>	
VT3	<p>Tall woodland of jarrah (<i>E. marginata</i>) and (<i>C. calophylla</i>) over low sparse shrubland of <i>Xanthorrhoea preissii</i> and <i>Hibbertia hypericoides</i></p> <p>Total Area = ~17.39 ha (~28.6%)</p>	
D	<p>Disturbed: Bluegum plantations, tracks and clearings</p> <p>Total Area = 40.98 ha (~68.3%)</p>	

Overall fauna habitat quality in areas of natural bushland appears to be good and it can be expected that a high percentage of the predicted species would utilise the subject site. For some species the habitat may however be marginal in quality, mainly due to the sparse nature of the ground cover generally present and also due to a lack of canopy connectivity, particularly in the midstorey vegetation.

Based on available vegetation mapping it is estimated that there is approximately 21,500 ha of native vegetation within 12 km the subject site. Remnant native vegetation present within the subject site (total ~19 ha) makes up ~0.088% of this total.

5.2.2 Opportunistic Fauna Observations

Opportunistic fauna observations are listed in Appendix B. A total of 25 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the subject site during the course of site surveys. Most of the fauna species recorded were common, widespread bird species.

Evidence of three listed threatened species was observed (forest red-tailed (Vulnerable) and Baudin’s black-cockatoo (Endangered) - chewed marri fruits at several locations and the western ringtail possum (Critically Endangered) – scats and a drey at one location). No evidence of any listed migratory or priority fauna species was found.

5.2.3 Black Cockatoo Habitat Assessment

5.2.3.1 Black Cockatoo Breeding Habitat

Trees considered potentially suitable for black cockatoos to use as nesting habitat (using DotEE criteria i.e. DBH \geq 50cm (Commonwealth of Australia 2012) but ultimately subject to a suitable hollow being present or developing and a range of other factors) which were found within the subject site comprised the following species:

- Jarrah - *Eucalyptus marginata*;
- Marri – *Corymbia calophylla*;
- Mountain Marri - *Corymbia haematoxylon*; and
- Dead unidentified species.

A summary of the potential black cockatoo habitat trees observed within the subject site area is provided in Table 2 below and their location shown in Figure 4.

Table 2: Summary of Potential Black Cockatoo Habitat Trees (DBH \geq 50cm) within the Subject Site

Total Number of Habitat Trees Recorded	Number of Trees with <u>No Hollows</u> Observed	Number of Trees with Hollows Considered <u>Unsuitable</u> for Nesting Black Cockatoos	Number of Trees with Hollows Considered <u>Possibly Suitable</u> for Nesting Black Cockatoos	Tree Species		
				Jarrah	Marri/Mountain Marri	Dead Unknown
405	330	49	26	249	141	15

The assessment identified 405 trees within the subject site with a DBH of ≥ 50 cm. Most (330 – 81.5%) of these trees did not appear to contain hollows of any size. Forty nine (~12.1%) were assessed as possibly having hollows, but of a likely size or orientation that was deemed unsuitable for black cockatoos to utilise. Twenty six (6.4%) appeared to contain hollows possibly large enough for black cockatoos to use for nesting, though this assessment was based on the size of the entrance into an apparent hollow only. No conclusive evidence of any hollows being used by black cockatoos for nesting (currently or previously) was seen though two hollows appeared to have significant rub marks which indicates use by fauna of some type, possibly common brushtail possums.

Additional details on each habitat tree observed can be found in Appendix D.

Based on available mapping, there is approximately 21,500 ha of remnant native vegetation within 12 kilometres of the subject site. Much of this is likely to contain “potential” breeding habitat (i.e. suitable tree species with a DBH ≥ 50 cm).

5.2.3.2 Black Cockatoo Foraging Habitat

Following is a list of the main plant species observed within the subject site that are known to be used as a direct food source (i.e. fruits or flowers) by one or more species of black cockatoo:

- Jarrah - *Eucalyptus marginata*;
- Marri - *Corymbia calophylla*;
- Bull Banksia – *Banksia grandis*;
- Couch Honey-pot Dryandra – *Banksia dallanneyi*;
- Honeybush – *Hakea lissocarpa* (and possibly *H. amplexicaulis*); and
- Balga - *Xanthorrhoea preissii* (and possibly *X. gracilis*)

Evidence of two species of black cockatoos foraging within the subject site was observed. The main foraging evidence left was in the form of chewed marri/mountain fruits, with most of this evidence being attributed to the forest red-tailed black-cockatoo. A small number of examples of Baudin’s foraging on marri was also seen.

Almost all (~19 ha) of the remnant native vegetation within the subject site can be regarded as foraging habitat for black cockatoos given the presence of the abovementioned plant species in various concentrations in all remnants.

Based on available vegetation mapping it is estimated that there is approximately 21,500 ha of native vegetation within 12 km the subject site, much of which is very likely to represent potential black cockatoo foraging habitat of some type.

5.2.3.3 Black Cockatoo Roosting Habitat

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

A review of the 2018 Great Cocky Count database shows no documented roost sites within the subject site. The closest active roost is located approximately 500 m north east of the subject site. This roost was in use by 193 White-tailed Black Cockatoos during the 2018 count (Peck *et al.* 2018). Another seven documented roost sites (but not necessarily in current use) occur within 12 km of the subject site.

5.2.4 Other Species of Conservation Significance

As indicated above and besides the two species of black cockatoo, evidence of one additional fauna species of conservation significance was observed during the survey period, this being the western ringtail possum. Evidence of this species was found in the form of some scats under a tree and a nearby drey (unoccupied).

No direct evidence of any other species of conservation significance being present was found however based on the habitats present an additional seven species are considered as potentially present though their actual status in the subject site is unknown. These species are discussed in more detail in the following sections.

5.3 FAUNA INVENTORY – SUMMARY

5.3.1 Vertebrate Fauna

Table 3 summarises the number of vertebrate fauna species potentially occurring within or utilising at times the subject site, based on results from the literature review and observations made during the field assessment. A complete list of vertebrate fauna possibly inhabiting or frequenting the subject site is located in Appendix B.

As previously discussed, despite the omission of some species it should be noted that the list provided is still very likely an over estimation of the fauna species utilising the subject site (either on a regular or infrequent basis) as a result of the precautionary approach adopted for the assessment. At any one time only a subset of the listed potential species are likely to be present within the bounds of the subject site.

Table 3: Summary of Potential Vertebrate Fauna Species (as listed in Appendix B)

Group	Total number of Potential species	Potential number of <u>Specially Protected</u> species	Potential number of <u>Migratory</u> species	Potential number of <u>Priority</u> species	Number of species recorded during field survey
Amphibians	3	0	0	0	0
Reptiles	36	0	0	1	1
Birds	95 ³	4	0	1	21
Non-Volant Mammals	20 ⁶	3	0	2	3
Volant Mammals (Bats)	9	0	0	1	0
Total	163⁹	7	0	5	25

Superscript = number of introduced species included in total.

5.3.2 Vertebrate Fauna of Conservation Significance

A review of the *EPBC Act* threatened fauna list, DBCA's Threatened Fauna Database and Priority List, unpublished reports and scientific publications identified a number of specially protected, priority or migratory vertebrate fauna species as potentially occurring in the general vicinity of the subject site. Of these species, most that have no potential whatsoever to utilise the subject site for any purpose have been omitted from the potential list (Appendix B), principally due to lack of suitable habitat (including extent and/or quality) or known local extinction.

Table 4 below listed those species previously recorded or considered potentially present in the wider area along with an assessment of their likelihood of occurrence within the subject site itself.

Table 4: Likelihood of Occurrence – Fauna Species of Conservation Significance (continues on following pages).

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments
	BC Act/ DBCA Priority	EPBC Act				
Swan Coastal Plain Shield-backed Trapdoor Spider <i>Idiosoma sigillatum</i>	P3	-	Burrows of this species usually found in banksia woodland and heathland on sandy soils.	No/Marginal	Unlikely to Occur.	Habitat appears unsuitable.
Western Pygmy Trapdoor Spider <i>Bertmainius opimus</i>	P3	-	Poorly documented - Lives in shallow burrows on eucalyptus bark or in topsoil.	?	Possibly occurs	Previously recorded in nearby state forest (DBCA 2019).
Vasse Pachysaga (cricket) <i>Pachysaga strobila</i>	P1	-	Not documented.	?	Unlikely to Occur	Given the lack of published records and apparent knowledge on this species, its status within the subject site is difficult to determine, however the probability of it being present can be regarded as being extremely low
Carter's Freshwater Mussel <i>Westralunio carteri</i>	S3	VU	Occurs in greatest abundance in slower flowing streams with stable sediments that are soft enough for burrowing amongst woody debris and exposed tree roots.	No	Would Not Occur.	No suitable habitat.
Pouched Lamprey <i>Geotria australis</i>	S3	VU	This species lives in mud burrows in the upper reaches of coastal streams for the first 4 years of life until migrating to the sea. Adults migrate up to 60km upstream during spawning.	No	Would Not Occur.	No suitable habitat.
Coastal Plains Skink <i>Ctenotus ora</i>	P3	-	Sandy substrates with low vegetation (including heath) in open <i>Eucalyptus/Corymbia</i> woodland over <i>Banksia</i> .	Yes	Possibly occurs	Previously recorded at several locations along the Whicher Scarp (See Appendix B).
Blue-billed Duck <i>Oxyura australis</i>	P4	-	Well vegetated freshwater swamps, large dams and lakes, winters on more open water. Occasionally salt lakes and estuaries freshened by floodwaters.	No	Would Not Occur.	No suitable habitat.
Migratory Shorebirds/Wetland Species/Marine Species (various reptiles, birds and mammals)	S5, Various	Ma, Mig, Various	Varies between species but includes open ocean, beaches and permanent/temporary wetlands varying from billabongs, swamps, lakes, floodplains, sewerage farms, saltwork ponds, estuaries, lagoons, mudflats sandbars, pastures, airfields, sports fields and lawns.	No	Would Not Occur.	No suitable habitat.
Eastern Osprey <i>Pandion haliaetus</i>	S5	Ma, Mig	Coasts, estuaries, bays, inlets, islands, and surrounding waters, coral atolls, reefs, lagoons, rock cliffs and stacks. Ascends larger rivers.	No	Would Not Occur.	May very occasionally fly along the nearby Preston River

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments
	BC Act/ DBCA Priority	EPBC Act				
Peregrine Falcon <i>Falco peregrinus</i>	S7	-	Diverse from rainforest to arid shrublands, from coastal heath to alpine Mainly about cliffs along coasts, rivers and ranges and about wooded watercourses and lakes.	Yes	Possibly Occurs.	Uncommon but the subject site may represent part of a larger home range used by individuals of this species.
Masked Owl (SW population) <i>Tyto n. novaehollandiae</i>	P3	-	Roosts and nests in heavy forest, hunts over open woodlands and farmlands.	Yes	Possibly Occurs.	Uncommon but may occur, if only occasionally.
Barking Owl (SW population) <i>Ninox connivens connivens</i>	P2	-	Dense vegetation, especially forest and thickets of waterside vegetation such as <i>melaleucas</i> . Roosts in tree hollows.	No	Would Not Occur.	Habitat appears unsuitable and rarely recorded in his part of the south west.
Australasian Bittern <i>Botaurus poiciloptilus</i>	S1	EN	Freshwater wetlands, occasionally estuarine; prefers heavy vegetation such as beds of tall dense <i>Typha</i> , <i>Baumea</i> and sedges in freshwater swamps.	No	Would Not Occur.	No suitable habitat.
Black Bittern <i>Ixobrychus flavicollis</i>	P1	-	Freshwater pools, swamps and lagoons well screened with trees. Shelters in dense waterside vegetation.	No	Would Not Occur.	No suitable habitat.
Little Bittern <i>Ixobrychus minutus</i>	P4	-	Dense vegetation surrounding/within freshwater pools, swamps and lagoons, well screened with trees. Shelters in dense beds of <i>Typha</i> , <i>Baumea</i> and tall rushes in freshwater swamps around lakes and along rivers.	No	Would Not Occur.	No suitable habitat.
Carnaby's Black Cockatoo <i>Calyptorhynchus latirostris</i>	S2	EN	Forests, woodlands, heathlands, farms; feeds on <i>Banksia</i> , <i>Hakea</i> and Marri.	Yes	Possibly Occurs.	Subject site contains areas of foraging habitat and potential breeding habitat.
Baudin's Black Cockatoo <i>Calyptorhynchus baudinii</i>	S2	EN	Mainly eucalypt forests where it feeds primarily on the marri seeds.	Yes	Known to Occur	Subject site contains areas of foraging habitat and potential breeding habitat.
Forest Red-tailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>	S3	VU	Eucalypt forests, feeds on marri, jarrah, blackbutt, karri, sheoak and snottygobble.	Yes	Known to Occur	Subject site contains areas of foraging habitat and potential breeding habitat.
Fork-tailed Swift <i>Apus pacificus</i>	S5	Ma, Mig	Low to very high airspace over varied habitat from rainforest to semi desert.	Yes	Unlikely to Occur, Flyover only on very rare occasions.	May occur very occasionally for brief periods.
Grey Wagtail <i>Motacilla cinerea</i>	S5	Mig, Ma	In Australia, near running water in disused quarries, sandy, rocky streams in escarpments and rainforest, sewerage ponds, ploughed fields and airfields.	No	Would Not Occur.	Never recorded in this area.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments
	BC Act/ DBCA Priority	EPBC Act				
Chuditch <i>Dasyurus geoffroii</i>	S3	VU	Forest, mallee shrublands, woodland and desert. The densest populations have been found in riparian jarrah forest.	Yes	Possibly Occurs.	Recorded during several surveys in nearby areas (see Appendix B).
South-western Brush-tailed Phascogale <i>Phascogale tapoatafa wambenger</i>	S6	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover.	Yes	Possibly Occurs.	Recorded during several surveys in nearby areas (see Appendix B).
Quenda <i>Isoodon fusciventer</i>	P4	-	Dense scrubby, often swampy, vegetation with dense cover.	Yes/Marginal	Possibly Occurs.	Recorded during several surveys in nearby areas (see Appendix B).
Western Ringtail Possum <i>Pseudocheirus occidentalis</i>	S1	VU	Coastal peppermint, coastal peppermint-tuart, jarrah-marri associations, sheoak woodland, and eucalypt woodland and mallee.	Yes	Known to Occur.	Present, but likely to be in low densities as habitat in some areas is marginal in quality. Recorded during several surveys in nearby areas (see Appendix B).
Quokka <i>Setonix brachyurus</i>	S3	VU	Currently restricted to densely vegetated coastal heaths, swamps, riverine habitats including tea-tree thickets on sandy soils along creek systems.	No	Would Not Occur. Locally extinct.	Locally extinct and habitat unsuitable.
Woylie <i>Bettongia penicillata ogilbyi</i>	S1	EN	Open forest and woodland with a low, dense, understorey of tussock grasses or woody scrub. Formerly occurred in a wider range of habitats including spinifex hummock grasslands.	Yes/Marginal	Would Not Occur. Locally extinct.	Locally extinct.
Western Brush Wallaby <i>Notamacropus irma</i>	P4	-	Open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets.	Yes	Possibly Occurs.	Recorded during several surveys in nearby areas (see Appendix B).
Western False Pipistrelle <i>Falsistrellus mackenziei</i>	P4	-	Wet sclerophyll forest dominated by karri and in high rainfall zones of the jarrah and marri forest.	Yes	Possibly Occurs.	Uncommon but recorded during some surveys in nearby areas (see Appendix B).
Water Rat <i>Hydromys chrysogaster</i>	P4	-	Permanent water, fresh, brackish or marine.	No	Would Not Occur.	No suitable habitat.

Note: see Appendix A for conservation codes

The following vertebrate fauna species of conservation significance were positively identified as utilising the subject site for some purpose during the survey period:

- Forest Red-tailed Black-Cockatoo *Calyptorhynchus banksii naso* – S3 (*WC Act*), Vulnerable (*EPBC Act*)
Foraging evidence attributed to this species were observed during the survey period (numerous chewed marri fruits). A high percentage of the remnant vegetation within the subject site represents foraging habitat. No evidence of actual breeding taking place was observed however all larger trees (≥ 50 cm DBH) can be considered potential breeding habitat, a number of which appear to contain large hollows. No roosting sites identified though likely to use some trees within the subject site for this purpose.
- Baudin's Black-Cockatoo *Calyptorhynchus baudinii* – S2 (*WC Act*), Vulnerable (*EPBC Act*)
Foraging evidence attributed to this species was observed during the survey period (chewed marri fruits). A high percentage of the remnant vegetation within the subject site represents foraging habitat. No evidence of actual breeding taking place was observed however all larger trees (≥ 50 cm DBH) can be considered potential breeding habitat, a number of which appear to contain large hollows. No roosting sites identified though likely to use some trees within the subject site for this purpose.
- Western Ringtail Possum *Pseudocheirus occidentalis* – S1 (*WC Act*), Critically Endangered (*EPBC Act*)
Evidence of this species was found during the daytime survey in the form of some scats near an unoccupied drey. Overall habitat does however appear marginal due to the sparse nature of the midstorey vegetation and a lack of canopy connectivity. This suggests that this species is only present in low densities.

Based on the habitats present and current documented distributions it is considered possible that several additional vertebrate species of conservation significance may use the subject site for some purpose at times, though, as no evidence of them was found at the time of the field survey was found, the status of some in the area remains uncertain.

These species are:

- Coastal Plains Skink *Ctenotus ora* – P3 (DBCA Priority Species)
Status of this species within the subject site is difficult to determine without a detailed survey, however, given the location of the subject site within its documented range, some recent nearby records and the presence of habitat that appears suitable it must be assumed to be present. Listed as a potential species based on available information.
- Carnaby's Black-Cockatoo *Calyptorhynchus latirostris* – S2 (*WC Act*), Endangered (*EPBC Act*)
This species is known to frequent the general area and as suitable habitat is present it must be assumed to occur. A high percentage of the remnant vegetation within the

subject site represents foraging habitat. No evidence of actual breeding taking place was observed however all larger trees (≥ 50 cm DBH) can be considered potential breeding habitat, a number of which appear to contain large hollows. No roosting sites identified though likely to use some trees within the subject site for this purpose. Listed as a potential species based on available information.

- Peregrine Falcon *Falco peregrinus* – S7 (WC Act)
This species potentially utilises some sections of the subject site as part of a much larger home range though only likely to occur infrequently. No evidence of nesting seen. Listed as a potential species based on available information.
- Masked Owl *Tyto novaehollandiae* – P3 (DBCA Priority Species)
Status in the general area is difficult to determine. May utilise woodland areas within and near the subject site for roosting and therefore may forage in more open areas. Probably only present rarely. Listed as a potential species based on available information.
- South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger* – S6 (WC Act)
Recorded during previous surveys in the general area (Bancroft and Bamford 2008, Harewood 2014, G. Harewood pers. obs. 2013) and likely to be present in woodland areas containing tree hollows. Listed as a potential species based on available information.
- Chuditch *Dasyurus geoffroyi* - S3 (WC Act), Vulnerable (EPBC Act)
Without a detailed survey the status of this species within the subject site is difficult to determine however given there are some nearby records (Bancroft and Bamford 2008, G. Harewood pers. obs. 2013) it must be considered a potential species. Listed as a potential species based on available information.
- Quenda *Isoodon fusciventer* – P4 (DBCA Priority Species)
Habitat is general marginal for this species give the sparse nature of groundcover but it may occur in some areas where the densest vegetation occurs. Listed as a potential species based on available information.
- Western Brush Wallaby *Macropus irma* - P4 (DBCA Priority Species)
This species is known to occur in the general area (G. Harewood pers. obs. 2016). As habitat appears suitable it must be assumed to occur, if only occasionally. Listed as a potential species based on available information.
- Western False Pipistrelle *Falsistrellus mackenziei* – P4 (DBCA Priority Species)
There is a lack of records of this species in the immediate vicinity but given habitat appears at least marginally suitable it must be assumed to occur, if only occasionally. Listed as a potential species based on available information.

As listed in Table 4, a number of other species of conservation significance, while possibly present in the wider area are not considered as potential species due to known localised

extinction (and no subsequent recruitment from adjoining areas), lack of suitable habitat and/or the presence of feral predators.

5.3.3 Invertebrate Fauna of Conservation Significance

Four conservation significant invertebrate species appeared in the DBCA database search (DBCA 2019), these being an unnamed cricket (*Pachysaga strobila*), the Swan Coastal Plain shield-backed trapdoor spider (*Idiosoma sigillatum*), the western pygmy trapdoor spider (*Bertmainius opimus*) and Carter’s freshwater mussel (*Westralunio carteri*).

Both the Swan Coastal Plain shield-backed trapdoor spider and Carter’s freshwater mussel have been assessed as not occurring due to a lack of suitable habitat. *Pachysaga strobila* is also considered as unlikely to occur though it is difficult to totally discount its possible presence.

The western pygmy trapdoor spider has been collected in a state forest near the subject site (DBCA 2019) so it must be regarded as a potential species though its actual status within the subject site is unknown.

6. CONCLUSION

The fauna assessment within the subject site was undertaken for the purposes of delineating and characterising the fauna habitats and faunal assemblages present. Targeted searches for black cockatoo habitat was also carried out.

With respect to native vertebrate fauna, 29 mammals (includes nine bat species), 92 bird, 36 reptile and three frog species have previously been recorded in the general area, some of which have the potential to occur in or utilise sections of the subject area at times, a conclusion largely based on the presence of apparently suitable habitat. Overall fauna habitat quality appears to be good and it can be expected that a high percentage of the predicted species would utilise the subject site.

The assessment identified the presence of “potential” black cockatoo breeding and foraging habitat within the subject site and the presence of the western ringtail possum. A number of additional federal and/or state listed threatened and DBCA priority fauna species may also occur though in most cases their use of the subject site wasn’t detected during the survey period.

In summary three vertebrate fauna species of conservation significance were positively identified as utilising the subject site for some purpose during the survey period, these being:

- forest red-tailed black cockatoo – Vulnerable (WA/Federal);
- Baudin’s black cockatoo – Endangered (WA/Federal); and

- western ringtail possum – Critically Endangered (WA/Federal).

An additional nine species of conservation significance may also utilise the subject site, though, as no evidence of these species presence was identified during the field survey, the status of some in the area remains uncertain. These species are:

- coastal plains skink – P3 (DBCA Priority Species);
- masked owl – P3 (DBCA Priority Species);
- south-western brush-tailed phascogale - S6 (WC Act);
- Carnaby's cockatoo – Endangered (WA/Federal);
- peregrine falcon – Schedule 7 (WA);
- quenda – Priority 4 (WA);
- western brush wallaby - Priority 4 (WA); and
- western false pipistrelle – P4 (DBCA Priority Species).

One invertebrate species of conservation significance has also been assessed as possibly occurring based on available information. The western pygmy trapdoor spider (Priority 3) has been collected in a state forest near the subject site (DBCA 2019) so it must be regarded as a potential species though its actual status within the subject site is unknown.

The exact location of proposed development within the subject site is yet to be finalise. Ongoing planning will need to take into account the potential presence of habitat used by some species of conservation significance and fauna in general so that any direct and indirect impacts can be avoided or minimised. Management plans and protocols that aim to minimise impact on fauna and fauna habitat should be employed if considered warranted.

7. REFERENCES

- Anstis, M. (2013). Tadpoles and Frogs of Australia. New Holland Publishers, Sydney.
- Bamford, M.J and A.R. (2000). Proposed Gwindinup Mineral Sands Mine. Fauna Surveys; August and December 1999. Unpublished report for Cable Sands WA. January 2000.
- Bancroft, W. and Bamford, M. (2008). Fauna values of Bemax's Happy Valley mineral sands deposit. Unpublished report for Bemax Resources Limited. January 2008.
- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Royal Australasian Ornithologists Union, Victoria.
- Biologic (2014). Wonnerup North Vertebrate Fauna Assessment. Unpublished report for Cristal Mining Australia Ltd.
- Biota (2009). Tutunup Fauna Assemblage and Fauna Habitat Seasonal Survey. Unpublished report for Iluka Resources. March 2009.
- Biota (2007a). Yoganup 215 Strand Fauna and Faunal Assemblage Survey. Unpublished report for Iluka Resources. February 2007.
- Biota (2007b). Tutunup South Fauna Habitat and Fauna Assemblage Seasonal Survey. Unpublished report for Iluka Resources. December 2007.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2007). Reptiles and Frogs in the Bush: Southwestern Australia. UWA Press, Nedlands.
- Bush, B., Maryan, B., Browne-Cooper, R. & Robinson, D. (2010). Field Guide to Reptiles and Frogs of the Perth Region. UWA Press, Nedlands.
- Churchill, S. (2008). Australian Bats. Second Edition, Allen & Unwin.
- Cogger, H.G. (2014). Reptiles and Amphibians of Australia. 7th Edition. CSIRO Publishing.
- Commonwealth of Australia (2012). EPBC Act Referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii*, Forest red-tailed black cockatoo (vulnerable) *Calyptorhynchus banksii naso*.
- Christidis, L. and Boles, W.E. (2008). Systematics and Taxonomy of Australian Birds. CSIRO Publishing, Melbourne.
- Daniel March Botanical Consulting (DMBC) (2019). Desktop Study and Reconnaissance Flora and Vegetation Survey. – Lot 287 South West Hwy, Gwindinup WA. Unpublished report for Mario Michele Giacci.

Dell, J. (2000). A draft summary assessment of the fauna values of the Kemerton Bushland. Unpublished report for the Conservation Branch, Policy Division, Department of Environmental Protection.

Department of Biodiversity, Conservation and Attractions (DBCA) (2018). Threatened and Priority Fauna Rankings. 11 September 2018.

Department of Biodiversity Conservation and Attractions (DBCA) (2019). NatureMap Database search. "By Circle" 115° 44' 28" E, 33° 31' 06" S (plus 20 km buffer). <http://naturemap.dec.wa.gov.au>. Accessed 8 March 2019.

Department of the Environment and Energy (DotEE) (2018). *EPBC Act Protected Matters Report: Point Search -33.51841 115.74103 (1km Buffer)* Available from: <http://www.environment.gov.au>. Accessed 8 March 2019.

Environmental Protection Authority (EPA) (2009). Environmental Protection Bulletin No. 6, The Natural Values of the Whicher Scarp. August 2009.

EPA (2016). Technical Guidance – Terrestrial Vertebrate Fauna Surveys (replaces EPA (2004). Guidance for the Assessment of Environmental Factors No 56: Terrestrial Surveys for Environmental Impact Assessment, but not yet updated).

Government of Western Australia (2018). Wildlife Conservation Act 1950. Wildlife Conservation (Specially Protected Fauna) Notice 2017. Government Gazette, WA. 11 September 2018.

Harewood, G. (2009). Western Ringtail Possum Baseline Assessment. Tutunup. Unpublished report for Iluka Resources. August 2009.

Harewood, G. (2012). Phase 1 and 2 Seasonal Fauna Surveys (Level 2). Yoongarillup Mineral Sands Project. Unpublished report for Doral Mineral Sands Pty Ltd.

Harewood, G. (2013). Fauna Assessment of Yoganup Extended. Unpublished report for Iluka Resources Ltd.

Harewood, G. (2017). Fauna Assessment of Lot 3833 (Part) Hyder Road – Yoganup Extended. Unpublished report for Iluka Resources Ltd.

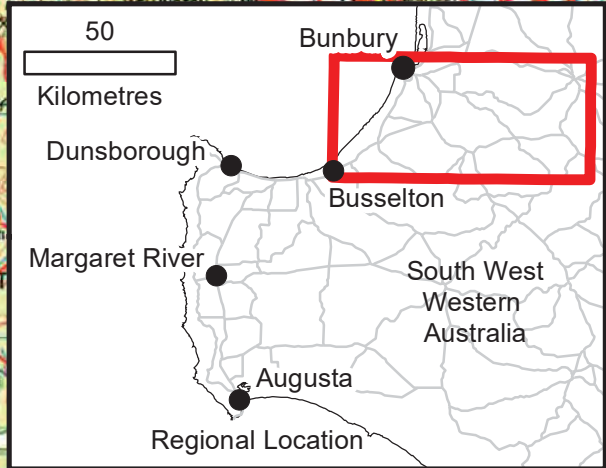
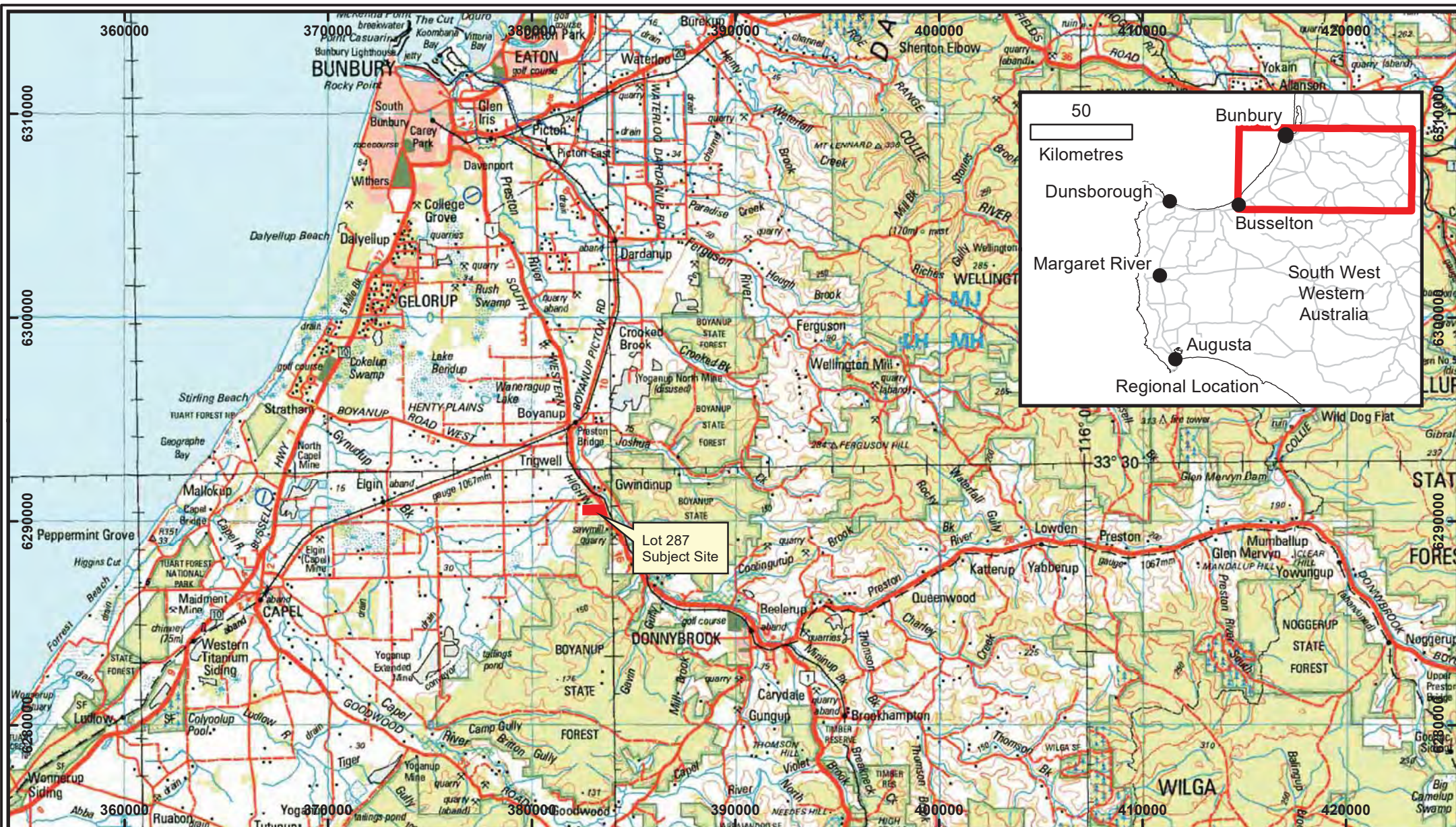
Harewood, G. (2018). Western Ringtail Possum 2018 Monitoring Survey, Gwindinup North Mineral Sands Mine, June/July 2018. Unpublished report for Cristal Mining Australia Limited. September 2016.

Hart, Simpson and Assoc. (1997). Wonnerup -Tutunup Road - Vertebrate Fauna. Unpublished report for Westralian Sands Ltd.

Harvey, M. S. (2002). Short-range endemism among the Australian fauna: some examples from non-marine environments. *Invertebrate Systematics* 16: 555-570.


- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth Western Australia.
- Johnstone, R.E. and Storr, G.M. (2004). Handbook of Western Australian Birds: Volume 2 – Passerines (Blue-winged Pitta to Goldfinch). Western Australian Museum, Perth Western Australia.
- Menkhorst, P. and Knight, F. (2011). A Field Guide to the Mammals of Australia. Oxford University Press, Melbourne.
- Morgan, D.L., Beatty, S.J., Klunzinger, M.W, Allen, M.G. and Burnham, Q.E (2011). Field Guide to the Freshwater Fishes, Crayfishes and Mussels of South Western Australia. Published by SERCUL.
- Ninox (2006). A Vertebrate Fauna Assessment of the Yoganup Mineral Sands Project Area. Unpublished report for Iluka Resources. March 2006.
- Peck, A., Barrett, G. & Williams, M. (2018). *The 2018 Great Cocky Count: a community-based survey for Carnaby's Black-Cockatoo (Calyptorhynchus latirostris), Baudin's Black-Cockatoo (Calyptorhynchus baudinii) and Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii naso)*. BirdLife Australia, Floreat, Western Australia.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1983). Lizards of Western Australia II: Dragons and Monitors. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1990). Lizards of Western Australia III: Geckos and Pygopods. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1999). Lizards of Western Australia I: Skinks. Revised Edition, WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (2002). Snakes of Western Australia. Revised Edition, WA Museum, Perth.
- Tyler M.J. & Doughty P. (2009). Field Guide to Frogs of Western Australia, Fourth Edition, WA Museum, Perth.
- Van Dyck, S., Gynther, I. & Baker, A. Eds (2013). Field Companion to The Mammals of Australia. Queensland Museum.
- Wilson, S. and Swan, G. (2017). A Complete Guide to Reptiles of Australia. Reed, New Holland, Sydney.
- Woinarski, J., Burbidge, A. & Harrison, P. (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing.

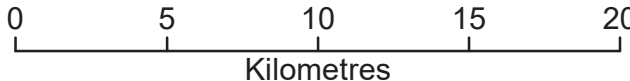
FIGURES



Lot 287
Subject Site

Legend

 Subject Site




Drawn: G Harewood
Date: Mar 2019
Scale: 1:250,000

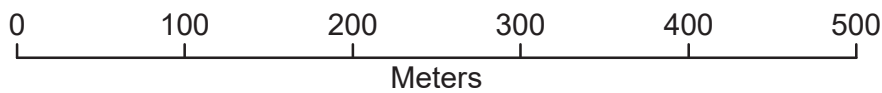
Lot 287 SW Highway
Gwindinup

**Subject Site
and Surrounds**



Legend

 Subject Site





Drawn: G Harewood
Date: Mar 2019
Scale: 1:4,500





Lot 287 SW Highway
Gwindinup
**Subject Site
Aerial Photograph**



Legend

-  Lot 287 Boundary
-  Vegetation survey area

Vegetation type

-  VT1: Tall woodland of *Eucalyptus marginata* and *Corymbia calophylla* over low woodland of *Banksia grandis* over tall sparse shrubland of *Kunzea glabrescens* over low sparse shrubland of *Xanthorrhoea preissii*.
-  VT2: Tall woodland of *Eucalyptus marginata* and *Corymbia calophylla* over tall sparse shrubland of *Kunzea glabrescens* over low sparse shrubland of *Xanthorrhoea preissii* and *Xanthorrhoea gracilis*.
-  VT3: Tall woodland of *Eucalyptus marginata* and *Corymbia calophylla* over low sparse shrubland of *Xanthorrhoea preissii* and *Hibbertia hypericoides*.
-  Disturbed: Bluegum plantations, tracks and clearings.

Scale: 1:6500
 Original Size: A4
 Air Photo Date: February 2017
 Grid: MGA94(50)



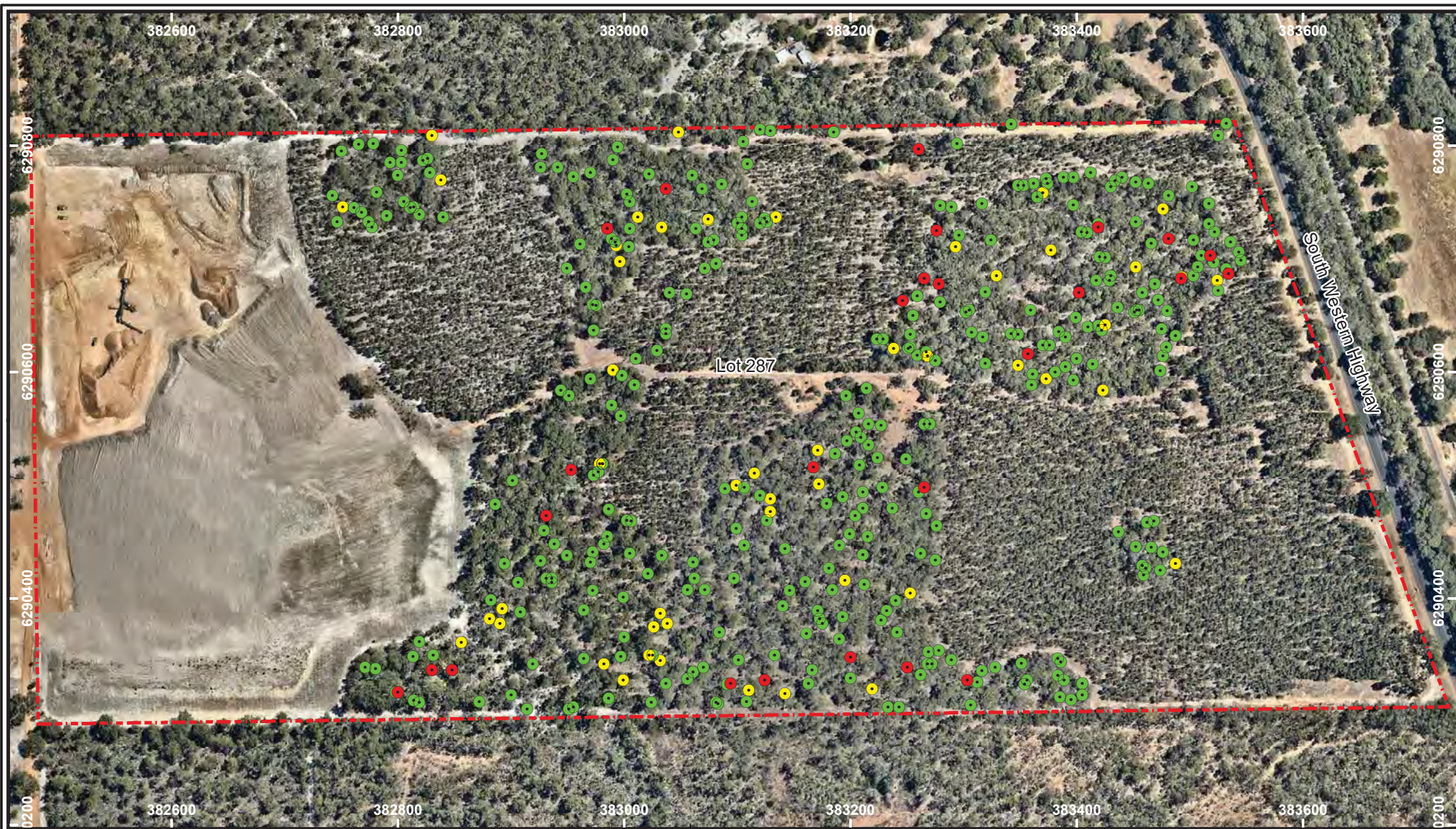
Mario Michele Giacci
 Lot 287 South Western Hwy, Gwindinup
 Flora and Vegetation Survey

Figure 3

Vegetation Units (Courtesy DMBC 2019)




1/1 Cook St
 West Perth WA 6005
 Ph: (08) 9226 3166
 Fax: (08) 9226 3177
 info@mbsenvironmental.com.au
 www.mbsenvironmental.com.au

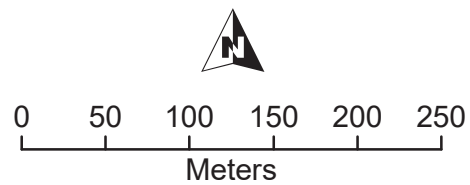




Legend

 Subject Site

-  Habitat Tree - One or more hollows possibly suitable for black cockatoos
-  Habitat Tree - One or more possible hollows unsuitable for black cockatoos
-  Habitat Tree - No hollows seen



Drawn: G Harewood
Date: Mar 2019
Scale: 1:4,500

Projection/Coordinate System: UTM/MGA Zone 50 Figure: 4

Lot 287 SW Highway
Gwindinup

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

APPENDIX A

CONSERVATION CATEGORIES

EPBC Act (1999) Threatened Fauna Categories

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

Category	Code	Description
Extinct	E	There is no reasonable doubt that the last member of the species has died.
*Extinct in the wild	EW	A species (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) 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 species is facing an extremely high risk of extinction in the wild in the immediate future.
*Endangered	EN	A species: (a) is not critically endangered; and (b) is facing a very high risk of extinction in the wild in the near future.
*Vulnerable	VU	A species (a) is not critically endangered or endangered; and (b) is facing a high risk of extinction in the wild in the medium-term future.
Conservation Dependent	CD	A species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered
*Migratory	Migratory	(a) all migratory species that are: (i) native species; and (ii) from time to time included in the appendices to the Bonn Convention; and (b) all migratory species from time to time included in annexes established under JAMBA, CAMBA and ROKAMBA; and (c) all native species from time to time identified in a list established under, or an instrument made under, an international agreement approved by the Minister.
Marine	Ma	Species in the list established under s248 of the <i>EPBC Act</i>

Note: Only species in those categories marked with an asterisk are matters of national environmental significance (NES) under the *EPBC Act*.

Wildlife Conservation (Specially Protected Fauna) Notice 2018 Categories

Published as Specially Protected under the *Wildlife Conservation Act 1950*, and listed under Schedules 1 to 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

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

Category	Code	Description
Schedule 1 (S1) Critically Endangered species	CR	Threatened species considered to be facing an extremely high risk of extinction in the wild in the immediate future.
Schedule 2 (S2) Endangered species	EN	Threatened species considered to be facing a very high risk of extinction in the wild in the near future.
Schedule 3 (S3) Vulnerable species	VU	Threatened species considered to be facing a high risk of extinction in the wild in the medium-term future.
Schedule 4 (S4) Presumed extinct species	EX	Species which have been adequately searched for and there is no reasonable doubt that the last member of the species has died.
Schedule 5 (S5) Migratory birds protected under an international agreement	MI	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds.
Schedule 6 (S6) Fauna that is of special conservation need as conservation dependent fauna	CD	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened.
Schedule 7 (S7) Other specially protected fauna.	OS	Fauna otherwise in need of special protection to ensure their conservation.

Western Australian DBCA Priority Fauna Categories

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

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

Category	Code	Description
Priority 1 (P1) Poorly Known Species.	P1	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
Priority 2 (P2) Poorly Known Species.	P2	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority 3 (P3) Poorly Known Species.	P3	Species that are known from several locations and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
Priority 4 (P4) Rare, Near Threatened and other species in need of monitoring.	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>

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

IUCN Red List Threatened Species Categories

The *IUCN Red List of Threatened Species™* is a checklist of taxa that have undergone an extinction risk assessment using the *IUCN Red List Categories and Criteria*.

Categories are summarized below.

Category	Code	Description
Extinct	EX	Taxa for which there is no reasonable doubt that the last individual has died.
Extinct in the Wild	EW	Taxa which is known only to survive in cultivation, in captivity or and as a naturalised population well outside its past range and it has not been recorded in known or expected habitat despite exhaustive survey over a time frame appropriate to its life cycle and form.
Critically Endangered	CR	Taxa facing an extremely high risk of extinction in the wild.
Endangered	EN	Taxa facing a very high risk of extinction in the wild.
Vulnerable	VU	Taxa facing a high risk of extinction in the wild.
Near Threatened	NT	Taxa which has been evaluated but does not qualify for CR, EN or VU now but is close to qualifying or likely to qualify in the near future.
Least Concern	LC	Taxa which has been evaluated but does not qualify for CR, EN, VU, or NT but is likely to qualify for NT in the near future.
Data Deficient	DD	Taxa for which there is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status.
Not Evaluated	NE	Taxa which has not been evaluated.

A full list of categories and their meanings are available at:

<http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria>

APPENDIX B

FAUNA OBSERVED OR POTENTIALLY PRESENT

Fauna Observed or Potentially Present

Lot 287 SW Highway.

Approx. centroid = 115.74103°E, 33.51841°S

Compiled by Greg Harewood - March 2019

Recorded (Captured/Sighted/Heard/Signs) = X

A = Harewood, G (2019). Fauna Assessment Lot 287 South Western Highway. Unpublished report for M.Giacchi. March 2019.

B = Harewood, G (2016). Fauna Assessment Lot 3833 (Part) Hyder Road - Yoganup Extended. Unpublished report for Iluka Resources Limited. December 2016

C = Harewood, G (2013). Terrestrial Fauna Assessment (Level 1) Yoganup Extended Mineral Sands Project. Unpublished report for Iluka Resources Limited. March 2013

D = Harewood, G (2014). Phase 1 and 2 Seasonal Fauna Surveys (Level 2) . Yoongarillup Mineral Sands Project. Unpublished report for Doral Mineral Sands Pty Ltd.

E = Bancroft, W. and Bamford, M. (2008). Fauna values of Bemax's Happy Valley mineral sands deposit. Unpublished report for Bemax Resources Limited. January 2008 (includes Gwindinup).

F = Biota (2009). Tutunup Fauna Assemblage and Fauna Habitat Seasonal Survey. Unpublished report for Iluka Resources. March 2009.

G = Biota (2007a). Yoganup 215 Strand Fauna and Faunal Assemblage Survey. Unpublished report for Iluka Resources. February 2007.

H = Biota (2007b). Tutunup South Fauna Habitat and Fauna Assemblage Seasonal Survey. Unpublished report for Iluka Resources. December 2007.

I = Ninox (2006). A Vertebrate Fauna Assessment of the Yoganup Mineral Sands Project Area. Unpublished report for Iluka Resources. March 2006.

J = Hart, Simpson and Assoc. (1997). Wonnerup -Tutunup Road - Vertebrate Fauna. Unpublished report for Westralian Sands Ltd.

K = DBCA (2019). NatureMap Database search. "By Circle" 115° 44' 28" E,33° 31' 06" S (plus 20km buffer). 8 March 2019.

Class Family Species	Common Name	Conservation Status											
			A	B	C	D	E	F	G	H	I	J	K

Amphibia

Myobatrachidae

Ground or Burrowing Frogs

<i>Heleioporus eyrei</i>	Moaning Frog	LC		X		X	X	X	X	X			X	X
<i>Limnodynastes dorsalis</i>	Western Banjo Frog	LC				X	X				X		X	X
<i>Pseudophryne guentheri</i>	Crawling Toadlet	LC							X				X	

Reptilia

Diplodactylidae

<i>Diplodactylus polyophthalmus</i>	Speckled Stone Gecko					X	X	X						X
-------------------------------------	----------------------	--	--	--	--	---	---	---	--	--	--	--	--	---

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			Gekkonidae Geckoes										
<i>Christinus marmoratus</i>	Marbled Gecko					X	X	X	X	X		X	X
Pygopodidae Legless Lizards													
<i>Aprasia pulchella</i>	Pretty Worm Lizard					X	X		X	X		X	X
<i>Aprasia repens</i>	Sandplain Worm Lizard						X			X		X	
<i>Delma australis</i>	Marble-faced Delma					X							
<i>Lialis burtonis</i>	Burton's Legless Lizard						X	X	X			X	X
<i>Pygopus lepidopus</i>	Common Scaly Foot												
Agamidae Dragon Lizards													
<i>Pogona minor</i>	Western Bearded Dragon					X	X	X	X	X		X	X
Varanidae Monitor's or Goanna's													
<i>Varanus gouldii</i>	Sand Monitor						X						X
<i>Varanus rosenbergi</i>	Heath Monitor					X	X	X		X	X	X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status											
			A	B	C	D	E	F	G	H	I	J	K
Scincidae													
Skinks													
<i>Acritoscincus trilineatum</i>	Southwestern Cool Skink					X	X	X	X	X		X	
<i>Cryptoblepharus buchananii</i>	Fence Skink		X	X		X	X	X	X	X		X	
<i>Ctenotus impar</i>	Odd-striped Ctenotus					X	X	X	X	X		X	
<i>Ctenotus ora</i>	Coastal Plains Skink	P3				X	X	X	X	X		X	
<i>Egernia kingii</i>	King's Skink					X		X	X			X	
<i>Egernia napoleonis</i>	Salmon-bellied Skink					X	X			X	X	X	
<i>Hemiergis gracilipes</i>	Southwestern Mulch Skink									X		X	
<i>Hemiergis peronii peronii</i>	Four-toed Earless Skink										X		
<i>Hemiergis peronii tridactyla</i>	Three-toed Earless Skink					X	X	X	X			X	
<i>Hemiergis quadrilineata</i>	Two-toed Mulch Skink											X	
<i>Lerista distinguenda</i>	South West Four-toed Lerista					X	X	X	X	X		X	
<i>Lerista elegans</i>	West Coast Four-toed Lerista					X		X	X	X		X	
<i>Menetia greyii</i>	Dwarf Skink					X	X	X	X	X		X	
<i>Morethia lineocellata</i>	West Coast Pale-flecked Morethia					X	X	X	X	X		X	
<i>Morethia obscura</i>	Shrubland Pale-flecked Morethia					X	X	X	X	X		X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			<i>Tiliqua rugosa</i>	Bobtail			X		X	X	X	X	X
Typhlopidae Blind Snakes													
<i>Ramphotyphlops australis</i>	Southern Blind Snake					X	X	X	X	X			X
<i>Ramphotyphlops pinguis</i>	Fat Blind Snake					X	X			X			
Boidae Pythons, Boas													
<i>Morelia spilota imbricata</i>	Southern Carpet Python							X					
Elapidae Elapid Snakes													
<i>Echiopsis curta</i>	Bardick												
<i>Elapognathus coronatus</i>	Crowned Snake					X							X
<i>Notechis scutatus</i>	Tiger Snake						X		X			X	X
<i>Parasuta gouldii</i>	Gould's Hooded Snake												
<i>Parasuta nigriceps</i>	Black-backed Snake					X			X			X	X
<i>Pseudonaja affinis</i>	Dugite					X	X					X	X
<i>Simoselaps bertholdi</i>	Jan's Banded Snake												X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			Aves										
Casuariidae Emus, Cassowaries													
<i>Dromaius novaehollandiae</i>	Emu	LC	X	X	X	X	X	X	X	X	X		X
Phasianidae Quails, Pheasants													
<i>Coturnix pectoralis</i>	Stubble Quail	LC			X	X	X						X
<i>Coturnix ypsilophora</i>	Brown Quail	LC							X				
Anatidae Geese, Swans, Ducks													
<i>Anas gracilis</i>	Grey Teal	LC			X		X		X		X	X	X
<i>Anas superciliosa</i>	Pacific Black Duck	LC			X		X	X	X		X	X	X
<i>Chenonetta jubata</i>	Australian Wood Duck	LC			X	X	X	X	X		X	X	X
<i>Tadorna tadornoides</i>	Australian Shelduck	LC		X	X	X	X	X				X	X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			Accipitridae Kites, Goshawks, Eagles, Harriers										
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	LC				X	X						X
<i>Accipiter fasciatus</i>	Brown Goshawk	LC			X		X			X	X		X
<i>Aquila audax</i>	Wedge-tailed Eagle	LC				X	X	X	X			X	X
<i>Aquila morphnoides</i>	Little Eagle	LC			X		X						
<i>Circus approximans</i>	Swamp Harrier	LC			X				X				X
<i>Elanus caeruleus</i>	Black-shouldered Kite	LC			X								
<i>Haliastur sphenurus</i>	Whistling Kite	LC			X			X					X
<i>Hamirostra isura</i>	Square-tailed Kite	LC					X						
Falconidae Falcons													
<i>Falco berigora</i>	Brown Falcon	LC		X			X						X
<i>Falco cenchroides</i>	Australian Kestrel	LC			X	X	X		X				X
<i>Falco longipennis</i>	Australian Hobby	LC							X				X
<i>Falco peregrinus</i>	Peregrine Falcon	S7 LC					X						X
Turnicidae Button-quails													
<i>Turnix varia</i>	Painted Button-quail	LC					X						

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status														
			A	B	C	D	E	F	G	H	I	J	K			
Columbidae Pigeons, Doves																
<i>Ocyphaps lophotes</i>	Crested Pigeon	LC		X	X	X	X	X	X			X	X	X		
<i>Phaps chalcoptera</i>	Common Bronzewing	LC	X		X	X	X	X	X	X	X	X	X	X		
<i>Phaps elegans</i>	Brush Bronzewing	LC														
Psittacidae Parrots																
<i>Cacatua sanguinea gymnopsis</i>	Little Corella	Introduced			X									X		
<i>Cacatua tenuirostris</i>	Eatern Long-billed Corella	Introduced														
<i>Calyptorhynchus banksii naso</i>	Forest Red-tailed Black-Cockatoo	S3 VU	X	X	X	X	X	X	X	X	X	X	X	X		
<i>Calyptorhynchus baudinii</i>	Baudin's Black Cockatoo	S2 EN EN A3cde	X	X	X	X	X	X	X			X	X	X		
<i>Calyptorhynchus latirostris</i>	Carnaby's Black Cockatoo	S2 EN EN A2bcde		X	X	X	X	X	X	X	X		X	X		
<i>Glossopsitta porphyrocephala</i>	Purple-crowned Lorikeet	LC				X	X				X					
<i>Neophema elegans</i>	Elegant Parrot	LC			X	X	X	X	X	X	X				X	
<i>Platycercus icterotis icterotis</i>	Western Rosella (western ssp)	LC						X	X	X						X
<i>Platycercus spurius</i>	Red-capped Parrot	LC	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Platycercus zonarius</i>	Australian Ringneck	LC	X	X	X	X	X	X	X	X	X	X	X	X		
<i>Polytelis anthopeplus</i>	Regent Parrot	LC								X				X	X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			Cuculidae Parasitic Cuckoos										
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	LC					X	X				X	X
<i>Chrysococcyx basalis</i>	Horsfield's Bronze Cuckoo	LC					X	X	X				
<i>Chrysococcyx lucidus</i>	Shining Bronze Cuckoo	LC				X	X	X	X			X	
<i>Cuculus pallidus</i>	Pallid Cuckoo	LC		X				X				X	
Strigidae Hawk Owls													
<i>Ninox novaeseelandiae</i>	Boobook Owl	LC			X	X	X	X					
Tytonidae Barn Owls													
<i>Tyto alba</i>	Barn Owl	LC			X								
<i>Tyto n. novaehollandiae</i>	Masked Owl (SW pop)	P3											X
Podargidae Frogmouths													
<i>Podargus strigoides</i>	Tawny Frogmouth	LC			X		X	X					X
Aegothelidae Owlet-nightjars													
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	LC					X						X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			Halcyonidae Tree Kingfishers										
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Introduced		X	X	X	X	X	X	X	X	X	X
<i>Todiramphus sanctus</i>	Sacred Kingfisher	LC					X	X				X	X
Meropidae Bee-eaters													
<i>Merops ornatus</i>	Rainbow Bee-eater	JA LC	X	X	X	X	X	X	X	X		X	X
Climacteridae Trecreepers													
<i>Climacteris rufa</i>	Rufous Trecreeper	LC						X					
Maluridae Fairy Wrens, GrassWrens													
<i>Malurus elegans</i>	Red-winged Fairy-wren	LC				X	X	X	X	X			X
<i>Malurus splendens</i>	Splendid Fairy-wren	LC		X	X	X	X	X	X	X	X	X	X
<i>Stipiturus malachurus</i>	Southern Emu-wren	LC						X	X				X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			Acanthizidae Thornbills, Geryones, Fieldwrens & Whitefaces										
<i>Acanthiza apicalis</i>	Broad-tailed Thornbill	LC	X	X	X	X	X	X	X	X	X	X	X
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	LC	X	X	X	X	X	X	X		X	X	X
<i>Acanthiza inornata</i>	Western Thornbill	LC					X		X	X	X		X
<i>Gerygone fusca</i>	Western Gerygone	LC	X	X	X	X	X	X	X	X	X	X	X
<i>Sericornis frontalis</i>	White-browed Scrubwren	LC				X	X	X	X	X	X		X
<i>Smicrornis brevirostris</i>	Weebill	LC	X	X		X	X	X		X	X		X
Pardalotidae Pardalotes													
<i>Pardalotus punctatus</i>	Spotted Pardalote	LC					X	X	X				X
<i>Pardalotus striatus</i>	Striated Pardalote	LC		X	X	X	X	X	X	X	X	X	X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status												
			A	B	C	D	E	F	G	H	I	J	K	
Meliphagidae Honeyeaters, Chats														
<i>Acanthorhynchus superciliosus</i>	Western Spinebill	LC				X	X	X	X	X	X	X	X	X
<i>Anthochaera carunculata</i>	Red Wattlebird	LC	X	X	X	X	X		X	X	X	X	X	X
<i>Anthochaera lunulata</i>	Western Little Wattlebird	LC		X										X
<i>Epthianura albifrons</i>	White-fronted Chat	LC								X				X
<i>Lichenostomus virescens</i>	Singing Honeyeater	LC							X		X			
<i>Lichmera indistincta</i>	Brown Honeyeater	LC		X	X	X	X	X	X	X	X	X	X	X
<i>Melithreptus chloropsis</i>	Gilbert's Honeyeater	LC					X	X						
<i>Phylidonyris melanops</i>	Tawny-crowned Honeyeater	LC						X	X					
<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	LC								X				
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	LC			X	X	X	X	X	X	X	X	X	X
Petroicidae Australian Robins														
<i>Eopsaltria georgiana</i>	White-breasted Robin	LC					X	X	X					X
<i>Eopsaltria griseogularis</i>	Western Yellow Robin	LC	X			X	X	X	X					
<i>Petroica multicolor</i>	Scarlet Robin	LC	X	X		X	X	X	X	X				

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status												
			A	B	C	D	E	F	G	H	I	J	K	
Neosittidae Sitellas														
<i>Daphoenositta chrysoptera</i>	Varied Sittella	LC	X			X	X	X	X					X
Pachycephalidae Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers														
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	LC	X	X		X	X	X	X	X	X	X		X
<i>Pachycephala occidentalis</i>	Western Whistler	LC	X	X	X	X	X	X	X	X	X	X		
<i>Pachycephala rufiventris</i>	Rufous Whistler	LC		X	X	X	X	X	X	X			X	X
Dicruridae Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo														
<i>Grallina cyanoleuca</i>	Magpie-lark	LC			X	X	X		X				X	X
<i>Rhipidura fuliginosa</i>	Grey Fantail	LC	X	X	X	X	X	X	X	X	X	X	X	
<i>Rhipidura leucophrys</i>	Willie Wagtail	LC		X	X	X	X	X	X	X	X		X	X
Campephagidae Cuckoo-shrikes, Trillers														
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	LC		X	X	X	X	X	X	X	X	X	X	X
<i>Lalage tricolor</i>	White-winged Triller	LC			X		X							

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status												
			A	B	C	D	E	F	G	H	I	J	K	
Artamidae Woodswallows, Butcherbirds, Currawongs														
<i>Artamus cinereus</i>	Black-faced Woodswallow	LC		X	X			X		X			X	X
<i>Artamus cyanopterus</i>	Dusky Woodswallow	LC			X			X	X	X	X			X
Cracticidae Currawongs, Magpies & Butcherbirds														
<i>Cracticus tibicen</i>	Australian Magpie	LC	X	X	X	X	X	X	X	X	X	X	X	X
<i>Cracticus torquatus</i>	Grey Butcherbird	LC		X	X	X	X	X	X	X			X	X
<i>Strepera versicolor</i>	Grey Currawong	LC	X			X	X	X						X
Corvidae Ravens, Crows														
<i>Corvus coronoides</i>	Australian Raven	LC	X	X	X	X	X	X	X	X	X	X	X	X
Motacillidae Old World Pipits, Wagtails														
<i>Anthus australis</i>	Australian Pipit	LC			X	X	X	X	X					
Estrilidae Grass Finches & Mannikins														
<i>Stagonopleura oculata</i>	Red-eared Firetail	LC							X					X
Dicaeidae Flowerpeckers														
<i>Dicaeum hirundinaceum</i>	Mistletoebird	LC												X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			Hirundinidae Swallows, Martins										
<i>Hirundo ariel</i>	Fairy Martin	LC			X								
<i>Hirundo neoxena</i>	Welcome Swallow	LC			X	X	X		X	X		X	X
<i>Hirundo nigricans</i>	Tree Martin	LC			X	X	X	X	X		X	X	
Sylviidae Old World Warblers													
<i>Cincloramphus cruralis</i>	Brown Songlark	LC				X							
<i>Cincloramphus mathewsi</i>	Rufous Songlark	LC					X					X	
Zosteropidae White-eyes													
<i>Zosterops lateralis</i>	Grey-breasted White-eye	LC		X	X		X	X	X	X	X	X	X
Mammalia													
Tachyglossidae Echidnas													
<i>Tachyglossus aculeatus</i>	Echidna	LC		X			X	X		X	X		

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status												
			A	B	C	D	E	F	G	H	I	J	K	
Dasyuridae Carnivorous Marsupials														
<i>Antechinus flavipes</i>	Yellow-footed Antechinus, Mardo					X	X		X	X				X
<i>Phascogale tapoatafa wambenger</i>	SW Brush-tailed Phascogale	S6				X	X							X
<i>Sminthopsis gilberti</i>	Gilbert's Dunnart	LC					X		X	X				X
<i>Sminthopsis griseoventer</i>	Grey-bellied Dunnart	LC								X	X			
Peramelidae Bandicoots														
<i>Isodon fusciventer</i>	Quenda	P4 LC		X	X	X	X	X	X	X	X		X	X
Phalangeridae Brush-tail Possums, Cuscuses														
<i>Trichosurus vulpecula</i>	Common Brushtail Possum	LC	X	X	X	X	X	X	X	X	X	X	X	
Burramyidae Pygmy Possums														
<i>Cercartetus concinnus</i>	Western Pygmy-possum	LC				X	X	X		X				X
Tarsipedidae Honey Possum														
<i>Tarsipes rostratus</i>	Honey Possum, Noolbenger	LC					X			X			X	
Pseudocheiridae Ringtail Possums														
<i>Pseudocheirus occidentalis</i>	Western Ringtail Possum	S1 CR CR A2bce+3bce+4bc	X	X	X		X	X						X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status												
			A	B	C	D	E	F	G	H	I	J	K	
Macropodidae Kangaroos, Wallabies														
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	LC	X	X	X	X	X	X	X	X	X	X	X	X
<i>Notamacropus irma</i>	Western Brush Wallaby	P4 LC				X	X	X		X				
Molossidae Freetail Bats														
<i>Austronomus australis</i>	White-striped Freetail-bat	LC			X	X	X		X	X				
<i>Ozimops kitcheneri</i>	South-western Freetail-bat	LC				X								
Vespertilionidae Ordinary Bats														
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	LC				X		X						X
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	LC				X		X		X				X
<i>Falsistrellus mackenziei</i>	Western False Pipistrelle	P4 NT								X				X
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	LC				X		X						X
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	LC									X			
<i>Nyctophilus major</i>	Western Long-eared Bat	LC												
<i>Vespadelus regulus</i>	Southern Forest Bat	LC				X	X	X	X	X				X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

Class Family Species	Common Name	Conservation Status	A	B	C	D	E	F	G	H	I	J	K
			Muridae Rats, Mice										
<i>Mus musculus</i>	House Mouse	Introduced				X	X	X	X			X	X
<i>Rattus fuscipes</i>	Western Bush Rat	LC				X		X	X				
<i>Rattus rattus</i>	Black Rat	Introduced				X	X	X					X
Canidae Dogs, Foxes													
<i>Vulpes vulpes</i>	Red Fox	Introduced			X	X	X	X			X	X	
Felidae Cats													
<i>Felis catus</i>	Cat	Introduced			X			X					
Suidae Pigs													
<i>Sus scrofa</i>	Pig	Introduced		X		X	X						
Leporidae Rabbits, Hares													
<i>Oryctolagus cuniculus</i>	Rabbit	Introduced		X	X	X	X	X	X	X	X	X	X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA IUCN Red List Category Definitions LC = Least Concern - see Appendix A and <https://www.iucnredlist.org/resources/categories-and-criteria>.

APPENDIX C

DBCA & EPBC DATABASE SEARCH RESULTS

NatureMap - Lot 287

Created By Greg Harewood on 08/03/2019

Kingdom Animalia
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 115° 44' 28" E, 33° 31' 06" S
Buffer 20km
Group By Species Group

Species Group	Species	Records
Amphibian	10	134
Bird	156	9038
Fish	7	13
Invertebrate	160	495
Mammal	30	2971
Reptile	31	143
TOTAL	394	12794

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
Amphibian				
1.	25398 <i>Crinia georgiana</i> (Quacking Frog)			
2.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
3.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
4.	25401 <i>Crinia pseudinsignifera</i> (Bleating Froglet)			
5.	25404 <i>Geocrinia leai</i> (Ticking Frog)			
6.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
7.	25411 <i>Heleioporus inornatus</i> (Whooping Frog)			
8.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
9.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
10.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
Bird				
11.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
12.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
13.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
14.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
15.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
16.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
17.	25537 <i>Accipiter novaehollandiae</i> (Grey Goshawk)			
18.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
19.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
20.	25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar)			
21.	24301 <i>Aegotheles cristatus subsp. cristatus</i> (Australian Owlet-nightjar)			
22.	24310 <i>Anas castanea</i> (Chestnut Teal)			
23.	24312 <i>Anas gracilis</i> (Grey Teal)			
24.	24313 <i>Anas platyrhynchos</i> (Mallard)			
25.	<i>Anas platyrhynchos subsp. domesticus</i>			
26.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
27.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
28.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
29.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
30.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
31.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
32.	41324 <i>Ardea modesta</i> (great egret, white egret)			
33.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
34.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
35.	24610 <i>Ardeotis australis</i> (Australian Bustard)			
36.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
37.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
38.	24318 <i>Aythya australis</i> (Hardhead)			
39.	<i>Barnardius zonarius</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
40.	24319 <i>Biziura lobata</i> (Musk Duck)			
41.	24345 <i>Botaurus poiciloptilus</i> (Australasian Bittern)		□	
42.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
43.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
44.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
45.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
46.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
47.	24731 <i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		□	
48.	24733 <i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		□	
49.	24734 <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		□	
50.	48400 <i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		□	
51.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
52.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
53.	<i>Chroicocephalus novaehollandiae</i>			
54.	<i>Circus aeruginosus</i>			Y
55.	24288 <i>Circus approximans</i> (Swamp Harrier)			
56.	24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
57.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
58.	24399 <i>Columba livia</i> (Domestic Pigeon)	Y		
59.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
60.	25592 <i>Corvus coronoides</i> (Australian Raven)			
61.	24417 <i>Corvus coronoides</i> subsp. <i>perplexus</i> (Australian Raven)			
62.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)			
63.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
64.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
65.	<i>Cracticus torquatus</i>			
66.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
67.	24322 <i>Cygnus atratus</i> (Black Swan)			
68.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
69.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
70.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
71.	24470 <i>Dromaius novaehollandiae</i> (Emu)			
72.	<i>Egretta garzetta</i>			
73.	<i>Egretta novaehollandiae</i>			
74.	<i>Elanus axillaris</i>			
75.	47937 <i>Elseomyrmis melanops</i> (Black-fronted Dotterel)			
76.	<i>Eolophus roseicapillus</i>			
77.	24652 <i>Eopsaltria georgiana</i> (White-breasted Robin)			
78.	24567 <i>Epthianura albifrons</i> (White-fronted Chat)			
79.	25621 <i>Falco berigora</i> (Brown Falcon)			
80.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
81.	25623 <i>Falco longipennis</i> (Australian Hobby)			
82.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
83.	24616 <i>Falculculus frontatus</i> subsp. <i>leucogaster</i> (Western Shrike-tit, Crested Shrike-tit)			
84.	25727 <i>Fulica atra</i> (Eurasian Coot)			
85.	24761 <i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
86.	25729 <i>Gallinula tenebrosa</i> (Dusky Moorhen)			
87.	24763 <i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
88.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
89.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
90.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
91.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
92.	24295 <i>Haliastur spheurnus</i> (Whistling Kite)			
93.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
94.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
95.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
96.	24511 <i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull)			
97.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
98.	<i>Lophoictinia isura</i>			
99.	24690 <i>Macronectes giganteus</i> (Southern Giant Petrel)		IA	
100.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
101.	25650 <i>Malurus elegans</i> (Red-winged Fairy-wren)			
102.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
103.	25758 <i>Megalurus gramineus</i> (Little Grassbird)			
104.	47997 <i>Melanodryas cucullata</i> (Hooded Robin)			
105.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
106.	<i>Microcarbo melanoleucos</i>			
107.	25610 <i>Myiagra inquieta</i> (Restless Flycatcher)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
108.	24738 <i>Neophema elegans</i> (Elegant Parrot)			
109.	25564 <i>Nycticorax caledonicus</i> (Rufous Night Heron)			
110.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
111.	24328 <i>Oxyura australis</i> (Blue-billed Duck)		P4	
112.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
113.	24692 <i>Pachyptila belcheri</i> (Slender-billed Prion)			
114.	24693 <i>Pachyptila desolata</i> (Antarctic Prion)			
115.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
116.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
117.	24626 <i>Pardalotus punctatus</i> subsp. <i>xanthopyge</i> (Yellow-rumped Pardalote)			
118.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
119.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
120.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
121.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
122.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
123.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
124.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
125.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
126.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
127.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
128.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
129.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
130.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
131.	25720 <i>Platycercus icterotis</i> (Western Rosella)			
132.	24745 <i>Platycercus icterotis</i> subsp. <i>icterotis</i> (Western Rosella)			
133.	24747 <i>Platycercus spurius</i> (Red-capped Parrot)			
134.	24750 <i>Platycercus zonarius</i> subsp. <i>semitorquatus</i> (Twenty-eight Parrot)			
135.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
136.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
137.	24679 <i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
138.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			
139.	24681 <i>Poliiocephalus poliocephalus</i> (Hoary-headed Grebe)			
140.	25722 <i>Polytelis anthopeplus</i> (Regent Parrot)			
141.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
142.	24767 <i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
143.	24703 <i>Pterodroma lessonii</i> (White-headed Petrel)			
144.	<i>Purpureicephalus spurius</i>			
145.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
146.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
147.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
148.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
149.	30948 <i>Smicromis brevirostris</i> (Weebill)			
150.	24645 <i>Stagonopleura oculata</i> (Red-eared Firetail)			
151.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
152.	25655 <i>Stipiturus malachurus</i> (Southern Emu-wren)			
153.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
154.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
155.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
156.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
157.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
158.	34134 <i>Thalassarche carteri</i> (Indian Yellow-nosed Albatross)		□	
159.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
160.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
161.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
162.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
163.	48147 <i>Turnix varius</i> (Painted Button-quail)			
164.	24855 <i>Tyto novaehollandiae</i> subsp. <i>novaehollandiae</i> (Masked Owl (southwest))		P3	
165.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
166.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			
ish				
167.	<i>Bostockia porosa</i>			
168.	<i>Carassius auratus</i>			
169.	<i>Echeneis naucrates</i>			
170.	<i>Edelia vittata</i>			
171.	34028 <i>Galaxias occidentalis</i> (Western Minnow)			
172.	34030 <i>Geotria australis</i> (Pouched Lamprey)		P3	
173.	<i>Nannoperca vittata</i>			

Invertebrate

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
174.	<i>Acariformes</i> sp.			
175.	<i>Aganippe raphiduca</i>			
176.	<i>Akamptogonus novarae</i>			
177.	<i>Allothereua maculata</i>			
178.	<i>Aname mainae</i>			
179.	<i>Aname tepperi</i>			
180.	<i>Ancyliidae</i> sp.			
181.	<i>Anisops</i> sp.			
182.	<i>Antichiropus nanus</i>			
183.	<i>Antiporus occidentalis</i>			
184.	<i>Antiporus</i> sp.			
185.	<i>Arachnura higginsi</i>			
186.	<i>Araneus cyphoxis</i>			
187.	<i>Araneus senicaudatus</i>			
188.	<i>Argiope protensa</i>			
189.	<i>Arkys alticephala</i>			
190.	<i>Arkys walckenaeri</i>			
191.	<i>Arrenuridae</i> sp.			
192.	<i>Artonia flavimana</i>			
193.	<i>Artoriopsis expolita</i>			
194.	<i>Athericidae</i> sp.			
195.	<i>Aturidae</i> sp.			
196.	<i>Austracantha minax</i>			
197.	<i>Backobourkia brounii</i>			
198.	<i>Badumna insignis</i>			
199.	<i>Baetidae</i> sp.			
200.	<i>Baiami tegenarioides</i>			
201.	<i>Baiami volucripes</i>			
202.	<i>Berosus discolor</i>			
203.	<i>Berosus munitipennis</i>			
204.	47873 <i>Bertmainius opimus</i> (western pygmy trapdoor spider)		P3	
205.	<i>Botryocladus freemani</i>			
206.	<i>Caenidae</i> sp.			
207.	<i>Carabidae</i> sp.			
208.	<i>Ceinidae</i> sp.			
209.	<i>Celaenia excavata</i>			
210.	<i>Ceratopogonidae</i> sp.			
211.	<i>Cercophonius sulcatus</i>			
212.	<i>Cherax preissii</i>			
213.	<i>Cherax quinquecarinatus</i>			
214.	<i>Chironominae</i> sp.			
215.	<i>Chironomus</i> aff. <i>alternans</i> (V24) (CB)			
216.	<i>Chironomus tepperi</i>			
217.	<i>Clynotis severus</i>			
218.	<i>Coenagrionidae</i> sp.			
219.	<i>Copepoda</i> sp.			
220.	<i>Corixidae</i> sp.			
221.	<i>Cormocephalus hartmeyer</i>			
222.	<i>Corynoneura</i> sp. (V49) (SAP)			
223.	<i>Cricotopus 'parbicinctus'</i>			
224.	<i>Cryptoerithus quobba</i>			
225.	<i>Culex</i> (<i>Culex</i>) <i>australicus</i>			
226.	<i>Culicidae</i> sp.			
227.	<i>Cyclosa trilobata</i>			
228.	<i>Dicrotendipes</i> sp. A (V47) (SAP)			
229.	<i>Dingosa serrata</i>			
230.	<i>Dugesiiidae</i> sp.			
231.	<i>Dytiscidae</i> sp.			
232.	<i>Ecnomidae</i> sp.			
233.	<i>Erigone prominens</i>			
234.	<i>Eriophora biapicata</i>			
235.	<i>Gomphidae</i> sp.			
236.	<i>Gripopterygidae</i> sp.			
237.	<i>Gyrinidae</i> sp.			
238.	<i>Harrisius</i> sp.			
239.	<i>Harrisius</i> sp. B (SFM)			
240.	<i>Helochares tenuistriatus</i>			
241.	<i>Helpis minitabunda</i>			
242.	<i>Hemicorduliidae</i> sp.			
243.	<i>Hydrobiosidae</i> sp.			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
244.	<i>Hydrophilidae</i> sp.			
245.	<i>Hydropsychidae</i> sp.			
246.	<i>Hydroptilidae</i> sp.			
247.	<i>Hyriidae</i> sp.			
248.	48935 <i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)		P3	
249.	<i>Insulodrilus bifidus</i>			
250.	<i>Isopeda leishmanni</i>			
251.	<i>Isopedella cana</i>			
252.	<i>Isopedella castanea</i>			
253.	<i>Kiefferulus intertinctus</i>			
254.	<i>Lampona brevipes</i>			
255.	<i>Lampona cylindrata</i>			
256.	<i>Lampona punctigera</i>			
257.	<i>Lancetes lanceolatus</i>			
258.	<i>Latrodectus hasseltii</i>			
259.	<i>Leptoceridae</i> sp.			
260.	<i>Leptoperla australica</i>			
261.	<i>Leptophlebiid</i> genus S sp. AV1			
262.	<i>Leptophlebiidae</i> sp.			
263.	<i>Lestidae</i> sp.			
264.	<i>Libellulidae</i> sp.			
265.	<i>Limbodessus inornatus</i>			
266.	<i>Limnophyes vestitus</i> (V41)			
267.	<i>Limnoxenus zelandicus</i>			
268.	<i>Maratus pavonis</i>			
269.	<i>Megapodagrionidae</i> sp.			
270.	<i>Micronecta robusta</i>			
271.	<i>Microvelia</i> sp.			
272.	<i>Missulena granulosa</i>			
273.	<i>Missulena hoggi</i>			
274.	<i>Missulena occatoria</i>			
275.	<i>Mituliodon tarantulinus</i>			
276.	<i>Mitzoruga insularis</i>			
277.	<i>Nephila edulis</i>			
278.	<i>Newmanoperla exigua</i>			
279.	<i>Nicodamus mainae</i>			
280.	<i>Nousia</i> sp. AV16			
281.	<i>Nunciella aspera</i>			
282.	<i>Ocrisiona parmeliae</i>			
283.	<i>Oligochaeta</i> sp.			
284.	<i>Ommatoiulus moreletii</i>			
285.	<i>Opisthopora</i> sp.			
286.	<i>Orthoclaadiinae</i> sp.			
287.	<i>Ostracoda</i> (unident.)			
288.	33989 <i>Pachysaga strobila</i> (Vasse Pachysaga (Busselton-Donnybrook), cricket)		P1	
289.	<i>Palaemonidae</i> sp.			
290.	<i>Paracymus spenceri</i>			
291.	<i>Parakiefferiella variegatus</i>			
292.	<i>Paralimnophyes pullulus</i> (V42)			
293.	<i>Paramelitidae</i> sp.			
294.	<i>Paramerina levidensis</i>			
295.	<i>Parastacidae</i> sp.			
296.	<i>Pentaneurini</i> genus V20			
297.	<i>Pertiidae</i> sp.			
298.	<i>Philopotamidae</i> sp.			
299.	<i>Pholcus phalangioides</i>			
300.	<i>Phreatoicidae</i> sp.			
301.	<i>Phreodrilidae</i> sp.			
302.	<i>Planorbidae</i> sp.			
303.	<i>Platorish gelorup</i>			
304.	<i>Platynectes decempunctatus</i> var <i>polygrammus</i>			
305.	<i>Platynectes</i> sp.			
306.	<i>Polypedium</i> nr. <i>convexum</i> (SAP)			
307.	<i>Polypedium watsoni</i>			
308.	<i>Pyrallidae</i> sp.			
309.	<i>Rhantus suturalis</i>			
310.	<i>Riethia</i> v5			
311.	<i>Scirtidae</i> sp.			
312.	<i>Scutigera indecisa</i>			
313.	<i>Simuliidae</i> sp.			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
314.	<i>Staphylinidae sp.</i>			
315.	<i>Sternopriscus browni</i>			
316.	<i>Sternopriscus sp.</i>			
317.	<i>Tabanidae sp.</i>			
318.	<i>Tamopsis distinguenda</i>			
319.	<i>Tanypodinae sp.</i>			
320.	<i>Tanytarsus nr K5</i>			
321.	<i>Tanytarsus palmatus</i>			
322.	<i>Tasmanicosa leuckartii</i>			
323.	<i>Telephlebiidae sp.</i>			
324.	<i>Tetragnatha demissa</i>			
325.	<i>Tipulidae sp.</i>			
326.	<i>Triplectides sp. AV21 (SFM)</i>			
327.	<i>Urodacus novaehollandiae</i>			
328.	<i>Uvarus pictipes</i>			
329.	<i>Veliidae sp.</i>			
330.	<i>Venator immansueta</i>			
331.	<i>Venatrix pullastra</i>			
332.	34113 <i>Westralunio carteri (Carter's Freshwater Mussel)</i>		□	
333.	<i>Zachria flavicoma</i>			

Mammal

334.	24088 <i>Antechinus flavipes subsp. leucogaster (Yellow-footed Antechinus, Mardo)</i>			
335.	24162 <i>Bettongia penicillata subsp. ogilbyi (Woylie, Brush-tailed Bettong)</i>		□	
336.	24251 <i>Bos taurus (European Cattle)</i>	Y		
337.	24072 <i>Caperea marginata (Pygmy Right Whale)</i>			
338.	24086 <i>Cercartetus concinnus (Western Pygmy-possum, Mundarda)</i>			
339.	24186 <i>Chalinolobus gouldii (Gould's Wattled Bat)</i>			
340.	24187 <i>Chalinolobus morio (Chocolate Wattled Bat)</i>			
341.	24092 <i>Dasyurus geoffroyi (Chuditch, Western Quoll)</i>		□	
342.	24043 <i>Eubalaena australis (Southern Right Whale)</i>		□	
343.	24189 <i>Falsistrellus mackenziei (Western False Pipistrelle, Western Falsistrelle)</i>		P4	
344.	24056 <i>Grampus griseus (Risso's Dolphin)</i>			
345.	24215 <i>Hydromys chrysogaster (Water-rat, Rakali)</i>		P4	
346.	48588 <i>Isoodon fusciventer (Quenda, southwestern brown bandicoot)</i>		P4	
347.	24132 <i>Macropus fuliginosus (Western Grey Kangaroo)</i>			
348.	24076 <i>Mesoplodon bowdoini (Andrew's Beaked Whale)</i>			
349.	24078 <i>Mesoplodon grayi (Gray's Beaked Whale)</i>			
350.	24213 <i>Mirounga leonina (Southern Elephant Seal)</i>			
351.	24223 <i>Mus musculus (House Mouse)</i>	Y		
352.	48022 <i>Notamacropus irma (Western Brush Wallaby)</i>		P4	
353.	24194 <i>Nyctophilus geoffroyi (Lesser Long-eared Bat)</i>			
354.	25508 <i>Phascogale tapoatafa (Brush-tailed Phascogale)</i>		S	
355.	48070 <i>Phascogale tapoatafa subsp. wambenger (South-western Brush-tailed Phascogale, Wambenger)</i>		S	
356.	24166 <i>Pseudocheirus occidentalis (Western Ringtail Possum, ngwayir)</i>		□	
357.	24245 <i>Rattus rattus (Black Rat)</i>	Y		
358.	24145 <i>Setonix brachyurus (Quokka)</i>		□	
359.	24111 <i>Sminthopsis gilberti (Gilbert's Dunnart)</i>			
360.	25521 <i>Trichosurus vulpecula (Common Brushtail Possum)</i>			
361.	24158 <i>Trichosurus vulpecula subsp. vulpecula (Common Brushtail Possum)</i>			
362.	30954 <i>Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)</i>			
363.	24206 <i>Vespadelus regulus (Southern Forest Bat)</i>			

Reptile

364.	42368 <i>Acritoscincus trilineatus (Western Three-lined Skink)</i>			
365.	24990 <i>Aprasia pulchella (Granite Worm-lizard)</i>			
366.	25335 <i>Caretta caretta (Loggerhead Turtle)</i>		□	
367.	25336 <i>Chelonia mydas (Green Turtle)</i>		□	
368.	24980 <i>Christinus marmoratus (Marbled Gecko)</i>			
369.	30893 <i>Cryptoblepharus buchananii</i>			
370.	25047 <i>Ctenotus impar</i>			
371.	25049 <i>Ctenotus labillardieri</i>			
372.	41641 <i>Ctenotus ora (Coastal Plains Skink)</i>		P3	
373.	25096 <i>Egernia kingii (King's Skink)</i>			
374.	25100 <i>Egernia napoleonis</i>			
375.	25250 <i>Elapognathus coronatus (Crowned Snake)</i>			
376.	30919 <i>Hemiergis gracilipes (skink)</i>			
377.	25118 <i>Hemiergis peronii subsp. tridactyla</i>			
378.	25119 <i>Hemiergis quadrilineata</i>			
379.	25131 <i>Lerista distinguenda</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
380.	25133 <i>Lerista elegans</i>			
381.	25005 <i>Lialis burtonis</i>			
382.	42413 <i>Lissolepis luctuosa</i> (Western Swamp Skink)			
383.	25184 <i>Menetia greyii</i>			
384.	25191 <i>Morethia lineocellata</i>			
385.	25192 <i>Morethia obscura</i>			
386.	25252 <i>Notechis scutatus</i> (Tiger Snake)			
387.	25255 <i>Parasuta nigriceps</i>			
388.	25510 <i>Pogona minor</i> (Dwarf Bearded Dragon)			
389.	24907 <i>Pogona minor subsp. minor</i> (Dwarf Bearded Dragon)			
390.	25259 <i>Pseudonaja affinis subsp. affinis</i> (Dugite)			
391.	25266 <i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
392.	25519 <i>Tiliqua rugosa</i>			
393.	25207 <i>Tiliqua rugosa subsp. rugosa</i>			
394.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			

Conservation Codes

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

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



EPBC Act Protected Matters Report

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

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

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

Report created 08/03/19 14:42:56

[Summary](#)

[Details](#)

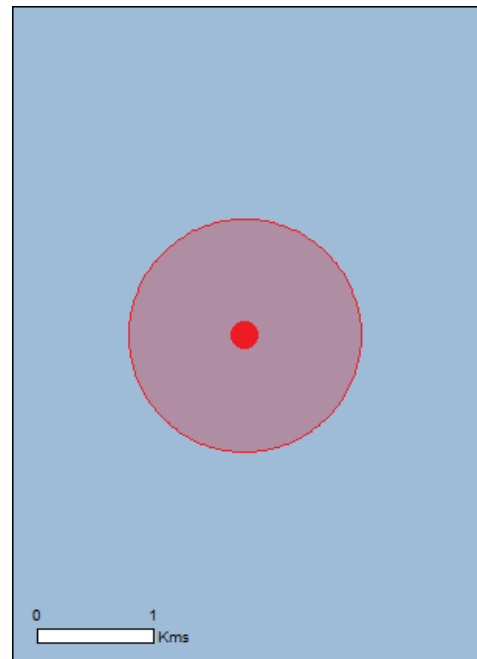
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

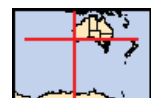
[Acknowledgements](#)



This map may contain data which are
Commonwealth of Australia
Geoscience Australia, PSMA 2010

[Coordinates](#)

Buffer 1.0 km



Summary

Matters of National Environmental Significance

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

World Heritage Properties	None
National Heritage Places	None
Wetlands of International Importance	None
Great Barrier Reef Marine Park	None
Commonwealth Marine Area	None
Listed Threatened Ecological Communities	1
Listed Threatened Species	21
Listed Migratory Species	9

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land	None
Commonwealth Heritage Places	None
Listed Marine Species	13
Whales and Other Cetaceans	None
Critical Habitats	None
Commonwealth Reserves (Terrestrial)	None
Australian Marine Parks	None

Extra Information

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

State and Territory Reserves	None
Regional Forest Agreements	1
Invasive Species	22
Nationally Important Wetlands	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information](#)

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

Name	Status	Type of Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information](#)

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

Birds

Calidris ferruginea Curlew Sandpiper 1856	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Carrak 167034	Vulnerable	Species or species habitat likely to occur within area
Calyptorhynchus baudinii Baudin's Cockatoo, Long-billed Black-Cockatoo 1769	Endangered	Breeding likely to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo 159523	Endangered	Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew 1847	Critically Endangered	Species or species habitat may occur within area

Mammals

Dasyurus leopoldi Chuditch, Western Quoll 1330	Vulnerable	Species or species habitat likely to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Numbayir, Womp, Woder, Nabor, Noolanbit 125911	Critically Endangered	Species or species habitat known to occur within area

Other

Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel 186266	Vulnerable	Species or species habitat known to occur within area
---	------------	---

Plants

Banksia nivea subsp. uliginosa Swamp Bonepot 182766	Endangered	Species or species habitat may occur within area
Banksia squarrosa subsp. arillacea Whicher Range Dryandra 182769	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Brachyscias verecundus Ironstone Brachyscias 81321	Critically Endangered	Species or species habitat may occur within area
Caladenia hoffmanii Hoffman's Spiderorchid 56719	Endangered	Species or species habitat may occur within area
Chamelaucium sp. S coastal plain (R.D.Royce 4872) Royce's Wattleflower 87814	Vulnerable	Species or species habitat may occur within area
Drakaea micrantha Dwarf Hammerorchid 56755	Vulnerable	Species or species habitat may occur within area
Eleocharis keigheryi Keighery's Eleocharis 64893	Vulnerable	Species or species habitat may occur within area
Gastrolobium papilio Butterfly-leaved Gastrolobium 78415	Endangered	Species or species habitat may occur within area
Lambertia echinata subsp. occidentalis Western Prickly Oneysuckle 64528	Endangered	Species or species habitat may occur within area
Sphenotoma drummondii Mountain Paperheath 21160	Endangered	Species or species habitat may occur within area
Synaphea sp. Fairbridge Farm (D. Papenfus 696) Selena's Synaphea 82881	Critically Endangered	Species or species habitat may occur within area
Synaphea sp. Serpentine (G.R. Brand 103) 86879	Critically Endangered	Species or species habitat may occur within area
Synaphea stenoloba Dellin Cup Synaphea 66311	Endangered	Species or species habitat may occur within area

Listed Migratory Species [Resource Information](#)

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

Name	Threatened	Type of Presence
Migratory Marine Birds		

Apus pacificus Fork-tailed Shearwater 678		Species or species habitat likely to occur within area
--	--	--

Migratory Terrestrial Species

Motacilla cinerea Grey Wattlebird 642		Species or species habitat may occur within area
--	--	--

Migratory Wetlands Species

Actitis hypoleucos Common Sandpiper 59309		Species or species habitat may occur within area
--	--	--

Calidris acuminata Sharp-tailed Sandpiper 874		Species or species habitat may occur within area
--	--	--

Calidris ferruginea Curlew Sandpiper 856	Critically Endangered	Species or species habitat may occur within area
---	-----------------------	--

Name	Threatened	Type of Presence
Calidris melanotos Pectoral Sandpiper 1858		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew 1847	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Sperechthys 1952		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank 1832		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species	Resource Information
Species is listed under a different scientific name on the EPBC Act Threatened Species list.	
Name	Type of Presence
Birds	
Actitis hypoleucos Common Sandpiper 159309	Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift 1678	Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret 159541	Species or species habitat likely to occur within area
Ardea ibis Cattle Egret 159542	Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper 1874	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper 1856	Critically Endangered Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper 1858	Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-eagle 1943	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater 1670	Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail 1642	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew 1847	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Hairy Woodpecker 1952		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank 1832		Species or species habitat likely to occur within area

Extra Information

Regional Forest Agreements [Resource Information](#)

Note that all areas with completed RFAs have been included.

Name	State
South West WA RFA	Western Australia

Invasive Species [Resource Information](#)

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

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard 1974		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon 1803		Species or species habitat likely to occur within area
Streptopelia senegalensis Australian Turtle Dove, Australian Dove 1781		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling 1389		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle 116		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog 182654		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat 119		Species or species habitat likely to occur within area
Mus musculus House Mouse 1120		Species or species habitat likely to occur within area

Name	Status	Type of Presence
<i>Lepus cuniculus</i> Rabbit, European Rabbit 128		Species or species habitat likely to occur within area
<i>Rattus rattus</i> Black Rat, Ship Rat 84		Species or species habitat likely to occur within area
<i>Sus scrofa</i> Pig 6		Species or species habitat likely to occur within area
<i>Vulpes vulpes</i> Red Fox, Fox 18		Species or species habitat likely to occur within area
Plants		
<i>Asparagus asparagoides</i> Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax, Asparagus 22473		Species or species habitat likely to occur within area
<i>Brachiaria mutica</i> Para Grass 5879		Species or species habitat may occur within area
<i>Cenchrus ciliaris</i> Buffelgrass, Black Buffelgrass 20213		Species or species habitat may occur within area
<i>Chrysanthemoides monilifera</i> Bitou Bush, Boneseed 18983		Species or species habitat may occur within area
<i>Genista linifolia</i> Flaxleaved Broom, Mediterranean Broom, Flax Broom 2800		Species or species habitat likely to occur within area
<i>Genista</i> sp. <i>Genista monspessulana</i> Broom 67538		Species or species habitat may occur within area
<i>Ulex europaea</i> Ulex, Common Ulex 9160		Species or species habitat may occur within area
<i>Pinus radiata</i> Radiata Pine Monterey Pine, Insular Pine, Wilding Pine 20780		Species or species habitat may occur within area
<i>Rubus fruticosus</i> aggregate Blackberry, European Blackberry 68406		Species or species habitat likely to occur within area
<i>Salix</i> spp. except <i>S. babylonica</i> , <i>S. calodendron</i> and <i>S. reichardtii</i> Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow 68497		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

Where very little information is available for species or large number of maps are required in a short time frame, maps are derived either from 0.04 or 0.02 decimal degree cells by an automated process using polygon capture techniques (static 100 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, 100 or 250 map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

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

- migratory and
- marine

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

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

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

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

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

Coordinates

33.51841 115.74103

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.

[Commonwealth of Australia](#)
Department of the Environment
GP Box 787
Canberra ACT 2601 Australia
61 2 6274 1111

APPENDIX D

BLACK COCKATOO HABITAT TREE DETAILS

Habitat Trees

DBH >50cm

Datum - GDA94

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

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt001	50H	383532	6290820	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt002	50H	383525	6290809	Marri	20+	>50	0		No Signs	No Signs	No	
wpt003	50H	383342	6290819	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt004	50H	383294	6290802	Marri	20+	>50	0		No Signs	No Signs	No	
wpt005	50H	383260	6290797	Marri	20+	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt006	50H	383185	6290812	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt007	50H	383129	6290813	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt008	50H	383120	6290814	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt009	50H	383105	6290804	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt010	50H	383048	6290812	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt011	50H	382830	6290809	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt012	50H	382822	6290787	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt013	50H	382826	6290789	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt014	50H	382803	6290796	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt015	50H	382793	6290785	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt016	50H	382778	6290802	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt017	50H	382765	6290801	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt018	50H	382750	6290795	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt019	50H	382742	6290756	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt020	50H	382751	6290746	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt021	50H	382746	6290733	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt022	50H	382768	6290741	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt023	50H	382761	6290745	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt024	50H	382774	6290733	Marri	10-15	>50	0		No Signs	No Signs	No	
wpt025	50H	382777	6290728	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt026	50H	382790	6290738	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt027	50H	382805	6290751	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt028	50H	382811	6290745	Dead Unknown	15-20	>50	0		No Signs	No Signs	No	
wpt029	50H	382814	6290746	Marri	15-20	>50	0		No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt030	50H	382819	6290739	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt031	50H	382840	6290737	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt032	50H	382838	6290770	Dead Unknown	5-10	>50	1	Medium	No Signs	No Signs	No	
wpt033	50H	382828	6290776	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt034	50H	382803	6290785	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt035	50H	382800	6290774	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt036	50H	382781	6290759	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt037	50H	382926	6290781	Marri	20+	>50	0		No Signs	No Signs	No	
wpt038	50H	383405	6290315	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt039	50H	382927	6290793	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt040	50H	382941	6290781	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt041	50H	382955	6290773	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt042	50H	382990	6290788	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt043	50H	382994	6290799	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt044	50H	383022	6290775	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt045	50H	383037	6290762	Jarrah	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	
wpt046	50H	383060	6290774	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt047	50H	383069	6290762	Jarrah	5-10	>50	0		No Signs	No Signs	No	
wpt048	50H	383109	6290784	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt049	50H	383113	6290751	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt050	50H	383134	6290737	Jarrah	15-20	>50	1	Medium	No Signs	No Signs	No	
wpt051	50H	383124	6290736	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt052	50H	383126	6290733	Marri	20+	>50	0		No Signs	No Signs	No	
wpt053	50H	383120	6290732	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt054	50H	383104	6290737	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt055	50H	383104	6290721	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt056	50H	383104	6290727	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt057	50H	383100	6290732	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt058	50H	383079	6290717	Marri	20+	>50	0		No Signs	No Signs	No	
wpt059	50H	383074	6290715	Marri	20+	>50	0		No Signs	No Signs	No	
wpt060	50H	383081	6290696	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt061	50H	383071	6290692	Marri	10-15	>50	0		No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt062	50H	383055	6290669	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt063	50H	383040	6290670	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt064	50H	383037	6290638	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt065	50H	383037	6290634	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt066	50H	383029	6290619	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt067	50H	383010	6290612	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt068	50H	382973	6290637	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt069	50H	382975	6290659	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt070	50H	382972	6290660	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt071	50H	382966	6290675	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt073	50H	382949	6290692	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt074	50H	382961	6290713	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt075	50H	382970	6290776	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt076	50H	383002	6290757	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt077	50H	383005	6290751	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt078	50H	383012	6290737	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt079	50H	383033	6290728	Marri	10-15	>50	2+	Medium	No Signs	No Signs	No	
wpt080	50H	383063	6290727	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt081	50H	383074	6290735	Jarrah	10-15	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt082	50H	383086	6290766	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt083	50H	383005	6290727	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt084	50H	383004	6290711	Marri	20+	>50	0		No Signs	No Signs	No	
wpt085	50H	382996	6290698	Jarrah	20+	>50	2+	Small	No Signs	No Signs	No	
wpt086	50H	382993	6290712	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt087	50H	382992	6290715	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt088	50H	382989	6290718	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt089	50H	382985	6290727	Jarrah	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Possible knot hole and spout branch
wpt090	50H	383279	6290747	Marri	20+	>50	0		No Signs	No Signs	No	
wpt091	50H	383289	6290746	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt092	50H	383296	6290721	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt093	50H	383293	6290711	Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt094	50H	383276	6290725	Jarrah	15-20	>50	2+	Medium-Large (cockatoo)	No Signs	No Signs	Yes	Possible knot hole - some signs of use?

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt095	50H	383265	6290683	Marri	15-20	>50	2+	Large (cockatoo)	No Signs	No Signs	Yes	Larh knot hole
wpt096	50H	383278	6290678	Dead Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Possible large top opening hollow
wpt097	50H	383279	6290662	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt098	50H	383259	6290667	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt099	50H	383246	6290663	Jarrah	15-20	>50	2+	Medium-Large (cockatoo)	No Signs	No Signs	Yes	Possible large spout
wpt100	50H	383255	6290650	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt101	50H	383253	6290633	Marri	20+	>50	0		No Signs	No Signs	No	
wpt102	50H	383253	6290622	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt103	50H	383251	6290621	Marri	20+	>50	0		No Signs	No Signs	No	
wpt104	50H	383238	6290621	Jarrah	15-20	>50	1	Medium	No Signs	Rub marks	No	
wpt105	50H	383229	6290629	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt106	50H	383223	6290629	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt107	50H	383259	6290615	Marri	20+	>50	0		No Signs	No Signs	No	
wpt108	50H	383267	6290618	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt109	50H	383268	6290614	Marri	15-20	>50	1	Medium	No Signs	No Signs	No	
wpt110	50H	383275	6290610	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt111	50H	383319	6290608	Marri	20+	>50	0		No Signs	No Signs	No	
wpt112	50H	383348	6290606	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt113	50H	383361	6290598	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt114	50H	383360	6290589	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt115	50H	383373	6290594	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt116	50H	383381	6290600	Marri	20+	>50	0		No Signs	No Signs	No	
wpt117	50H	383390	6290605	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt118	50H	383400	6290612	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt119	50H	383397	6290593	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt120	50H	383423	6290584	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt121	50H	383414	6290607	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt122	50H	383474	6290601	Marri	20+	>50	0		No Signs	No Signs	No	
wpt123	50H	383476	6290614	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt124	50H	383479	6290622	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt125	50H	383475	6290638	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt126	50H	383487	6290632	Jarrah	15-20	>50	0		No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt127	50H	383525	6290672	Marri	20+	>50	0		No Signs	No Signs	No	
wpt128	50H	383524	6290681	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt129	50H	383534	6290687	Dead Marri	15-20	>50	2+	Medium-Large (cockatoo)	No Signs	No Signs	Yes	
wpt130	50H	383532	6290691	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt131	50H	383545	6290699	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt132	50H	383543	6290706	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt133	50H	383536	6290715	Marri	20+	>50	0		No Signs	No Signs	No	
wpt134	50H	383518	6290703	Dead Jarrah	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt135	50H	383522	6290724	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt136	50H	383517	6290731	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt137	50H	383517	6290749	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt138	50H	383502	6290764	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt139	50H	383481	6290756	Marri	20+	>50	0		No Signs	No Signs	No	
wpt140	50H	383463	6290767	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt141	50H	383452	6290768	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt142	50H	383440	6290772	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt143	50H	383434	6290769	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt144	50H	383430	6290764	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt145	50H	383412	6290776	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt146	50H	383397	6290772	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt147	50H	383388	6290772	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt148	50H	383374	6290767	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt149	50H	383373	6290771	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt150	50H	383370	6290758	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt151	50H	383365	6290755	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt152	50H	383362	6290767	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt153	50H	383353	6290765	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt154	50H	383348	6290765	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt155	50H	383324	6290717	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt156	50H	383316	6290749	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt157	50H	383329	6290685	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt158	50H	383319	6290671	Marri	15-20	>50	0		No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt159	50H	383305	6290655	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt160	50H	383302	6290653	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt161	50H	383307	6290635	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt162	50H	383317	6290631	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt163	50H	383342	6290634	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt164	50H	383348	6290633	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt165	50H	383357	6290616	Dead Marri	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	
wpt166	50H	383370	6290624	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt167	50H	383376	6290624	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt168	50H	383359	6290655	Jarrah	10-15	>50	0		No Signs	No Signs	No	
wpt169	50H	383384	6290636	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt170	50H	383390	6290631	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt171	50H	383410	6290640	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt172	50H	383419	6290641	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt173	50H	383422	6290637	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt174	50H	383425	6290642	Dead Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt175	50H	383436	6290657	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt176	50H	383451	6290653	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt177	50H	383455	6290655	Dead Marri	15-20	>50	0		No Signs	No Signs	No	
wpt178	50H	383453	6290655	Jarrah	10-15	>50	0		No Signs	No Signs	No	
wpt179	50H	383458	6290670	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt180	50H	383472	6290664	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt181	50H	383480	6290654	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt182	50H	383469	6290678	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt183	50H	383492	6290683	Dead Unknown	10-15	>50	1	Medium-Large (cockatoo)	No Signs	No Signs	Yes	Possible large spout
wpt184	50H	383493	6290684	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt185	50H	383503	6290685	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt186	50H	383507	6290693	Marri	20+	>50	0		No Signs	No Signs	No	
wpt187	50H	383510	6290703	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt188	50H	383521	6290697	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt189	50H	383503	6290717	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt190	50H	383481	6290718	Jarrah	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Possible large top opening hollow

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt191	50H	383466	6290714	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt192	50H	383476	6290744	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt193	50H	383452	6290733	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt194	50H	383419	6290731	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt195	50H	383419	6290728	Marri	15-20	>50	1	Large (cockatoo)	No Signs	Rub marks	Yes	Possible large knot hole
wpt196	50H	383409	6290723	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt197	50H	383404	6290724	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt198	50H	383397	6290748	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt199	50H	383377	6290708	Marri	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt200	50H	383402	6290670	Dead Unknown	10-15	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt201	50H	383399	6290648	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt202	50H	383417	6290681	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt203	50H	383429	6290681	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt204	50H	383430	6290685	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt205	50H	383425	6290701	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt206	50H	383420	6290702	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt207	50H	383452	6290693	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt208	50H	383395	6290311	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt209	50H	383385	6290313	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt210	50H	383306	6290306	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt211	50H	383243	6290304	Dead Unknown	15-20	>50	0		No Signs	No Signs	No	
wpt212	50H	383233	6290304	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt213	50H	383219	6290320	Dead Unknown	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt214	50H	383200	6290330	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt215	50H	383200	6290348	Jarrah	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Numerous possible large hollows
wpt216	50H	383166	6290337	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt217	50H	383163	6290325	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt218	50H	383142	6290316	Dead Marri	20+	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt219	50H	383124	6290328	Dead Unknown	15-20	>50	2+	Medium-Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt220	50H	383110	6290319	Dead Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt221	50H	383108	6290309	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt222	50H	383094	6290325	Marri	5-10	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout (~4m high)

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt223	50H	383091	6290324	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt224	50H	383083	6290307	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt225	50H	383081	6290308	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt226	50H	383070	6290339	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt227	50H	383061	6290335	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt228	50H	383056	6290329	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt229	50H	383037	6290325	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt230	50H	383024	6290308	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt231	50H	382999	6290328	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt232	50H	382986	6290312	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt233	50H	382955	6290304	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt234	50H	382951	6290302	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt235	50H	382914	6290302	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt236	50H	382900	6290315	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt237	50H	382872	6290309	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt238	50H	382819	6290308	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt239	50H	382814	6290310	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt240	50H	382800	6290317	Dead Jarrah	10-15	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Possible hollows in large branches
wpt241	50H	382798	6290317	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt242	50H	382771	6290339	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt243	50H	382780	6290338	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt244	50H	382813	6290349	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt245	50H	382819	6290362	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt246	50H	382831	6290350	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt247	50H	382830	6290337	Marri	5-10	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt248	50H	382848	6290337	Jarrah	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt249	50H	382856	6290361	Marri	5-10	>50	1	Medium	No Signs	No Signs	No	
wpt250	50H	382919	6290342	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt251	50H	382890	6290378	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt252	50H	382908	6290388	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt253	50H	382881	6290382	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt254	50H	382892	6290391	Dead Unknown	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt255	50H	382882	6290399	Jarrah	10-15	>50	0		No Signs	No Signs	No	
wpt256	50H	382906	6290414	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt257	50H	382894	6290431	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt258	50H	382886	6290483	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt259	50H	382901	6290504	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt260	50H	382953	6290514	Dead Unknown	0-5	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt261	50H	382951	6290579	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt262	50H	382944	6290584	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt263	50H	382970	6290594	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt264	50H	382990	6290602	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt265	50H	382998	6290597	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt266	50H	383009	6290589	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt267	50H	382989	6290571	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt268	50H	382997	6290561	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt269	50H	382981	6290519	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt270	50H	382981	6290519	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt271	50H	382978	6290519	Jarrah	15-20	>50	1	Medium	No Signs	No Signs	No	
wpt272	50H	382977	6290512	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt273	50H	382973	6290509	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt274	50H	382986	6290479	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt275	50H	383002	6290469	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt276	50H	383006	6290468	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt277	50H	383005	6290440	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt278	50H	383033	6290438	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt279	50H	383061	6290432	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt280	50H	383021	6290422	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt281	50H	383032	6290387	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt282	50H	383026	6290375	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt283	50H	383038	6290378	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt284	50H	383032	6290345	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt285	50H	383025	6290350	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt286	50H	383022	6290350	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt287	50H	382997	6290349	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt288	50H	383000	6290366	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt289	50H	382982	6290342	Dead Unknown	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt290	50H	382964	6290347	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt291	50H	382936	6290414	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt292	50H	382931	6290418	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt293	50H	382936	6290418	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt294	50H	382926	6290433	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt295	50H	382938	6290448	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt296	50H	382949	6290438	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt297	50H	382929	6290460	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt298	50H	382931	6290473	Jarrah	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt299	50H	382982	6290448	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt300	50H	382985	6290455	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt301	50H	382972	6290441	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt302	50H	382970	6290432	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt303	50H	382972	6290407	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt304	50H	382964	6290390	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt305	50H	382999	6290401	Jarrah	0-5	>50	0		No Signs	No Signs	No	
wpt306	50H	383056	6290408	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt307	50H	383062	6290418	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt308	50H	383071	6290408	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt309	50H	383097	6290418	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt310	50H	383106	6290447	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt311	50H	383099	6290462	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt312	50H	383089	6290497	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt313	50H	383099	6290500	Jarrah	15-20	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt314	50H	383106	6290498	Marri	20+	>50	0		No Signs	No Signs	No	
wpt315	50H	383120	6290491	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt316	50H	383115	6290511	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt317	50H	383167	6290516	Jarrah	20+	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Possible large fissure
wpt318	50H	383172	6290501	Jarrah	20+	>50	2+	Small-Medium	No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt319	50H	383171	6290531	Jarrah	15-20	>50	2+	Small	No Signs	No Signs	No	
wpt320	50H	383197	6290539	Dead Unknown	0-5	>50	0		No Signs	No Signs	No	
wpt321	50H	383205	6290547	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt322	50H	383196	6290579	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt323	50H	383214	6290586	Marri	20+	>50	0		No Signs	No Signs	No	
wpt324	50H	383207	6290564	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt325	50H	383209	6290542	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt326	50H	383216	6290554	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt327	50H	383227	6290553	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt328	50H	383216	6290536	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt329	50H	383224	6290524	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt330	50H	383208	6290518	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt331	50H	383228	6290498	Marri	20+	>50	0		No Signs	No Signs	No	
wpt332	50H	383211	6290494	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt333	50H	383211	6290480	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt334	50H	383204	6290473	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt335	50H	383199	6290457	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt336	50H	383215	6290455	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt337	50H	383211	6290439	Marri	5-10	>50	0		No Signs	No Signs	No	
wpt338	50H	383212	6290412	Marri	20+	>50	0		No Signs	No Signs	No	
wpt339	50H	383227	6290381	Marri	20+	>50	0		No Signs	No Signs	No	
wpt340	50H	383190	6290364	Marri	20+	>50	0		No Signs	No Signs	No	
wpt341	50H	383175	6290378	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt342	50H	383173	6290382	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt343	50H	383171	6290389	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt344	50H	383161	6290369	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt345	50H	383133	6290350	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt346	50H	383101	6290346	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt347	50H	383084	6290370	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt348	50H	383140	6290393	Marri	20+	>50	0		No Signs	No Signs	No	
wpt349	50H	383146	6290407	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt350	50H	383160	6290415	Marri	15-20	>50	0		No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt351	50H	383142	6290444	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt352	50H	383126	6290469	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt353	50H	383129	6290477	Jarrah	5-10	>50	1	Medium	No Signs	No Signs	No	
wpt354	50H	383129	6290488	Dead Unknown	5-10	>50	1	Medium	No Signs	No Signs	No	
wpt355	50H	383179	6290484	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt356	50H	383193	6290490	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt357	50H	383186	6290528	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt358	50H	383190	6290447	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt359	50H	383181	6290427	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt360	50H	383195	6290416	Marri	15-20	>50	1	Medium	No Signs	No Signs	No	
wpt361	50H	383184	6290408	Dead Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt362	50H	383193	6290384	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt363	50H	383237	6290480	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt364	50H	383260	6290494	Marri	20+	>50	0		No Signs	No Signs	No	
wpt365	50H	383265	6290498	Marri	15-20	>50	2+	Small-Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt366	50H	383249	6290523	Marri	20+	>50	0		No Signs	No Signs	No	
wpt367	50H	383265	6290554	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt368	50H	383270	6290554	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt369	50H	383267	6290475	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt370	50H	383276	6290464	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt371	50H	383262	6290440	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt372	50H	383275	6290434	Marri	20+	>50	0		No Signs	No Signs	No	
wpt373	50H	383253	6290405	Jarrah	20+	>50	2+	Small-Medium	No Signs	No Signs	No	
wpt374	50H	383240	6290398	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt375	50H	383232	6290389	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt376	50H	383241	6290370	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt377	50H	383250	6290339	Jarrah	15-20	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt378	50H	383269	6290353	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt379	50H	383272	6290342	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt380	50H	383268	6290342	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt381	50H	383262	6290333	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt382	50H	383278	6290354	Jarrah	15-20	>50	0		No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size Range (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt383	50H	383289	6290346	Marri	10-15	>50	0		No Signs	No Signs	No	
wpt384	50H	383303	6290328	Jarrah	5-10	>50	1	Large (cockatoo)	No Signs	No Signs	Yes	Possible spout
wpt385	50H	383312	6290326	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt386	50H	383316	6290336	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt387	50H	383328	6290339	Marri	20+	>50	0		No Signs	No Signs	No	
wpt388	50H	383356	6290328	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt389	50H	383354	6290324	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt390	50H	383351	6290343	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt391	50H	383383	6290347	Marri	20+	>50	0		No Signs	No Signs	No	
wpt392	50H	383386	6290344	Marri	20+	>50	0		No Signs	No Signs	No	
wpt393	50H	383383	6290332	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt394	50H	383389	6290328	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt395	50H	383405	6290325	Marri	20+	>50	0		No Signs	No Signs	No	
wpt396	50H	383459	6290421	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt397	50H	383461	6290427	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt398	50H	383458	6290429	Marri	20+	>50	0		No Signs	No Signs	No	
wpt399	50H	383452	6290446	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt400	50H	383437	6290459	Marri	15-20	>50	0		No Signs	No Signs	No	
wpt401	50H	383462	6290467	Marri	20+	>50	0		No Signs	No Signs	No	
wpt402	50H	383468	6290468	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt403	50H	383466	6290445	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt404	50H	383476	6290441	Jarrah	20+	>50	0		No Signs	No Signs	No	
wpt405	50H	383474	6290425	Jarrah	15-20	>50	0		No Signs	No Signs	No	
wpt406	50H	383487	6290431	Dead Unknown	15-20	>50	2+	Small	No Signs	No Signs	No	

DISCLAIMER

This fauna assessment report (“the report”) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Greg Harewood (“the Author”). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. In accordance with the scope of services, the Author has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

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

Within the limitations imposed by the scope of services, the field assessment and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

In preparing the report, the Author has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report (“the data”). Except as otherwise stated in the report, the Author 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 (“conclusions”) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. The Author will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to the Author.

The report has been prepared for the benefit of the Client and no other party. The Author 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 the Author or for any loss or damage suffered by any other party relying upon 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 and should make their own enquiries and obtain independent advice in relation to such matters.

The Author will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.