Mt Marion Hamptons Tenements Terrestrial Fauna Survey

Basic Fauna and Targeted Malleefowl, Chuditch, and ABAB Surveys

Mineral Resources Limited

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SLR Project No.: 675.VX5937.00001

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19 April 2024

Revision: 1.0

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1.0	19 April 2024	L. Berry K. Griffith S. Girando	E. Webb	

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Mineral Resources Limited (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

Executive Summary

Mineral Resources Limited commissioned SLR Consulting Australia Pty Ltd to undertake a basic fauna survey and targeted surveys for Malleefowl (*Leipoa ocellata*), Chuditch (*Dasyurus geofroii*), and Arid Bronze Azure Butterfly (ABAB) (*Ogyris petrina*) to inform approvals for the proposed Mt Marion Hamptons Tenements Terrestrial Fauna Survey. The Survey Area covers approximately 23,555 hectares and is located approximately 25 km south of Kalgoorlie townsite, in the Goldfields bioregion of Western Australia.

The objective of the survey was to identify key fauna values within the Survey Area as part of the environmental impact assessment process. This report presents the findings of the survey.

The fauna survey used a variety of detection methods including baited camera traps for chuditch, LiDAR for detection of Mallefowl mounds, transects for the host ants used by the ABAB, active searches, and opportunistic observations. Fauna habitat mapping was based on a combination of field observations, fauna habitat assessment data, and aerial imagery.

Eight fauna habitats were mapped within the Survey Area. The Drainage Line and Shrubland/Heathland habitats are preferred habitats for significant fauna such as the Malleefowl (*Leipoa ocellata*) and Carnaby's Cockatoo (*Zanda latirostris*). The Eucalypt Woodland habitat is suitable for ABAB and Inland Hairstreak Butterfly (*Jalmenus aridus*) as this is the preferred habitat of their respective host ants and plants. Eucalypt Woodland is also valuable supporting habitat for the Malleefowl, particularly when near Shrubland/Heathland habitat. Seasonal water sources may occur within Drainage Line and Claypan habitats, which may be used be a variety of fauna taxa including migratory birds such as the Common Sandpiper (*Actitis hypoleucos*).

One significant taxon was recorded during the fauna survey, the Malleefowl – VU (BC Act; EPBC Act). *Camponotus* sp. nr. *terebrans*, the host ant for the ABAB, was also recorded during the fauna survey.

The desktop assessment identified two significant fauna taxa as having a high likelihood, two significant fauna taxa as having a medium likelihood, and 26 significant fauna taxa as having a low likelihood of occurrence.

Seven introduced mammal taxa were recorded during the survey: Rabbit (*Oryctolagus cuniculus*), European Cattle (*Bos primigenius taurus*), Dingo/Dog (*Canis familiaris*), Donkey (*Equus africanus asinus*), Horse (*Equus ferus caballus*), Cat (*Felis catus*), and House Mouse (*Mus musculus*).

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Acronyms and Abbreviations

°C	Degree Celsius
ABAB	Arid Bronze Azure Butterfly
BAM Act	*Biosecurity and Agriculture Management Act 2007*
BC Act	*Biodiversity Conservation Act 2016*
BoM	Bureau of Meteorology
CR	Critically Endangered
DAWE	Department of Agriculture Water and Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEE	Department of the Environment and Energy
Desktop Study Area	The area that was studied during the desktop assessment encompassing the Survey Area and surrounds
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DoE	Department of the Environment
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DRF	Declared Rare Flora
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EN	Endangered
EP Act	*Environmental Protection Act 1986*
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection Biodiversity and Conservation Act 1999*
ESA	Environmentally Sensitive Area
GIS	Geographic Information System
GPS	Global Positioning System
ha	Hectare
IBRA	Interim Biogeographic Regionalisation for Australia
IBSA	Index of Biodiversity Surveys for Assessments
ILUA	Indigenous land Use Agreement
km	Kilometres
Lat	Latitude

LiDAR	Light Detection and Ranging
Long	Longitude
m	Metres
MA	Marine
MI	Migratory
mm	Millimetres
NNTT	National Native Title Tribunal
MNES	Matters of National Environmental Significance
OS	Other Specially Protected Fauna
P	Priority
Project	The Mt Hamptons Tenements Terrestrial Fauna Survey (SLR, 2024)
PMST	Protected Matters Search Tool
MinRes	Mineral Resources Limited
SLR	SLR Consulting Australia
Survey Area	The 23,555 ha area 25 km south from Kalgoorlie-Boulder that was surveyed for MinRes by SLR
T	Threatened
VU	Vulnerable
WA	Western Australia
WAM	Western Australian Museum

1.0 Introduction

1.1 The Project

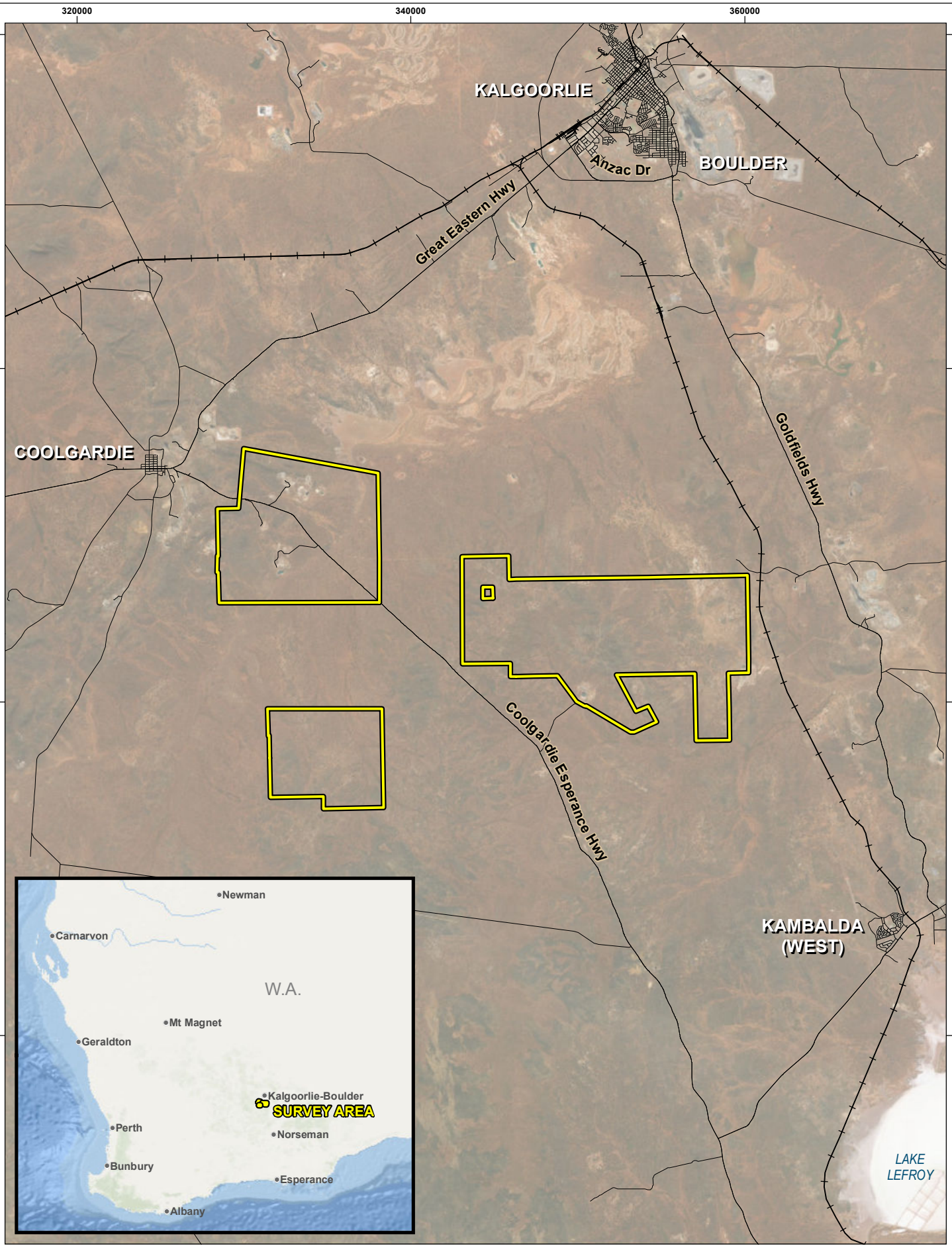
Mineral Resources Limited commissioned SLR Consulting Australia to undertake a basic and targeted significant fauna survey for the proposed Mt Marion Lithium Project expansion on Hamptons tenements. The Survey Area covers approximately 23,555 hectares and is located approximately 25 km south of Kalgoorlie, in the Goldfields bioregion of Western Australia (**Map 1**). The survey was undertaken concurrently with a basic and targeted fauna survey of an area adjacent to the south of the Survey Area, the outcomes of which are documented in a separate report (SLR Consulting, 2024).

1.2 Objective and Scope

The objective of the survey was to identify key fauna values within the Survey Area as part of the environmental impact assessment process for the Project.

The following scope of work was completed:

- A desktop assessment including relevant database searches and a literature review to compile and summarise existing records of fauna in the vicinity of the Survey Area.
- A basic fauna survey.
- A Targeted significant terrestrial vertebrate fauna survey using a variety of detection methods including baited camera traps, advanced LiDAR techniques, active searches, and opportunistic observations.
- A technical biological report.
- A geospatial data package prepared in accordance with IBSA and MinRes data standard requirements.



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Reviewed By	: EW

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Terrestrial Fauna Survey - Mt Marion Hamptons

Survey Area

MAP 1

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2.0 Background

2.1 Statutory and Regulatory Framework

Western Australian fauna is protected by the following legislative measures:

- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). (Commonwealth of Australia, 1999).
- *Biodiversity Conservation Act 2016* (WA) (BC Act) (Government of Western Australia, 2016).
- *Environmental Protection Act 1986* (WA) (EP Act) (Government of Western Australia, 1986).

In addition to these legislative measures, the following non-legislative lists are considered on a case-by-case basis:

- WA Department of Biodiversity Conservation and Attractions (DBCA) Priority lists for fauna, flora, and ecological communities.
- Recognition of locally significant populations by DBCA.

The EIA process is supported by guidance documents published by the Environmental Protection Authority (EPA), DBCA and the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

Western Australia

- *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA, 2020).
- *Environmental Factor Guideline – Terrestrial Fauna* (EPA, 2016).
- *Guideline for the survey of arid bronze azure butterfly (ABAB) in Western Australia* (DBCA, 2020b).
- *Arid bronze azure butterfly (ABAB) survey in Western Australia additional information* (DBCA, 2020a).

Commonwealth

- *Matters of National Environmental Significance – Significant Impact Guidelines 1.1* (DoE, 2013).
- *Survey guidelines for Australia's threatened birds* (DEWHA, 2010a).
- *Survey guidelines for Australia's threatened frogs* (DEWHA, 2010b).
- *Survey guidelines for Australia's threatened mammals* (DSEWPaC, 2011a).
- *Survey guidelines for Australia's threatened reptiles* (DSEWPaC, 2011b).

2.2 Existing Environment

2.2.1 Climate

The closest long-term Bureau of Meteorology weather station with a complete dataset is Kalgoorlie-Boulder Airport Weather Station (Station 012038), located approximately 24 km north of the Survey Area.

Climate statistics were calculated using data from the most current climate normal, which is defined as a 30-year interval where possible. A climate normal is a period long enough to include year-to-year variations while avoiding the influence of longer-term changes in climate (BoM, 2007).

The long-term (1939 to 2023) mean minimum temperature for Kalgoorlie-Boulder Airport Weather Station ranges from 5.1˚C (July) to 18.3˚C (January) and the long-term mean maximum temperature ranges from 16.9˚C (July) to 33.6.˚C (January) (**Figure 1**) (BoM, 2024).

The Kalgoorlie-Boulder Airport Weather Station recorded 220.8 mm of rainfall in the 12 months prior to the survey (August 2022 to July 2023), which is 44.2 mm below the long-term (1939 to 2023) average of 265 mm (BoM, 2024). In the three months prior to the survey (May 2023 to July 2023), 57.6 mm of rainfall was recorded, which is 9.1 mm above the long-term average of 48.5 mm for the same period (BoM, 2024).

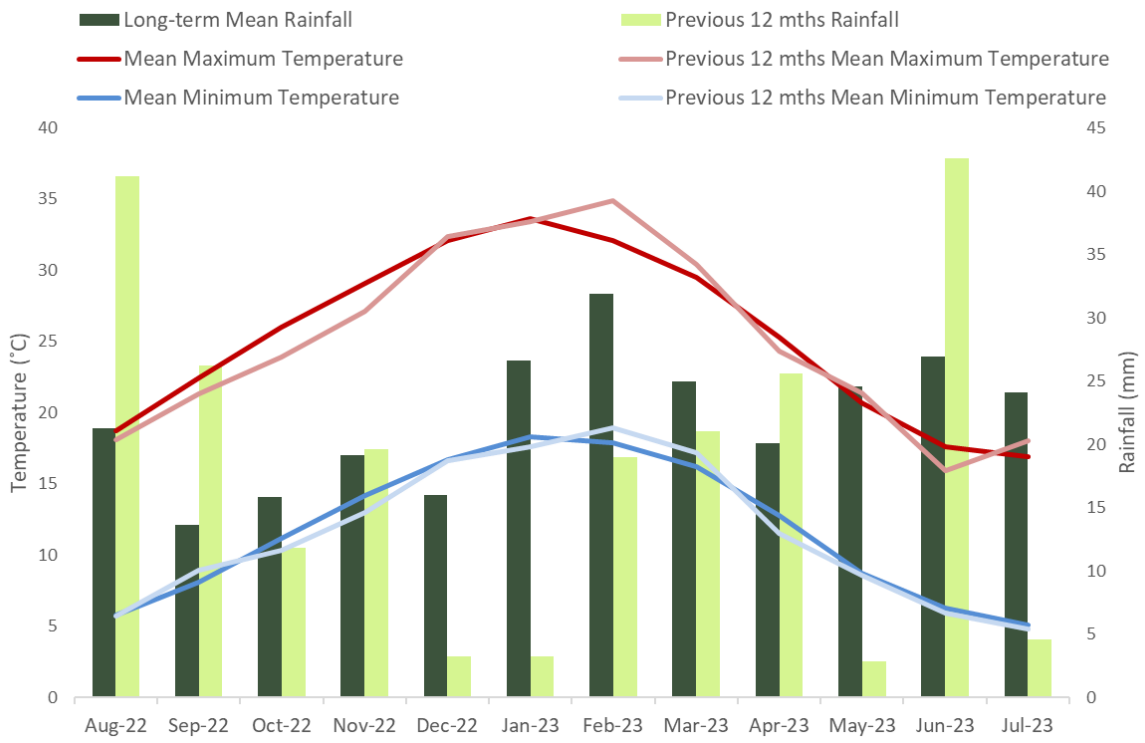
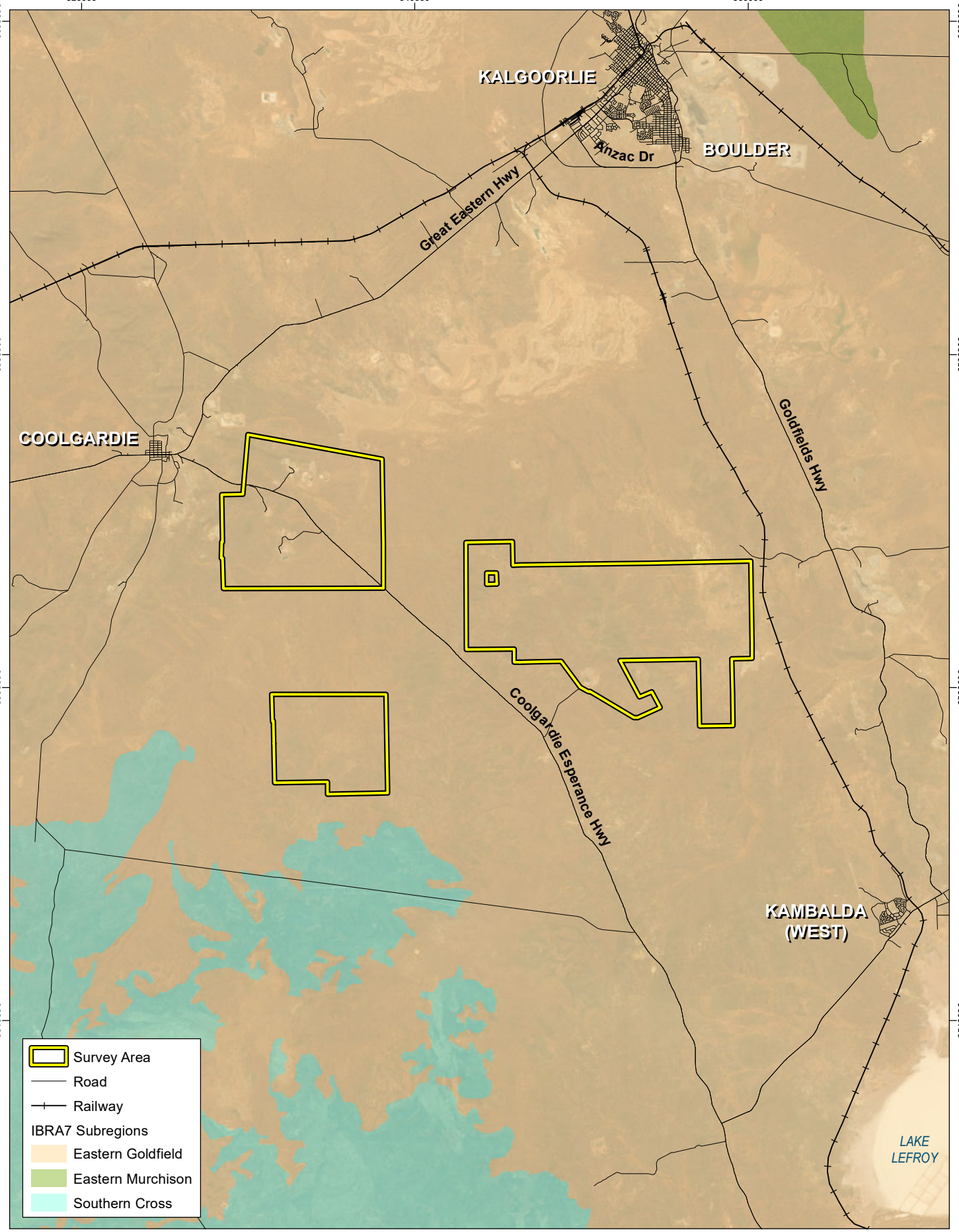


Figure 1: Climate of the Survey Area

2.2.2 Interim Biogeographic Regionalisation of Australia

The Interim Biogeographic Regionalisation of Australia (IBRA) divides Australia into 89 bioregions based on major biological, geographical, and geological attributes. These bioregions are subdivided into 419 subregions as part of a refinement of the IBRA framework (DEE, 2016). The Survey Area occurs within the Goldfields bioregion and the Eastern Goldfield (COO3) subregion (**Map 2**).

The Eastern Goldfield (COO3) subregion lies on the 'Eastern Goldfields Terrains' of the Yilgarn Craton. The relief is subdued and comprises gently undulating plains interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. The vegetation is mallees, acacia thickets and shrub heaths on sandplains. Diverse *Eucalyptus* woodlands occur around salt lakes, on ranges, and in valleys. Salt lakes support dwarf shrublands of samphire. Woodlands and *Dodonaea* shrubland occur on basic graninulites of the Fraser Range. The area is rich in endemic acacias. The climate is arid to semi-arid with 200-300 mm of rainfall, sometimes in summer but usually in winter. The subregional area is 5,102,428 ha (Cowan, 2001).



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Terrestrial Fauna Survey - Mt Marion Hamptons

IBRA Subregions

MAP 2

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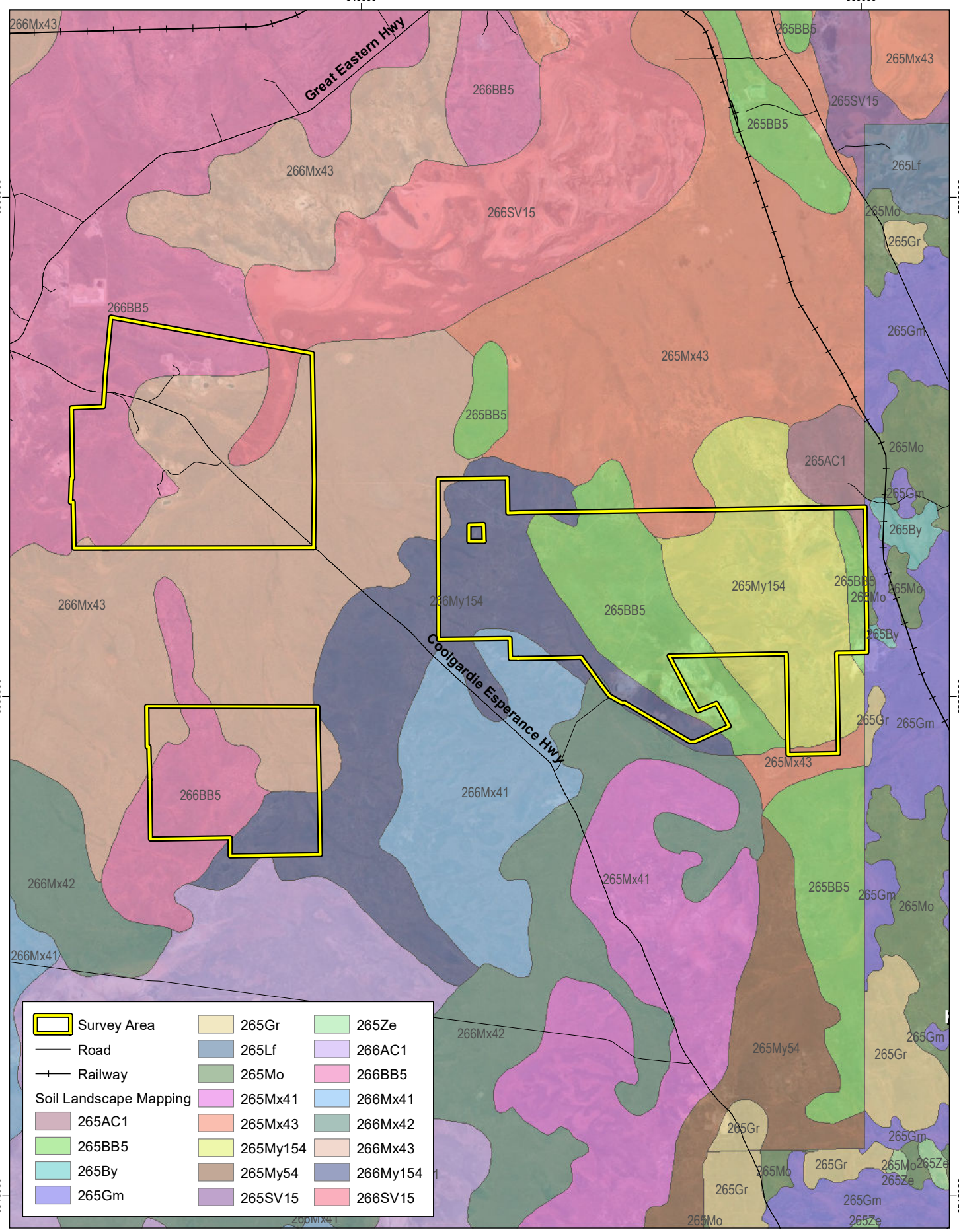
2.2.3 Soil Landscape Mapping

Soil landscape mapping of Western Australia consists of a compilation of various surveys at different scales varying between 1:20,000 and 1:3,000,000 (DPIRD, 2022). Soil landscape mapping for the Survey Area has been described below to the highest level of detail available.

The Survey Area occurs across 10 land systems (**Table 1**; **Map 3**). Land system level is the highest level of detail available for soil landscape mapping in the Survey Area.

Table 1: Soil landscape systems within the Survey Area

Land system		Description	Area (ha) and percentage within Survey Area
Name	Code		
SV15 atlas system	266n6	Salt lakes and their associated areas	592 (2.5%)
My154 atlas system	265l8	Undulating country on acid volcanic rocks and sedimentary materials	8,332 (35.3%)
Mx43 atlas system	265k9	Gently undulating valley plains and pediments; some outcrop of basic rock	6,074 (25.8%)
Mx42 atlas system	266k8	Broad flat to undulating valleys with isolated granitic rock outcrops and some low escarpments; some seasonal lakes and clay pans	21 (0.1%)
Mx41 atlas system	266k7	Flat to undulating pediments marginal to unit AC1; granitic rock outcrop; some low escarpments	179 (0.8)
Moriarty System	265Mo	Low greenstone rises and stony plains supporting chenopod shrublands with patchy eucalypt overstoreys.	22 (0.1%)
Gumland System	265Gm	Extensive pedeplains supporting eucalypt woodlands with halophytic and non-halophytic shrub understoreys.	22 (0.1%)
Bunyip System	265By	Gilgaied drainage tract, draining greenstone hills supporting mixed halophytic shrublands occasionally with a black oak overstorey.	6 (0.03%)
BB5 atlas system	265g4	Rocky ranges and hills of greenstones-basic igneous rocks	8,249 (35.0%)
AC1 atlas system	265d3	Gently sloping to gently undulating plateau areas, or uplands, on granites, gneisses, and allied rocks, with long gentle slopes and, in places, abrupt erosional scarps	61 (0.3%)



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Soil Landscape Mapping

MAP 3

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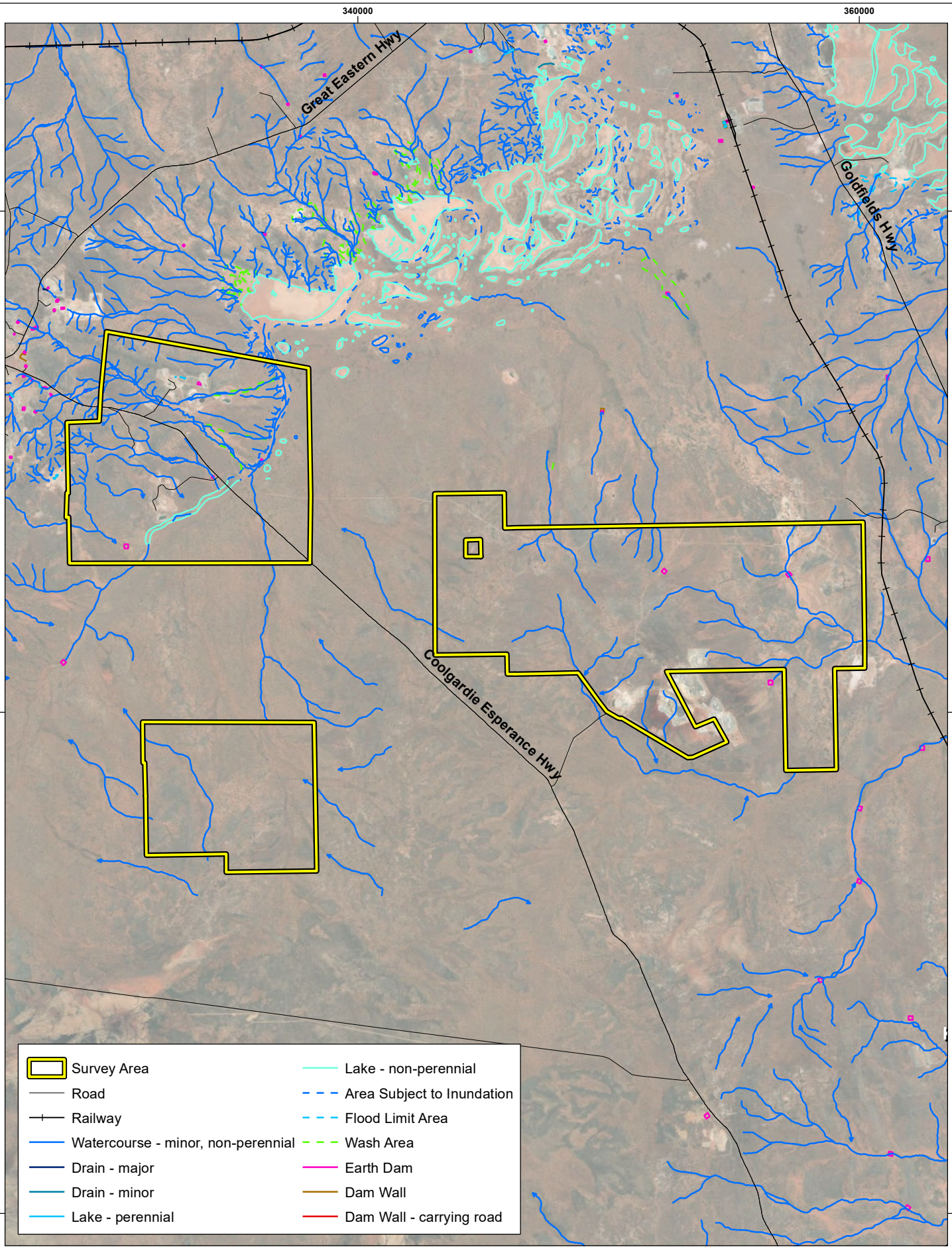
2.2.4 Hydrography

Hydrographic features that either intersect or occur in the vicinity of the Survey Area are described in **Table 2** and shown in **Map 4** (DWER, 2018).

Table 2: Hydrographical features in the vicinity of the Survey Area

Hydrographical feature	Description
Spring or soak	Unnamed spring or soak surrounded by the Survey Area in a 0.4 km^2 square.
Non-perennial lake	Unnamed non-perennial lake located within the north west Survey Area. The lake is connected to Red Lake via a non-perennial watercourse.
Non-perennial watercourse	Multiple non-perennial watercourses throughout the Survey Area.
Earth dam	Nine artificial earth dams are located within the Survey Area.
Red Lake	Ephemeral salt lake just north of the Survey Area. A non-perennial watercourse within the Survey Area connects to Red Lake.
Lake Lefroy	Ephemeral salt lake 16 km southeast of the Survey Area.



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Hydrography

MAP 4

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2.2.5 Vegetation

2.2.5.1 Pre-European Vegetation

The major source of data for pre-European vegetation mapping in Western Australia is the published and unpublished mapping of J. S. Beard at 1:250,000 scale. These vegetation types were later refined by Shepherd, Beeston, and Hopkins (2002), resulting in 819 Vegetation Association-level units, and a subsequent reclassification resulted in the creation of over 2,175 finer-scale System Associations (Beard *et al.*, 2013). Nine System Associations are mapped within the Survey Area (Error! Not a valid bookmark self-reference.; Error! Reference source not found.).

Table 3: Vegetation System Associations within the Survey Area

System Association	Description	Area (ha) and percentage within Survey Area
Coolgardie_123	Saltbush and/or bluebush with scattered low trees: Mulga, other wattle, *Casuarina*, *Atriplex* spp. *Maireana* spp. with *Acacia aneura*, *A. papyrocarpa*, *Allocasuarina cristata*.	99 (0.4%)
Coolgardie_125	Salt lake, lagoon, clay pan.	128 (0.5%)
Coolgardie_9	Woodland other: Wheatbelt; york gum, salmon gum etc. *Eucalyptus loxophleba*, *E. salmonophloia*. Goldfields; gimlet, redwood etc. *E. salubris*, *E. oleosa*. Riverine; rivergum *E. camaldulensis*. Tropical; messmate, woolybush.	12,016 (51.0%)
Binneringe_9	Woodland other: Wheatbelt; york gum, salmon gum etc. *Eucalyptus loxophleba*, *E. salmonophloia*. Goldfields; gimlet, redwood etc. *E. salubris*, *E. oleosa*. Riverine; rivergum *E. camaldulensis*. Tropical; messmate, woolybush.	1,174 (5.0%)
Boorabbin_9	Woodland other: Wheatbelt; york gum, salmon gum etc. *Eucalyptus loxophleba*, *E. salmonophloia*. Goldfields; gimlet, redwood etc. *E. salubris*, *E. oleosa*. Riverine; rivergum *E. camaldulensis*. Tropical; messmate, woolybush.	2,043 (8.7%)
Coolgardie_936	Woodland other: Wheatbelt; york gum, salmon gum etc. *Eucalyptus loxophleba*, *E. salmonophloia*. Goldfields; gimlet, redwood etc. *E. salubris*, *E. oleosa*. Riverine; rivergum *E. camaldulensis*. Tropical; messmate, woolybush.	6,818 (28.9%)
Coolgardie_128	Rock.	128 (0.5%)
Coolgardie_1413	Thicket: Wattle, *Casuarina* and teatree A*cacia-Allocasuarina-Melaleuca* alliance.	147 (0.6%)
Coolgardie_468	Woodland other: Wheatbelt; york gum, salmon gum etc. *Eucalyptus loxophleba*, *E. salmonophloia*. Goldfields; gimlet, redwood etc. *E. salubris*, *E. oleosa*. Riverine; rivergum *E. camaldulensis*. Tropical; messmate, woolybush.	998 (4.2%)

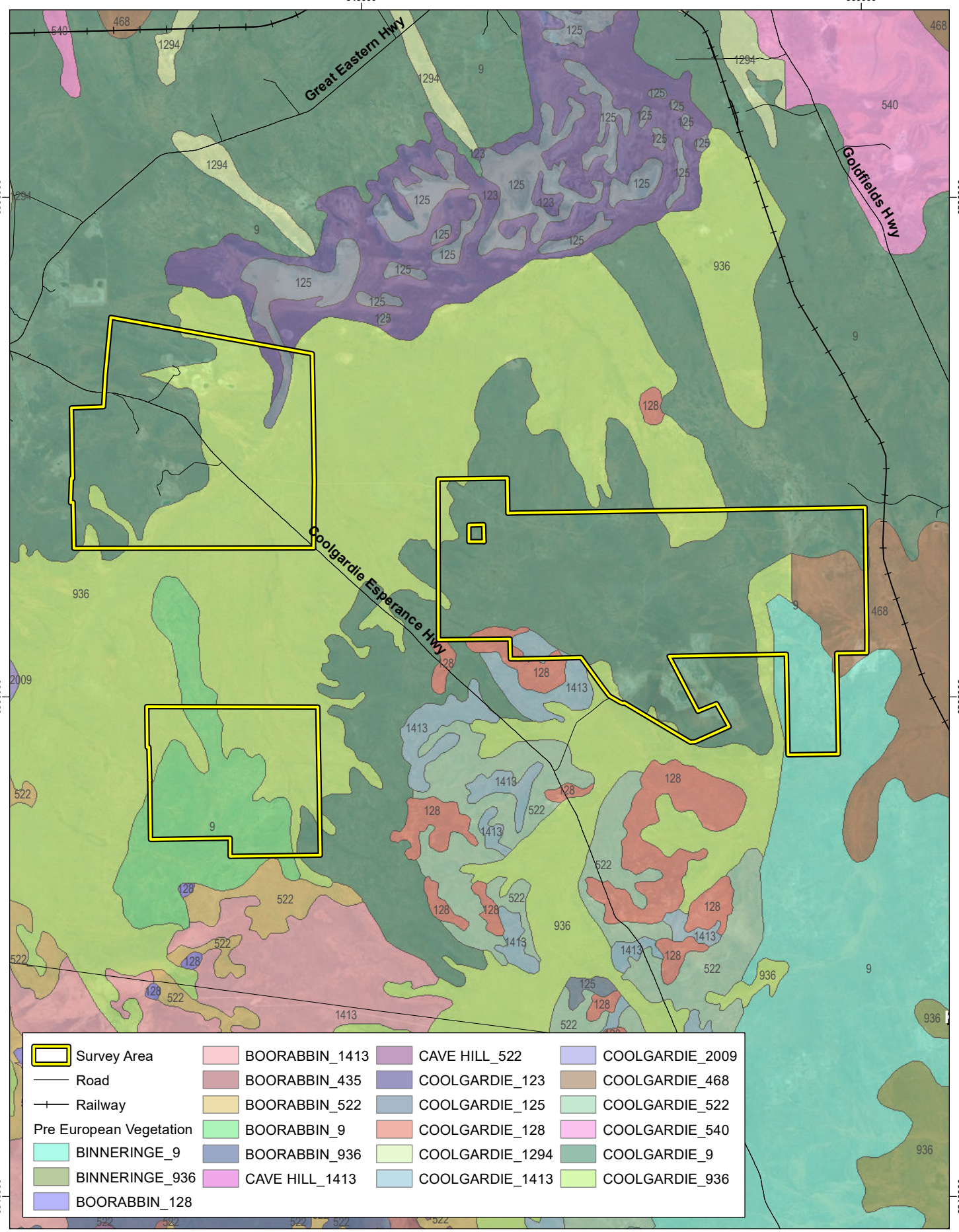
Representation of Vegetation Associations at a state, regional, and local level is shown in Error! Not a valid bookmark self-reference. (Government of Western Australia, 2019).

Table 4: Representation of Vegetation Associations within the Survey Area at a state, regional, and local level

Vegetation Association	Extent				
	Pre-European (ha)	Current (ha)	Remaining (%)	Managed in DBCA lands (%)*	Within Survey Area (%)*
Representation across Western Australia					
123	9,090.22	8,902.02	97.93	0.00	1.11
125	3,485,785.49	3,146,487.22	90.27	8.45	0.00
9	240,509.33	235,161.94	97.78	8.07	6.48
936	698,752.00	676,689.18	96.84	4.14	1.01
128	329,836.19	288,813.54	87.56	23.92	0.04
1413	1,679,916.32	1,286,855.48	76.60	17.25	0.01
468	592,022.32	583,902.76	97.78	23.15	0.17
Representation across the Coolgardie Bioregion					
123	9,090.22	8,902.02	97.93	0.00	1.11
125	545,717.86	506,802.71	92.87	7.04	0.03
9	240,441.99	235,100.97	97.78	8.07	6.48
936	586,792.23	584,336.14	99.58	3.10	1.17
128	184,549.90	183,891.19	99.64	18.85	0.07
1413	1,061,212.28	1,042,553.77	98.24	18.50	0.01
468	583,357.71	575,360.61	98.63	22.72	0.17
Representation across the Eastern Goldfields (COO03) Subregion					
123	9,090.22	8,902.02	97.93	0.00	1.11
125	303,090.73	300,445.92	99.13	3.22	0.04
9	235,047.15	229,757.07	97.75	8.26	6.63
936	310,897.74	308,459.61	99.22	4.38	2.21
128	26,871.74	26,853.58	99.93	6.53	0.48
1413	107,974.55	107,727.82	99.77	7.54	0.14
468	482,361.84	474,364.74	98.34	22.42	0.21
Representation across the Shire/City of Coolgardie					
123	6,008.61	6,008.61	100.00	0.00	1.65
125	152,428.40	150,072.36	98.45	5.80	0.09
9	166,572.37	163,720.39	98.29	9.81	9.30

Vegetation Association	Extent				
	Pre-European (ha)	Current (ha)	Remaining (%)	Managed in DBCA lands (%)*	Within Survey Area (%)*
936	359,112.73	356,674.60	99.32	4.02	1.91
128	96,232.93	96,215.07	99.98	13.56	0.13
1413	334,488.08	334,256.37	99.93	8.16	0.04
468	149,487.25	148,635.89	99.43	44.52	0.67

*as a portion of the current extent



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Pre-European Vegetation Associations
MAP 5

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2.2.6 Conservation Areas

Conservation areas consist of areas protected for the purpose of conservation, including but not limited to National Parks, Nature Reserves, Conservation Parks, and Regional Parks. The Survey Area does not occur within a conservation area (DBCA, 2023a, 2023b). Nearby conservation areas are listed below and shown in **Map 6**:

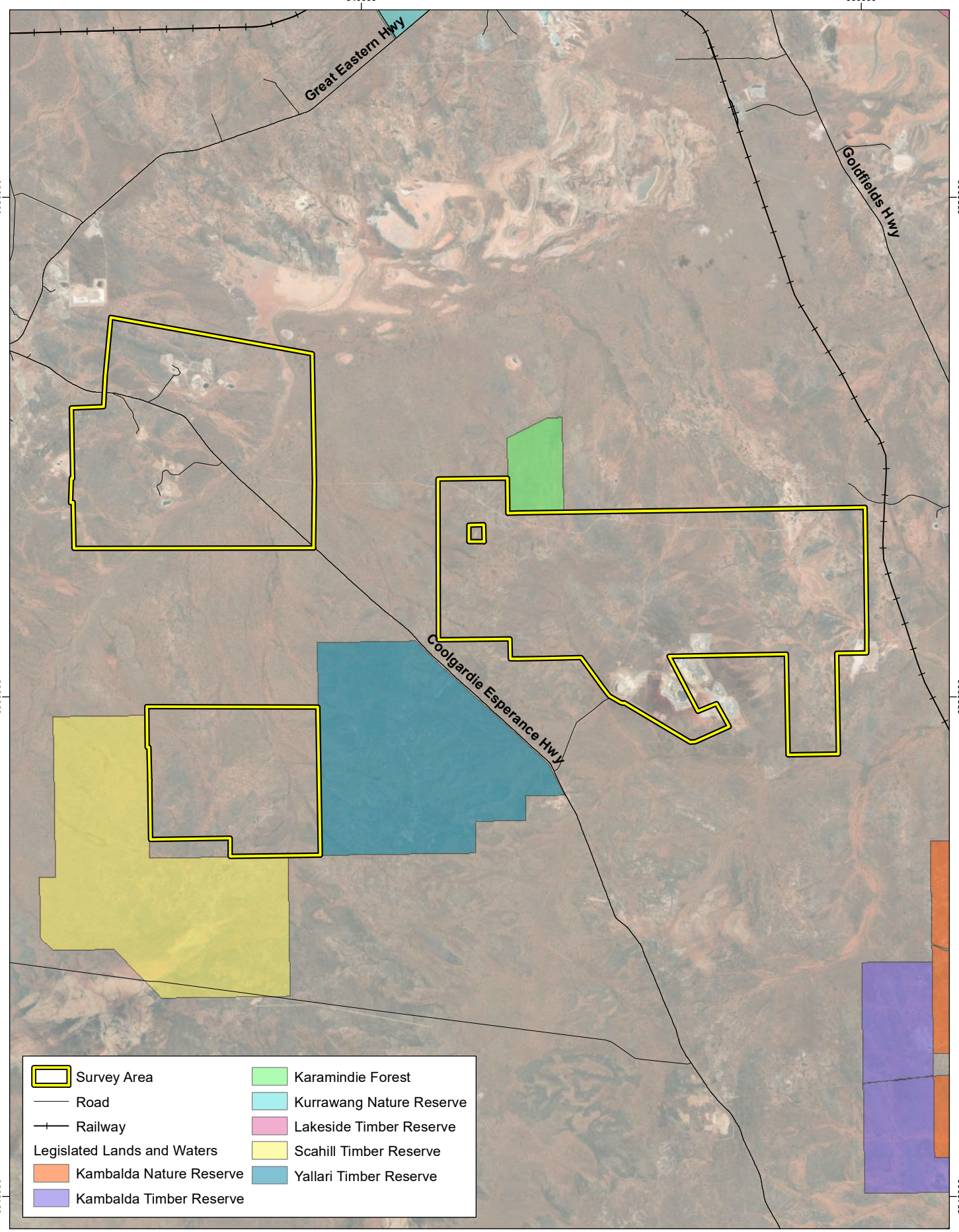
- Yallari Timber Reserve, located adjacent to the eastern border of the southwest polygon of the Survey Area and is vested under the Conservation Commission of WA.
- Scahill Timber Reserve, located adjacent to the western and southern borders of the southwest polygon of the Survey Area and is vested under the Conservation Commission of WA.
- Karamindie Forest, located adjacent to the northern border of the east polygon of the Survey Area and is vested under the Conservation Commission of WA.
- Kangaroo Hills Timber Reserve, located approximately 4 km west of the northwest polygon and 13 km west of the southwest polygon of the Survey Area and is vested under the Conservation Commission of WA.
- Kambalda Nature Reserve, located approximately 5 km southeast of the east polygon of the Survey Area and is vested under the Conservation Commission of WA.
- Kambalda Timber Reserve, located approximately 19 km southeast of the east polygon Survey Area and is vested under the Conservation Commission of WA.

2.2.7 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by the Department of Water and Environmental Regulation (DWER) to prevent the degradation of important environmental values such as Threatened flora, Threatened Ecological Communities (TECs), or significant wetlands. The Survey Area does not occur within a mapped ESA (Department of Water and Environmental Regulation, 2021). The nearest ESAs are listed below.

- Unnamed ESA (site of Declared Rare Flora (DRF)), 31 km east of the Survey Area
- Unnamed ESA (site of DRF) within the Victoria Rocks Nature Reserve, 38 km southwest of the Survey Area.

Map 6: Conservation Areas



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Reviewed By	: EW

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Terrestrial Fauna Survey - Mt Marion Hamptons

Conservation Areas

MAP 6

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2.2.8 Land Use

A pending exploration license from Beau Resources Pty Ltd overlaps a small portion of the Survey Area in the West. Reed Industrial Minerals has a live tenement over the southern portion of the Survey Area. Woolibar Pastoral Station also overlaps a small portion of the Survey Area in the south (PL No. 50022).

2.2.9 Indigenous Land Rights

The Survey Area falls within the Goldfields Land and Sea Council Aboriginal Group jurisdiction area (NNTT, 2017) and has one native title determination over the area (Landgate, 2023a), Marlinyu Ghoorlie People (NNTT no. WC2017/007).

There are no Indigenous Land Use Agreements (ILUAs) over the Survey Area (Landgate, 2023b).

3.0 Methods

The surveys documented in this report were undertaken in accordance with relevant EPA and DAWE guidelines (see **Section 2.1**).

3.1 Desktop Assessment

3.1.1 Literature Review

Background information on the Survey Area and surrounds (the Desktop Study Area) was compiled prior to the field survey (see **Section** □). The literature review also considered a selection of relevant reports detailing assessments undertaken in the region that were either publicly available or provided by the client. These reports are listed below and summarised in **Appendix A**.

- Mt Marion Lithium Project Malleefowl Survey, July 2022 (Bamford Consulting Ecologists, 2022a), overlaps the Survey Area.
- Mt Marion Fauna Assessment: Hamptons lease Area 53, L15/353, M15/999 and East E15/1599 (Bamford Consulting Ecologists, 2022b), overlaps the Survey Area.
- Mt Marion Lithium Project Malleefowl Survey, January 2020 (Bamford Consulting Ecologists, 2020), overlaps the Survey Area.
- Fauna Assessment of M15/717 Lease Area; Mt Marion Lithium Project (Bamford Consulting Ecologists, 2017a), overlaps the Survey Area.
- Mt Marion Project Fauna Assessment v4 (Bamford Consulting Ecologists, 2016), overlaps the Survey Area.
- Fauna Assessment of the Mt Marion Mining Lease Area (Bamford Consulting Ecologists, 2012), overlaps the Survey Area.
- Terrestrial Fauna Habitat Assessment: Mount Marion Lithium Project (Rapallo, 2010), overlaps the Survey Area.
- Fauna Assessment of Proposed Woolibar Borefields Stage 2 Pipeline Corridor (Bamford Consulting Ecologists, 2018), adjacent to the Survey Area.
- Fauna Assessment of Proposed Borefields Pipeline Corridor (Bamford Consulting Ecologists, 2017b), adjacent to the Survey Area.

3.1.2 Database Searches

Database searches were undertaken to compile a list of fauna known to occur in the Desktop Study Area and identify significant fauna with potential to occur within the Survey Area (**Table 5**).

Table 5: Database search details

Database name	Date received	Search target	Buffer around the Survey Area
Threatened and Priority Fauna database search (DBCA, 2023c)	28 June 2023	Threatened and Priority Fauna	100 km
Protected Matters Search Tool (PMST) (DCCEEW, 2023)	July 2023	Threatened Fauna	50 km
NatureMap Database Search (DBCA, 2023d)	28 June 2023	Vertebrate Fauna	100 km

3.1.3 Likelihood of Occurrence

Significant flora and fauna taxa identified during the desktop assessment were assessed to determine the likelihood of their occurrence within the Survey Area before and after the field survey. The assessment used the likelihood of occurrence criteria presented in **Table 6**.

Taxa listed as Marine only under the EPBC Act were not considered to be significant taxa because the Marine listing does not constitute MNES under the EPBC Act. Additionally, erroneous records (i.e. records that occur well outside a taxons known distribution) were excluded from consideration. Only significant taxa that were targeted as part of this survey, were recorded within the Survey Area, or were assessed as having a high or medium likelihood of occurrence are discussed in detail.

Table 6: Likelihood of occurrence criteria

Rank	Criteria
Recorded	The taxon was recorded within the Survey Area during the current survey.
Previously Recorded	The taxon has been previously recorded within the Survey Area according to database search or literature review results.
High (Likely to occur)	There are existing records of the taxon near the Survey Area, suitable habitat is present within the Survey Area, and, for fauna, the taxon has been recorded within the Desktop Study Area in the last 15 years.
Medium (May occur)	There are existing records of the taxon within the Desktop Study Area, however, the taxon does meet the criterion for high likelihood, or suitable habitat within the Survey Area is marginal or limited in extent, or, for fauna, the taxon has not been recorded within the Desktop Study Area in the last 15 years.
Low (Unlikely to occur)	Suitable habitat is not present within the Survey Area, or the taxon is very infrequently recorded in the locality despite reasonable previous search effort, or the taxon is believed to be extinct or locally extinct.

3.2 Field Surveys

3.2.1 Survey Timing

The field surveys were undertaken across two field trips as shown in **Table 7**.

Table 7: Survey timing

Survey trip	Tasks completed	Dates	Person field days
1	Basic fauna and targeted Chuditch, targeted Malleefowl, and targeted *Camponotus* sp. nr. *terebrans* survey.	26 July – 03 August 2023	54
2	Basic fauna and targeted Chuditch, targeted Malleefowl, and targeted *Camponotus* sp. nr. *terebrans* survey.	09 – 14 August 2023	42

3.2.2 Field Personnel and Licences

Details of field personnel, including their level of experience, role for each field trip, and flora collection licence numbers are detailed in **Table 8**.

Fauna fieldwork was completed under Fauna Taking (Biological Assessment) License – Regulation 27 (BA27000901) (**Appendix B**). Animal ethics approval was obtained under scientific use licence number U336 / 2023 - 2025 and permit number WAEC 24-02-12.

Table 8: Field personnel

Personnel	Experience	Role	Trips
Dr. Michael Lohr – Principal Zoologist	11 years	Project Director, field logistics, team lead	1 and 2
Dr. Rod Eastwood – Associate Ecologist	50 years	Specialist ABAB and associated ant species consultant	1 and 2
Evan Webb – Associate Zoologist	7 years	Field logistics, team lead	1 and 2
Poppy Walker – Senior Ecologist	5 years	Field hand	1 and 2
Simon Girando – Senior Ecologist	5 years	Project Manager, field lead, logistics coordinator	1 and 2
Datta Li – Graduate Zoologist	2 years	Field hand	1 and 2

3.2.3 Weather Conditions

Weather conditions during the fauna surveys are presented in **Table 9** and **Table 10**. Daily temperature and rainfall data is from the Kalgoorlie-Boulder Airport Weather Station (Station 012038) (BoM, 2024). Weather conditions can impact potential detection of fauna taxa during a survey.

Table 9: Trip 1 weather conditions

Date	Temperature (°C)		Rainfall (mm)
	Min	Max	
26/07/2023	10.4	17.4	0.8
27/07/2023	6.8	14.9	0.4
28/07/2023	2.6	16.6	0.0
29/07/2023	5.0	20.1	0.0
30/07/2023	11.1	19.1	0.0
31/07/2023	3.9	20.8	0.0
01/08/2023	8.7	25.4	0.0
02/08/2023	15.1	25.9	0.0
03/08/2023	9.7	13.7	18.0

Table 10: Trip 2 weather conditions

Date	Temperature (°C)		Rainfall (mm)
	Min	Max	
09/08/2023	8.8	18.5	0.0
10/08/2023	5.1	24.0	0.0
11/08/2023	11.4	18.2	0.0
12/08/2023	10.0	12.9	3.4
13/08/2023	9.8	15.9	6.0
14/08/2023	7.7	18.1	5.8

3.2.4 Habitat Assessment

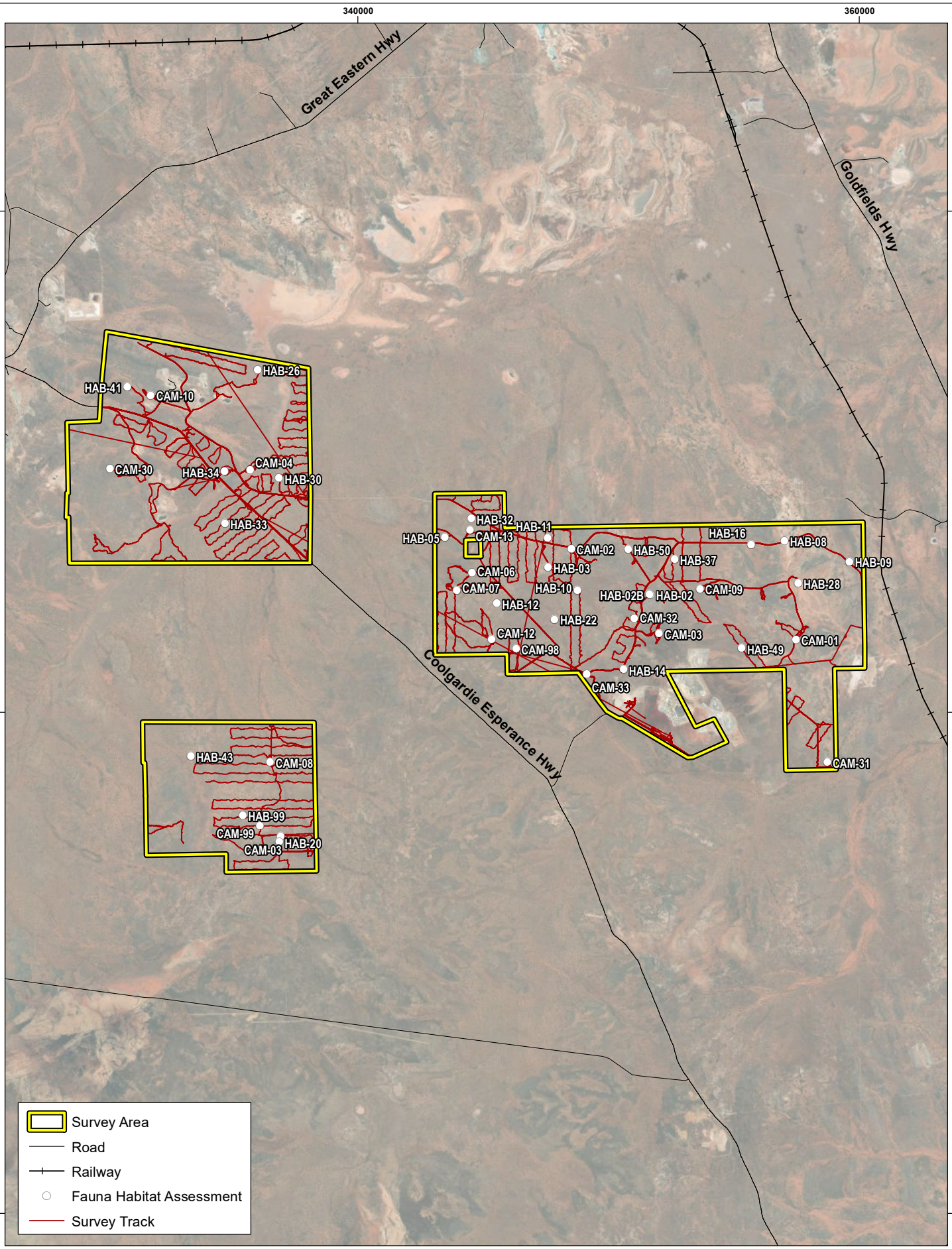
Habitat assessments were undertaken in representative areas of fauna habitat within the Survey Area to record habitat values. Where possible, at least one habitat assessment was recorded within each habitat type. Habitat assessment locations are shown in **Map 7**.

The following information was collected at each habitat assessment locations using a GPS-enabled handheld device:

- Site photo.
- Landform.
- Soil type and colour.
- Rock types, surface stone cover, and size classes.
- Key habitat and microhabitat features including leaf litter, logs, burrows, rocky outcrops, rock crevices, hollows, and water sources.

- Habitat quality, fire history, and evidence of disturbance.
- General description of vegetation structure.

Fauna habitat mapping was based on a combination of field observations, habitat assessment data and aerial imagery. Polygons were digitised using GIS software.



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Terrestrial Fauna Survey - Mt Marion Hamptons

Survey Effort
MAP 7

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3.2.5 Camera Traps

Fifty-seven motion sensitive camera traps were set up during the field survey. Camera traps were deployed in lines of five cameras spaced approximately 50 m apart in areas of suitable habitat for Chuditch hunting and denning, or ad-hoc in areas of high fauna activity (e.g. water holes, caves, etc.). Cameras were baited with universal bait (rolled oats, peanut butter, and sardines). **Table 11** shows the total camera trap survey effort, and camera trap locations are shown in **Map 7**.

Table 11: Camera trap survey effort

Habitat	Site number	Lat/long (WGS84)	Number of camera traps	Total camera trap nights
Drainage Line	5937-CAM-09	-31.056879, 121.508793	5	70
Drainage Line	5937-CAM-10	-31.028341, 121.414550	5	70
Rocky Hill	5937-CAM-11	-31.056146, 121.449030	5	75
Drainage Line	5937-CAM-12	-31.127173 121.289638	1	14
Drainage Line	5937-CAM-13	-30.995151, 121.279114	5	70
Eucalypt Woodland	5937-CAM-14	-31.122712 121.242842	1	14
Drainage Line	5937-CAM-15	-31.032636 121.367583	5	70
Drainage Line	5937-CAM-16	-31.038985 121.363873	5	70
Drainage Line	5937-CAM-17	-31.100418 121.285670	5	75
Drainage Line	5937-CAM-18	-31.041194 121.47157	5	70
Drainage Line	5937-CAM-19	-30.967705 121.238257	5	70
Rocky Outcrop	5937-CAM-20	-31.057428 121.379073	1	14
Rocky Outcrop	5937-CAM-21	-31.017854 121.370734	1	14
Shrubland/Heathland	5937-CAM-22	-30.993896 121.220678	1	14

Habitat	Site number	Lat/long (WGS84)	Number of camera traps	Total camera trap nights
Eucalypt Woodland	5937-CAM-23	-31.103266 121.518711	1	14
Rocky Hill	5937-CAM-24	-31.050694 121.438864	1	14
Man-made Dam	5937-CAM-25	-31.070343 121.417735	2	26
Man-made Dam	5937-CAM-26	-31.038401 121.507160	1	14
Rocky Outcrop	5937-CAM-27	-31.060931 121.389242	1	4
Eucalypt Woodland	5937-CAM-28	-31.123242 121.280961	1	17
		Total	**57**	**799**

3.2.6 Opportunistic Observations

Opportunistic observations of fauna were recorded throughout the Survey Area, including primary evidence (direct sightings, calls, and remains) and secondary evidence (tracks, scats, and diggings).

3.2.7 Bird Surveys

Bird surveys were undertaken at each trap site in a 2-ha quadrat. Where practicable, this was undertaken during typical peak periods of activity when birds are calling and moving about, which is typically within three to four hours of sunrise, particularly during warmer periods.

3.2.8 Malleefowl Mound Survey

LiDAR data was collected during an Aerial Survey completed by Outline and processed by Anditi to create an accurate Digital Elevation Model (DEM) that includes potential mound-like features. The data was then further analysed using Anditi Malleefowl mound analysis algorithms, which identifies ground features that best approximate a typical Malleefowl mound shape. Based on the algorithm match and manual checks, potential Malleefowl mounds were classed from 1 to 4:

1 Very closely matches a typical Malleefowl mound shape and is highly likely to be a Malleefowl mound.

2 Similar to a Malleefowl mound shape and could be a Malleefowl mound.

3 A mound shape that approximates the size parameters of a Malleefowl mound and could be an old Malleefowl mound.

4 A mound shape that approximates the size parameters of a Malleefowl mound but is not very similar to a typical Malleefowl mound and could be a broken or old Malleefowl mound.

Following analysis, potential Malleefowl mounds classed as 1 to 2 were ground-truthed during the field survey to confirm their status as mounds classed as 3 to 4 were deemed highly unlikely to be Malleefowl mounds. If the presence of an active or inactive Malleefowl mound was confirmed the following parameters were recorded:

- Whether the mound is new or previously known.
- Evidence of Malleefowl activity.
- Mound dimensions.
- Mound photo.

3.2.9 ABAB Ant Transect Survey

The ABAB has an obligate association with the sugar ant *Camponotus* sp. nr. *terebrans*, in which the butterfly larvae spend almost their entire lives within the ant's nest during their development. Therefore, surveying for the ABAB begins by confirming the presence of the ant species and assessing whether there are colonies large enough to support the ABAB, generally considered to be greater than 40 ha (Eastwood, 2024, pers. comm.).

Camponotus sp. nr. *terebrans* typically nests at the base of smooth barked eucalypts. Areas likely to contain smooth barked eucalypts were identified within the Survey Area using aerial imagery and publicly available vegetation mapping. Based on these areas, it was determined that a total of 1,534 sample trees (i.e. sample points) along transect lines spaced 392 m apart were required to survey for *C.* sp. nr. *terebrans* nests using the following formula from the *Guideline for the survey of arid bronze azure butterfly (ABAB) in Western Australia* (DBCA, 2020b)(DBCA, 2020b)(DBCA, 2020b)(DBCA, 2020b):

$$\text{No. sample trees} = 10 \times \sqrt{(\text{site area in ha})}$$

$$\text{Spacing} = \sqrt{[(\text{site area in ha} \times 10{,}000) / \text{No. sample trees}]}$$

A total of 213 km of transects were traversed on foot. At each sample point, the nearest tree was checked for evidence of a *C.* sp. nr. *terebrans* nest. Evidence includes a sandy apron, fresh debris, and one or more irregularly shaped nest entrance holes. Any trees opportunistically observed with nest evidence while traversing transect lines were also checked. If evidence of a nest was observed, then the surface layer of soil around the nest was removed and, if present, two adult ants were collected and preserved in ethanol-filled vials.

The formal identification of these specimens did not occur after the conclusion of the field survey; therefore, delineation of the colony boundary was not undertaken.

3.2.10 Identification and Taxonomy

Terrestrial vertebrate fauna taxa that were opportunistically observed were identified in the field. Where there was doubt on a species name (through subsequent name changes or

taxonomic reviews), an effort was made to determine the current scientific name for each taxon.

Terrestrial vertebrate fauna taxa that were recorded via motion sensing camera were identified after the field survey had concluded. Where there was doubt on a species name (through lack of photography detail or lack of identifying features visible in photos), the taxon was identified to the lowest taxonomic level possible.

Taxonomy and nomenclature in this report follows the *Checklist of the Terrestrial Vertebrate Fauna of Western Australia* (WAM, 2023) where relevant.

Terrestrial invertebrates captured as part of this survey were collected in the field and stored in ethanol vials. Ants were identified by taxonomist Brian Heterick at the WAM. *Pogonoscopus* Leafhoppers were identified by Melissa Moir.

3.3 Limitations

Limitations and constraints of the fauna survey are detailed below in **Table 12**.

Table 12: Limitations and constraints associated with the survey

Variable	Degree of limitation	Potential constraints on survey outcomes
Availability of data and information	No limitation	Sufficient data and information, including regional and local contextual information, was available to complete the scope of the survey.
Competency and experience of the survey team	No limitation	The survey was undertaken by a team with extensive experience undertaking similar scopes within the bioregion. • Principle Zoologist, Dr Michael Lohr – 11 years' experience • Specialist Ecologist, Dr Rod Eastwood – 50 years' experience • Associate Zoologist, Evan Webb – 7 years' experience • Senior Ecologist, Poppy Walker – 5 years' experience • Senior Ecologist, Simon Girando – 5 years' experience • Graduate Zoologist, Datta Li – 2 years' experience
The proportion of fauna identified, recorded, or collected	No limitation	Of the 56 fauna taxa recorded, two taxa (3.6%), could not be identified to species level because camera trap photos did not always carry enough detail to determine identifying features of specific species. The unidentified fauna taxa did not include potential significant fauna taxa.
Scope of the survey	No limitation	The scope of the survey was limited to terrestrial fauna. No further exclusions were made within these groups.
Adequacy of the survey intensity and proportion of survey achieved	No limitation	All habitat types within the Survey Area were identified and adequate intensity was allocated to identify all major taxonomic groups that might occur in each. Increased survey intensity may yield additional fauna taxa; however, sufficient time and effort was allocated to the survey given the size and complexity of the Survey Area and the expected level of survey intensity.

Variable	Degree of limitation	Potential constraints on survey outcomes
Access problems	No limitation	The Survey Area was sufficiently accessed by vehicle and on foot.
Timing, weather, and season	No limitation	The recommended primary survey periods for the Southwest broad climatic regions are: Amphibians – May – August and November - December Birds – September - December Mammals – September - December Reptiles – October – December and February - March The fauna surveys (July – August) were undertaken outside the recommended primary survey periods for most species but as this was not a detailed survey, it will not affect the adequacy of the survey. Targeted surveys for Malleefowl, Chuditch, and *Camponotus* sp. nr. *terebrans* – the host ants supporting the ABAB – are not constrained by seasonality and can be conducted effectively at any time of year.
Disturbance that may have affected the results of survey	No limitation	Areas of disturbance associated with mining activity, roads, and infrastructure were present within the Survey Area but were not a limitation on the results of the survey.
Problems with data and analysis, including sampling biases	No limitation	Survey effort for significant fauna taxa was concentrated in preferred habitats. This may introduce a bias where the use of non-preferred habitat is underrepresented, however, this is not considered a limitation on the survey outcomes.

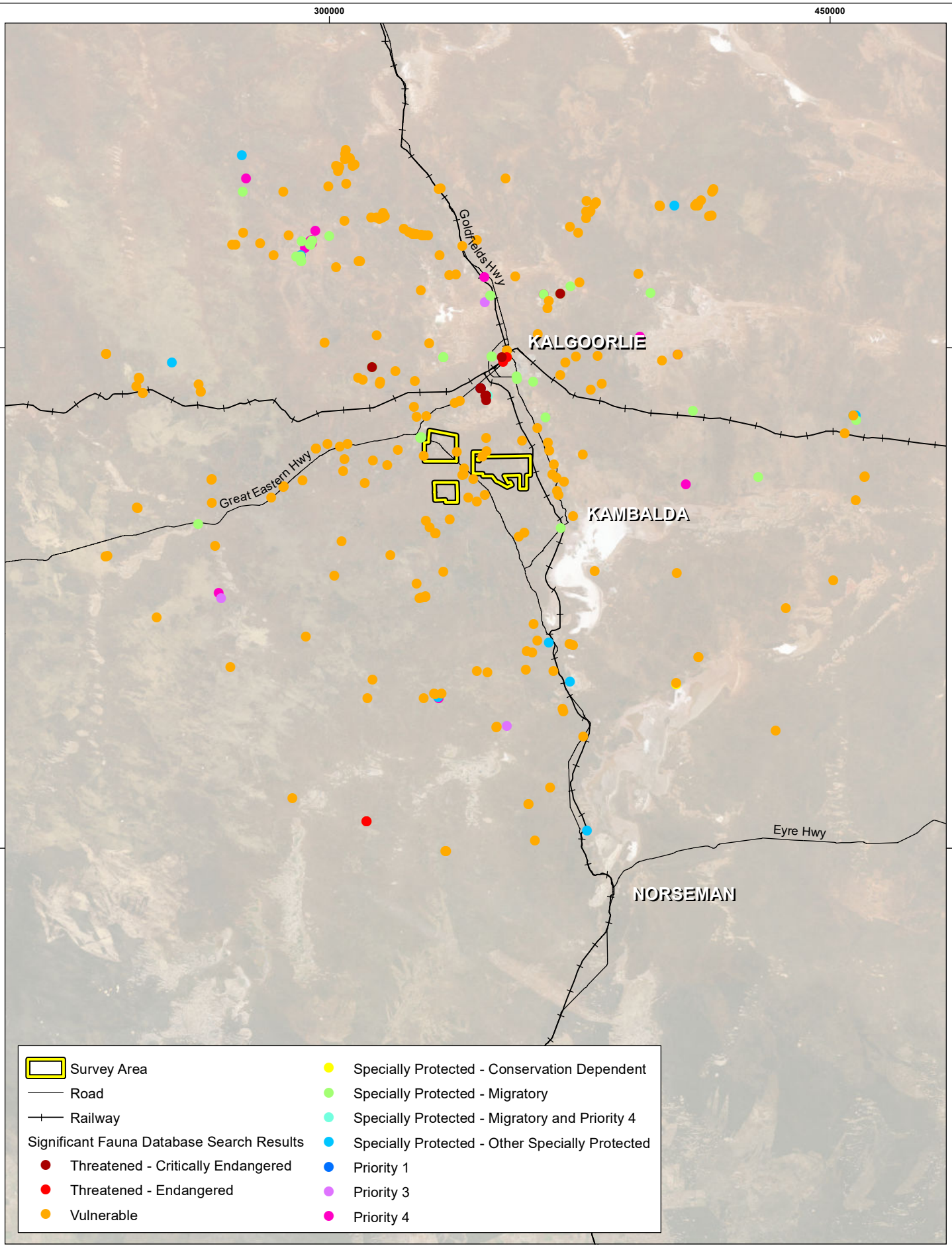
4.0 Results

4.1 Desktop Assessment

The database searches and literature review identified 216 terrestrial fauna taxa occurring within the Desktop Study Area, comprising:

- Four amphibians, of which none are significant.
- 126 birds, of which 23 are significant.
- 23 mammals, of which five are significant.
- 61 reptiles, of which one is significant.
- Two invertebrates, both of which are significant.

Key findings of the literature review are summarised in **Appendix A**, a complete list of fauna taxa recorded within the Desktop Study Area is presented in **Appendix C**, and database search results for significant fauna are displayed in **Map 8**.



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Terrestrial Fauna Survey - Mt Marion Hamptons

Significant Fauna Database Search Results MAP 8

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4.2 Fauna Habitat

Eight fauna habitats (excluding cleared areas, man-made dams, and rehab areas) were identified and mapped within the Survey Area. Fauna habitats are presented in **Map 9**, described below in **Table 13**, and site sheets for each habitat assessment are provided in **Appendix D**. Small discrepancies in fauna habitat extents (i.e., not adding up to the exact area extent of the Survey Area) are due to rounding.

Table 13: Fauna habitats recorded within the Survey Area

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
Chenopod Shrubland	828.99 ha, 3.5%	Salk lake with reddish-brown sandy clay. Upper and mid-stratum virtually absent with an understorey of saltbush and chenopod shrubland. Microhabitats include hummocks and leaf litter. This habitat was in very good condition, with occasional disturbance including overgrazing by cattle and the presence of weeds. This habitat constitutes little value to any of the significant species that may potentially occur within the region. It is of particular importance to reptile species as it provides refuge and dispersal habitat across a large unbroken area.	

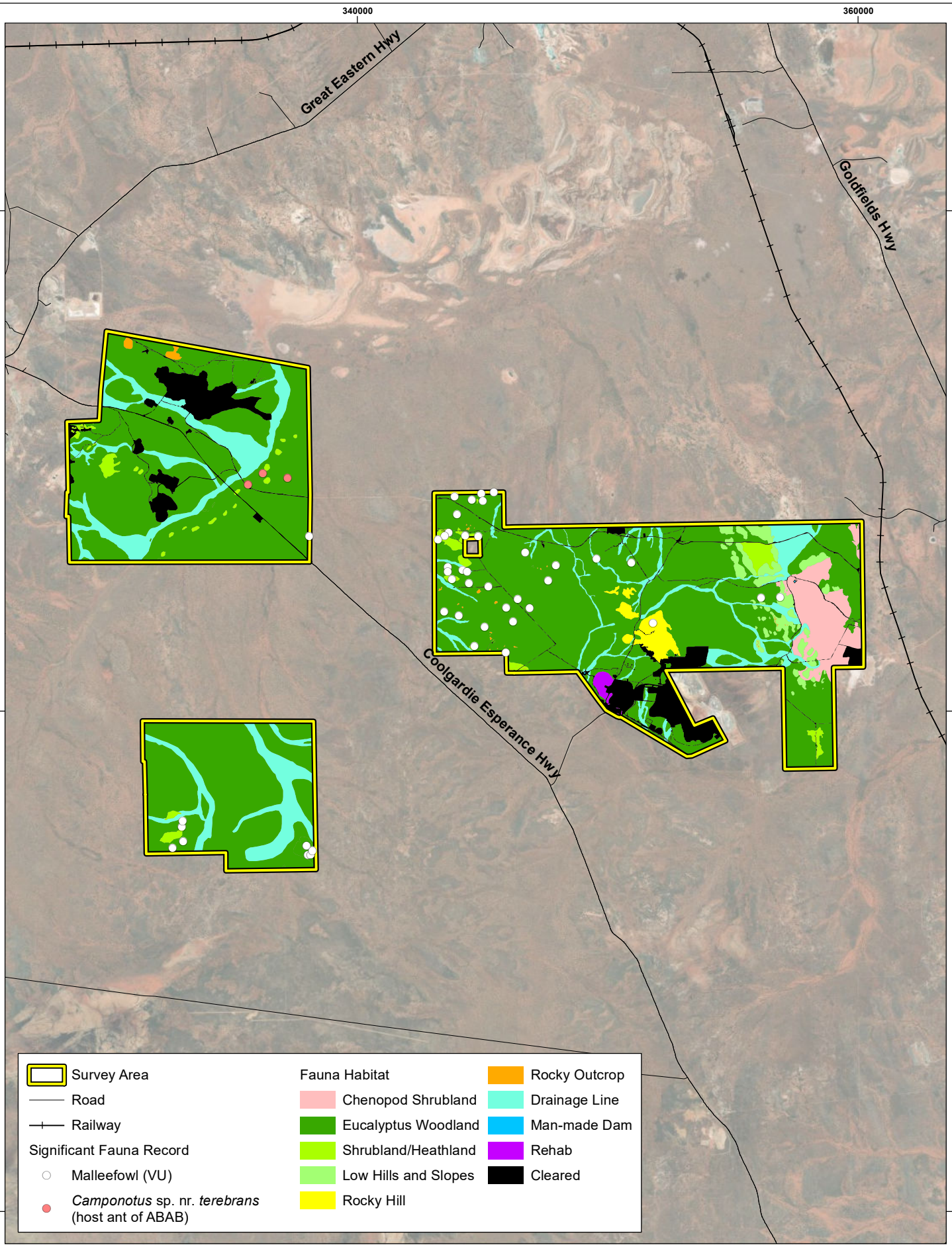
Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
Claypan	47.69 ha, 0.2%	Areas of clay with red soil runoffs spreading through the surface. *Melaleuca pauperiflora* is the dominant upper and mid-storey vegetation with minimal ground cover of seasonal herbs. Microhabitats include thin logs and leaf litter. This habitat was in very good condition, no sign of disturbance or introduced animals were observed. When inundated, this habitat constitutes potential habitat for the Common Sandpiper.	
Drainage Line	2753.17 ha, 11.7%	Areas of drainage consisting of narrow individual channels or, in some cases, lacking surface channelling altogether. Overstorey vegetation made up primarily of mixed open *Eucalyptus* spp., with dense *Acacia* and *Melaleuca* midstory. Ground cover is typically *Solanum* spp. sprawling *Acacia* spp. and *Atriplex* spp. on substrates ranging from sand to sandy clay, with an assortment of river stones. Most drainage lines lack permanent or semi-permanent pooling of water. Large, hollow-bearing eucalypts were occasionally observed within this habitat. Key microhabitats include woody debris, leaf litter, peeling bark, hollow trees, and logs which provide refuge, shelter, and foraging opportunities for a wide variety of fauna taxa. This habitat was mostly in good condition across the Survey Area with	

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
		small disturbances of roads seen infrequently crossing the lines. This habitat constitutes a potential water source for Malleefowl and Carnaby's Cockatoo, and may be used by migratory birds such as the Common Sandpiper.	
Eucalypt Woodland	16979.20 ha, 72.1%	Undulating plains of sandy clay loams with subtle granite, greenstone, or quartz extrusions. Vegetation consists of mixed eucalypts over *Acacia* and *Melaleuca* midstory with low *Acacia*, *Atriplex*, understorey and occasional *Triodia* hummock grassland. Microhabitats include tree hollows, rocky outcrops, leaf litter, burrows, and hummocks. This habitat varied widely in its condition, ranging from Very Good to Disturbed. Disturbances of rubbish, historic mining, historic roads, erosion, and historic farming were seen in isolated patches throughout the Survey Area. This habitat type constitutes preferred habitat for the ABAB as it contains trees suitable for the host ant *Camponotus* sp. nr. *terebrans*. Eucalypt Woodland in close proximity with Shrubland/Heathland also constitutes important foraging habitat for Malleefowl.	

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
Low Hills and Slopes	507.68 ha, 2.2%	Granite and greenstone hills and slopes with occasional outcropping and thin soils over shallow bedrock. Vegetation consists of open woodlands of mixed eucalypts over sparse *Acacia* and *Melaleuca* midstory and minimal understorey of seasonal herbs and daisies. Microhabitats include tree hollows, burrows, leaf litter, and occasional rocky outcrops. Habitat condition was mostly good throughout, with some localised clearing and rubbish dumps.	

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
Rocky Hill	304.47 ha, 1.3%	Granite and greenstone hills with moderate to high levels of outcropping and thin soils over shallow bedrock. Vegetation consists of sparse mixed eucalypts over dense *Acacia*, *Melaleuca*, and *Senna* midstory. Ground cover was mostly small *Acacia*, *Solanum*, and *Atriplex* species with occasional herbs and daisies. Microhabitats include rocky outcrops, crevices, exfoliating rock, and leaf litter. Small breakaways containing shallow overhangs were occasionally observed. Habitat condition was mostly good throughout with occasional clearing and road networks.	
Rocky Outcrop	13.96 ha, < 0.1%	Areas of bare rock, often granite, greenstone, or quartz, with little to no vegetation surrounding. Ephemeral pools often form after heavy rains. Microhabitats include exfoliating rock, crevices, caves, leaf litter, and woody debris. Important shelter and denning habitat for a variety of reptile and mammal species.	

Fauna habitat	Total area, percentage of Survey Area	Habitat description	Representative photograph
Shrubland/Heathland	438.86 ha, 1.9%	Sandplains of deep alluvial soils with minimal outcropping. Vegetation lacks any form of overstorey and is predominantly tall dense *Acacia* and Myrtaceae shrubland with minimal understory of herbs and forbs. Microhabitats include leaf litter, woody debris, and peeling bark. Habitat was mostly good throughout with minimal areas of clearing and rehabilitation. This habitat constitutes important refuge and nesting habitat for Malleefowl.	
Cleared	1618.39 ha, 6.9%	Cleared land for existing mining activity and associated tracks/roads. Low/negligible fauna habitat value.	
Man-made Dam	0.69 ha, <0.01%	Areas that were cleared and bunded to hold water for domestic livestock. They provide water sources for longer periods of the year than most natural water-holding areas and become important water sources for animals in the local area.	
Rehab	62.08 ha, 0.3%	Areas that were previously cleared which have since been scarified and replanted/reseeded. They provide some level of habitat for fauna species but are still in very poor condition.	
Total	23,555 ha		



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Terrestrial Fauna Survey - Mt Marion Hamptons

Fauna Habitat and Significant Fauna Records MAP 9

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4.3 Fauna Records

The fauna survey recorded a total of 91 fauna taxa from 45 families. The vertebrate fauna diversity within each habitat type is summarised in **Table 14** and a full inventory of fauna taxa recorded during the field survey is provided in **Appendix E**.

Table 14: Fauna diversity by habitat type

Fauna habitat	Birds	Mammals	Reptiles	Total
Chenopod Shrubland	0	2	1	3
Claypan	0	0	0	0
Drainage Line	27	11	2	40
Eucalypt Woodland	49	10	11	70
Low Hills and Slopes	0	0	0	0
Rocky Hill	15	4	1	20
Rocky Outcrop	11	6	3	20
Shrubland/Heathland	3	0	1	4
Cleared	18	4	2	24
Man-made Dam	5	3	0	8
Rehab	0	0	0	0

Birds

A total of 59 native birds from 26 families were recorded within the Survey Area. The most abundant bird taxa are the Weebill (*Smicrornis brevirostris*), White-browed Babbler (*Pomatostomus superciliosus*), and Brown-headed Honeyeater (*Melithreptus brevirostris*). The most diverse bird families were Meliphagidae (nine taxa), Acanthizidae (six taxa), Artamidae (five taxa), and Petroicidae (five taxa).

One significant bird was recorded (Malleefowl) and no introduced birds were recorded.

Mammals

A total of 14 mammals from nine families were recorded within the Survey Area, comprising five native mammal taxa and seven non-native mammal taxa. The most abundant mammal taxa were the Rabbit (*Oryctolagus cuniculus*) and the European Cattle (*Bos primigenius taurus*). One genus contained multiple records which could not be identified to species level (*Sminthopsis* sp.) as they were recorded via remote sensing cameras and sufficient detail to determine species was unavailable. The most diverse mammal families were Macropodidae (three taxa), Dasyuridae (two taxa), and Muridae (two taxa).

Reptiles

A total of 12 reptile species from eight families were recorded within the Survey Area. The most abundant reptile taxon is the Bynoe's Gecko (*Heteronotia binoei*), and the most diverse reptile families were Scincidae (five taxa), and Gekkonidae (two taxa).

Insects

A total of six insect species from two families were recorded within the Survey Area. The most abundant insect taxa were the *Camponotus gouldianus* and the C*amponotus* sp. nr. *terebrans.* Five taxa were recorded in the Formacidae family, and one taxon was recorded in the Cicadellidae family.

4.4 Significant Fauna

4.4.1 Recorded Within the Survey Area

One significant fauna taxon was recorded within the Survey Area:

- Malleefowl (*Leipoa ocellata*), listed as Vulnerable under the BC Act and EPBC Act, were recorded five times during the field survey. One record by camera trapping (Error! Reference source not found.), two records by visual sighting and two records by tracks. Thirty-nine mounds were also recorded during the survey. Further results relating to Malleefowl mounds are presented below in **Section 4.5**.

Significant fauna record locations are presented in **Map 9**.

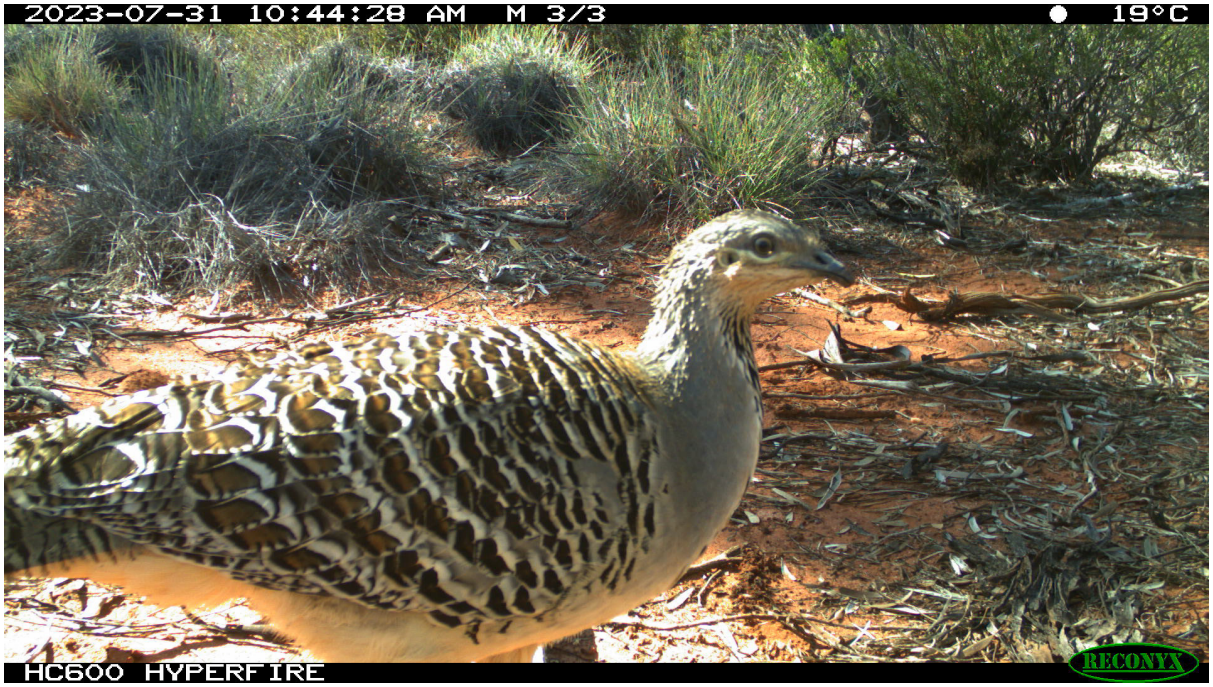

Plate 1: Malleefowl (*Leipoa ocellata*) recorded by camera trap within Eucalypt Woodland (-31.0326, 121.3676).

4.4.2 Potentially Occurring Within the Survey Area

Two significant fauna taxa were assessed as having a high likelihood of occurrence within the Survey Area:

- Arid Bronze Azure Butterfly (*Ogyris petrina*), listed as Critically Endangered under the BC Act and EPBC Act (ABAB has been elevated to the species level, but is currently listed as *Ogyris subterrestris petrina*, (Beaver *et al.*, 2023).

- Inland Hairstreak Butterfly (*Jalmenus aridus*), listed as P1 by DBCA.

Two significant fauna taxa were assessed as having a medium likelihood of occurrence within the Survey Area:

- Carnaby's Cockatoo (*Zanda latirostis*), listed as Endangered under the BC Act and EPBC Act.
- Common Sandpiper (*Actitis hypoleucos*), listed as Migratory under the BC Act and Migratory and Marine under the EPBC Act.

One targeted species was assessed as having a low likelihood of occurrence:

- Chuditch (*Dasyurus geofroii*), listed as Vulnerable under the BC Act and EPBC Act.

A further 25 significant fauna taxa were assessed as having a low likelihood of occurrence within the Survey Area.

The complete results of the significant fauna likelihood of occurrence assessment including justification for the assessment outcome for each taxon is provided in **Appendix F**.

4.5 Malleefowl Mound Survey

The Malleefowl mound analysis algorithm identified 44 potential mounds classed as 1 or 2 (see Section 3.2.8 for class definitions). Following ground-truthing, six mounds were confirmed to be active (likely to contain eggs) at the time of survey, 14 were inactive but Malleefowl activity was present, 12 were dormant, and seven were long unused. Of the mounds that were active or inactive, but Malleefowl activity was present, 10 were found in Eucalypt Woodland, 6 were found in Shrubland/Heathland, one was found in Low Hills and Slopes and one was found in Rocky Hills. Malleefowl mounds are presented in **Table 15** and **Map 9**.

Table 15: Malleefowl mounds recorded within the Survey Area

Mound no.	Lat/Long WGS84	Status	Profile	Photo
1	-31.134620, 121.300936	Inactive (dormant)	Typical crater with raised rim	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
2	-31.1345303, 121.302287	Active	Mound mounded up (no crater)	
3	-31.133182, 121.302999	Inactive (dormant)	Typical crater with raised rim	
4	-31.131357, 121.244321	Inactive (Malleefowl activity present)	Mound fully dug out	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
5	-31.131226, 121.300549	Inactive (Malleefowl activity present)	Mound with litter	
6	-31.129049, 121.248897	Active	Mound that has a sandy crater with peak in centre	
7	-31.123732, 121.248541	Inactive (Malleefowl activity present)	Typical crater with raised rim	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
8	-31.121608, 121.248878	Inactive (Malleefowl activity present)	Mound fully dug out	
9	-31.060194, 121.372001	Inactive (dormant)	Mound with litter	
10	-31.053462, 121.376472	Inactive (Malleefowl activity present)	Mound with litter	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
11	-31.052826, 121.446868	Inactive (Malleefowl activity present)	Mound with litter	
12	-31.051507, 121.388412	Inactive (Malleefowl activity present)	Mound with litter	
13	-31.049180, 121.365750	Active	Mound mounded up (no crater)	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
14	-31.047692, 121.359768	Inactive (dormant)	Mound fully dug out	
15	-31.046802, 121.395402	Inactive (dormant)	Mound fully dug out	
16	-31.04652, 121.385628	Inactive (dormant)	Mound fully dug out	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
17	-31.044312, 121.49241	Inactive (Malleefowl activity present)	Typical crater with raised rim	
18	-31.044039, 121.500336	Inactive (Malleefowl activity present)	Mound fully dug out	
19	-31.043515, 121.390434	Inactive (long unused)	Mound fully dug out	
20	-31.038764, 121.378362	Inactive (long unused)	Mound low and flat without peak or crater	No Image Available

Mound no.	Lat/Long WGS84	Status	Profile	Photo
21	-31.03760, 121.37017	Inactive (dormant)	Mound fully dug out	
22	-31.036944, 121.403284	Inactive (dormant)	Typical crater with raised rim	
23	-31.035946, 121.36307	Active	Mound with litter	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
24	-31.033187, 121.361409	Inactive (long unused)	Mound fully dug out	
25	-31.031527, 121.36143	Inactive (Malleefowl activity present)	Mound with litter	
26	-31.031422, 121.406660	Active	Mound that has a sandy crater with peak in centre	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
27	-31.031030, 121.438227	Inactive (long unused)	Mound low and flat without peak or crater	
28	-31.029376, 121.423683	Inactive (dormant)	Mound fully dug out	
29	-31.0215684,121.3575348	Inactive (dormant)	Mound fully dug out	
30	-31.020682, 121.374363	Inactive (dormant)	Typical crater with raised rim	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
31	-31.020386, 121.360328	Active	Mound with litter	
32	-31.020347, 121.368827	Inactive (Malleefowl activity present)	Typical crater with raised rim	
33	-31.019858, 121.303625	Inactive (long unused)	Mound low and flat without peak or crater	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
34	-31.012686, 121.365663	Inactive (dormant)	Mound with litter	
35	-31.007865, 121.376567	Inactive (Malleefowl activity present)	Mound fully dug out	
36	-31.007546, 121.371925	Inactive (dormant)	Mound fully dug out	

Mound no.	Lat/Long WGS84	Status	Profile	Photo
37	-31.00627, 121.364670	Inactive (dormant)	Mound with litter	
38	-31.005222, 121.375949	Inactive (long unused)	Mound fully dug out	
39	-31.004870, 121.381107	Inactive (long unused)	Mound fully dug out	

4.6 ABAB Ant Transect Survey

Three ant nests in the northwest polygon of the Survey Area were confirmed to be *Camponotus* sp. nr *terebrans*. Nest locations are presented in **Table 16** and **Map 9**.

Table 16: *Camponotus* sp. nr. *terebrans* nests recorded within the Hamptons Tenements

Collection No.	Lat	Long	Date	Field Comments
M.M - ABAB - 019	-31.000743	121.2782903	31-07-2023	At the base of smooth-barked eucalypt
M.M - ABAB - 074	-30.996797	121.2846936	31-07-2023	At the base of smooth-barked eucalypt
M.M - ABAB - 079	-30.998561	121.2948558	31-07-2023	At the base of smooth-barked eucalypt

5.0 Discussion

5.1 Fauna Habitat

The eight broad fauna habitats identified within the Survey Area are typical of the Goldfields bioregion and consistent with habitats identified by previous studies in the region (**Appendix A**). At least one habitat assessment was conducted within each habitat type. Multiple assessments were conducted within the fauna habitats with the highest value to significant fauna (Rocky Hill, Rocky Outcrop, and Shrubland/Heathland) and overall fauna assemblages (Eucalypt Woodland and Drainage Line). Nearly all identified fauna habitats extend outside the Survey Area to form larger ecosystems, however there are three pockets of Shrubland/Heathland, and a series of Claypan habitats contained entirely within the Survey Area which lack connectivity to similar habitats.

The Drainage Line habitat is of highest value to significant fauna due to dense fringing shrubland, and higher foraging potential. Numerous shallow ephemeral pools provide valuable water sources for significant species such as Malleefowl and Carnaby's Cockatoo. The Drainage Line habitats are valuable for their role as an ecological linkage. The habitat provides continuous corridors of vegetation cover that allow fauna to traverse large distances.

The Rocky Outcrop habitat is of high value to a number of fauna species due to the caves and rock crevices found throughout the habitat. Numerous shallow ephemeral pools provide valuable water sources for Malleefowl, black cockatoos, mammal, and reptile species. The Rocky Outcrop habitats are valuable for their role as denning and refuge habitat. These habitats may also occasionally flood, providing a temporary water source for fauna species.

The Shrubland/Heathland habitat is of high value to Malleefowl and other large fauna species as a refuge from predators due to the density of vegetation. This habitat also provides valuable foraging resources.

The Eucalypt Woodland habitat is common and widespread throughout the Survey Area and provides moderate value habitat to all fauna within the Survey Area and surrounds. However, the smooth-barked eucalypts that are within this habitat are the preferred trees for the Sugar Ant (*Camponotus* sp. nr. *terebrans*) – the host ant for the ABAB (*O. petrina*). These ants were recorded within the Survey Area during the survey which makes the areas of Eucalypt Woodland where the ant species occurs of high value to the ABAB.

Habitat condition varied throughout the Survey Area. Large portions of the Survey Area had been recently cleared for mining activity, drill pads, and associated access tracks. Weeds and degradation caused by cattle and historic settlement were observed throughout all habitats.

5.2 Significant Fauna

5.2.1 Recorded Within the Survey Area

5.2.1.1 Malleefowl (*Leipoa ocellata*) – VU (BC Act); VU (EPBC Act)

The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacia. A sandy substrate and abundance of leaf litter are required for breeding (Department of the Environment and Energy, 2018). Densities of Malleefowl are generally greatest in areas of higher rainfall and on more fertile soils where habitats tend to be thicker and there is an abundance of food plants. Much of the best habitat for Malleefowl has already been cleared or has been modified by grazing via Sheep, Cattle, Rabbits, and Goats (Benshemesh, 2007). The species nests in large mounds of soil and leaf litter, up to five metres wide and one metre tall (Menkhorst *et al.*, 2017).

This species was recorded five times within the Survey Area via camera trapping, tracks, and sightings. The Malleefowl mound ground-truthing revealed 20 mounds that were either active at the time of survey or showed recent signs of activity. The Eucalypt Woodland and Shrubland/Heathland habitats constitute core habitat for the taxon and are being used for foraging and nesting. While one Malleefowl mound was recorded within the Rocky Hill habitat, this habitat is generally unsuitable for nesting due to uneven, rocky substrate and low levels of leaf litter.

5.2.2 High Likelihood of Occurrence

5.2.2.1 Arid Bronze Azure Butterfly (*Ogyris petrina*) – CR (BC Act); CR (EPBC Act)

Following the extirpation of the only known population in the early 1990s, the Arid Bronze Azure Butterfly (ABAB) was rediscovered at Barbalin Nature Reserve in 2006. The ABAB has an obligate association with the Sugar Ant (*Camponotus* sp. nr. *terebrans*). ABAB larvae have adapted to emit a chemical that fools sugar ants into thinking that larvae are queen ants. The duped ants escort the larvae to their ant nurseries where the butterfly larvae are either fed by the ants or, feed on the baby ants. As well has hosting the larvae of the butterfly, the ants also host leafhoppers (*Pogonoscopus lenis)* within their nests (Department of Energy, 2022).Unlike other species in this genus, the ABAB larva do not eat vegetation and are entirely dependent upon the host ant. The ABAB larvae require large ant colonies that are typically found at the base of many species of smooth-barked eucalypts including *Eucalyptus salubris* and *E. salmonophloia* (DBCA, 2020b).

Three Sugar Ant (*C.* sp. nr. *terebrans*) nests were identified from samples taken in the northeast polygon (**Map 9**) which were not identified in the field. As a result, total delineation of this colony did not occur during the field survey, however, the proximity of these nests to each other suggests that they are part of the same colony. The Eucalypt Woodland habitat in which the ants were found extends outside the Survey Area, forming a large habitat for the host ant species to potentially occur. The true extent of the ant colony is to be determined by the ongoing surveys.

5.2.2.2 Inland Hairstreak Butterfly (*Jalmenus aridus*) – P1 (DBCA)

The Inland Hairstreak Butterfly (*Jalmenus aridus*) is one of ten currently recognised species in the genus *Jalmenus*, endemic to Australia. *Jalmenus* species feed openly on the foliage of their respective host plants, and all are attended by specific ant species. *J. aridus* is attended by *Froggattella kirbii* (Sands and New, 2002). *J. aridus* is in a mutualistic relationship with the ant whereby the ant colony protect the butterflies from predators and parasitoids and the butterfly caterpillars reward the ants with sweet secretions from special organs on their cuticle.

The butterfly adults are cryptic, and their flight period is relatively short (only two to three weeks at a given site). Timing of their emergence is linked to rainfall patterns, plant phenology and other ecological conditions with flight times most likely from mid-October to mid-November.

Their mutualist ant, *F. kirbii* is found from the Perth Hills to the East coast of Australia. Their host plant *Senna artemisioides* is found over most of central and eastern WA and *Acacia tetragonophylla* is found almost everywhere in WA except the very far north and far south. The ant and host plant *A. tetragonophylla* were recorded within the Survey Area. The presence of the butterfly has not been confirmed, however surveys for the butterfly are ongoing.

Five historical (1985-1997) DBCA records of Inland Hairstreak Butterfly have occurred within 100 km of the Survey Area, with the closest record 15 km north of the Survey Area. SLR internal records indicate 16 individuals were recorded within 3 kms of the Survey Area in 2021. Surveys completed within the surrounding areas of Kalgoorlie in 2021 and 2022 identified 10 active breeding sites within 100 km of Kalgoorlie (Eastwood *et al.*, 2023). These surveys recorded 114 adults in 2021 and 120 adults in 2022 (Eastwood *et al.*, 2023). The taxon has a high likelihood of occurrence within the Survey Area due to the presence of the host plant *A. tetragonophylla* as habitat for the butterfly host ant *F. kirbii* and as a food source of the *J. aridus* larvae. *J. aridus* is likely to occur in five fauna habitats within the Survey Area, including:

- Drainage Line
- Eucalypt Woodland
- Low Hills and Slopes
- Rocky Hill
- Shrubland/Heathland.

5.2.3 Medium Likelihood of Occurrence

5.2.3.1 Carnaby's Cockatoo (*Zanda latirostris*) – EN (BC Act); EN (EPBC Act)

Carnaby's Cockatoos nest in the hollows of a wide range of eucalypt trees, with a preference for smooth barked trees such as Salmon Gum (*E. salmonophloia*) and Wandoo (*E. wandoo*) but also rough barked eucalypts and *Corymbia* trees such as Red Morrell (*E. longicornis*), York Gum (*E. loxophleba*), Marri (*Corymbia calophylla*) and Tuart (*E. gomphocephala*) (Johnstone and Storr, 1998). Carnaby's Cockatoos feed on seeds, nuts, and flowers of a

variety of native and exotic plants, including *Banksia* spp., Pine trees (*Pinus* sp.), Marri, Jarrah (*E. marginata*), *Grevillea* spp., *Allocasuarina* spp., and *Hakea* spp. (Shah, 2006).

This taxon was not identified within the Survey Area during the survey, however, the closest record to the Survey Area was 26 km north in 2018. Habitat present within the Survey Area, such as Eucalypt Woodlands, could be used by the taxon for nesting and foraging. While this species does not frequently inhabit this region, it is an uncommon vagrant that may utilise habitats within the Survey Area.

5.2.3.2 Common Sandpiper (*Actitis hypoleucos*) – MI (BC Act); MI, MA (EPBC Act)

The Common Sandpiper is typically carnivorous, feeding on molluscs, crustaceans, and a variety of insects. It is a migratory species that uses varied coastal and interior wetlands including narrow muddy edges of billabongs, river pools, mangroves, among rocks and snags, reefs, or rocky beaches (Morcombe, 2003). It migrates from mid-northern latitudes of Asia (Menkhorst *et al.*, 2017) and has a broad breeding distribution from western Europe to eastern Russia (Pizzey and Knight, 2001; Bamford *et al.*, 2008).

There are three records approximate 2 km east to the northwest polygon of the Survey Area, at Coolgardie Gorge, which is a permanent water source. Six additional records are within 70 km of the Survey Area. The Survey Area contains Chenopod Shrublands, Drainage Lines, Man-made Dams and Claypans. These habitats have the potential to inundate, and therefore constitute potential Common Sandpiper habitat after rainfall.

5.2.4 Low Likelihood of Occurrence

5.2.4.1 Chuditch (*Dasyurus geoffroii*) VU (BC Act); VU (EPBC Act)

The Chuditch inhabits areas dominated by sclerophyll forest or drier woodland, heath, and mallee shrubland (Van Dyck and Strahan, 2008). The species is generally highly mobile and uses bush remnants as corridors (Woinarski, Burbidge and Harrison, 2014). The Chuditch is a largely nocturnal animal, feeding on a carnivorous diet of mammals, birds, lizards, and frogs. Although they have been recorded foraging during the day at particular times such as during the breeding season or when cold and wet weather restricts their nocturnal movements (Van Dyck and Strahan, 2008). Most diurnal nesting sites in sclerophyll forest consist of hollow logs or earth burrows, although bandicoot nests and hollow tree bases may be used (Van Dyck and Strahan, 2008). The Chuditch was abundant prior to European settlement, and it is now largely restricted to the south-west of Western Australia, with small numbers in the Midwest, Wheatbelt and South Coast Regions (Department of Biodiversity Conservation and Attractions, 2017).

A single historic DBCA record 16.3 km east of the Survey Area, recorded in 1974 (DBCA, 2023c), shows that this taxon may have historically been present within the Survey Area, but has since been locally extirpated. The Drainage Lines, Rocky Outcrop, and Shrubland/Heathland habitats within the Survey Area would provide valuable hunting, dispersal, and denning habitat for this taxon. Chuditch can have home ranges of up to 15 square kilometres, the possibility of a small and scattered population to exist within the region is highly unlikely but cannot be ruled out without broader intensive survey effort.

A further 25 significant fauna were assessed as having a low likelihood of occurrence within the Survey Area and were not identified during the survey. These taxa will not be discussed as they were not targeted as part of this survey.

6.0 Conclusion

Eight fauna habitats were mapped within the Survey Area:

- Chenopod Shrubland
- Claypan
- Drainage Line
- Eucalypt Woodland
- Low Hills and Slopes
- Rocky Hill
- Rocky Outcrop
- Shrubland/Heathland.

These habitats are typical of the Coolgardie and Eastern Goldfield bioregions and are widespread outside the Survey Area. The Claypan, Drainage Line, Rocky Outcrop, and Shrubland/Heathland habitats were considered to have microhabitats of value to significant fauna.

One significant fauna species was recorded during the survey effort:

- Malleefowl (*Leipoa ocellata*), listed as VU under the BC Act and EPBC Act.

Two species were considered to have a high likelihood of occurrence:

- Arid Bronze Azure Butterfly (*Ogyris petrina*), listed as CR under the BC Act and EPBC Act
- Inland Hairstreak Butterly (*Jalmenis Aridus*), listed as P1 by DBCA.

Seven Introduced species were recorded during the survey effort:

- Cat (*Felis catus*)
- Dingo/Dog (*Canis familiaris*)
- Donkey (*Equus africanus asinus*)
- European Cattle (*Bos taurus*)
- Horse (*Equus ferrus*)
- House Mouse (*Mus musculus*)
- Rabbit (*Oryctolagus cuniculus*).

Additional surveys targeting the ABAB within colonies of the host ant *Camponotus* sp. nr. *terebrans* have been recommended and are ongoing.

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Appendix A Literature Review Summary

Mt Marion Hamptons Tenements Terrestrial Fauna Survey

Basic Fauna and Targeted Malleefowl, Chuditch, and ABAB Surveys

Mineral Resources Limited

SLR Project No.: 675.VX5937.00001

19 April 2024

Report	Survey location	Survey Timing	Survey type	Significant fauna recorded	Fauna habitats recorded
Mt Marion Lithium Project Malleefowl Survey, July 2022 (Bamford Consulting Ecologists, 2022a)	Overlaps Survey Area	July 2022	Targeted Malleefowl survey	Nil	N/A
Mt Marion Fauna Assessment: Hamptons lease Area 53, L15/353, M15/999 and East E15/1599 (Bamford Consulting Ecologists, 2022b)	Overlaps Survey Area	September 2021	Basic and targeted terrestrial vertebrate survey	Malleefowl (*Leipoa ocellata*) (VU)	Mixed eucalypt woodland over sclerophyll shrubland Acacia shrubland on slopes Open to closed eucalypt woodland or Mallee Mixed eucalypt woodland over *Melaleuca sheathiana* Dense mallee and eucalypt woodland associated with minor drainage lines Acacia shrubland on brown loam flats Dense acacia shrubland on exposed granite
Mt Marion Lithium Project Malleefowl Survey, January 2020 (Bamford Consulting Ecologists, 2020)	Overlaps Survey Area	January 2020	Targeted Malleefowl survey	Nil	*Acacia* spp. shrubland
Fauna Assessment of M15/717 Lease Area; Mt Marion Lithium Project (Bamford Consulting Ecologists, 2017a)	Overlaps Survey Area	August 2017	Basic and targeted terrestrial vertebrate survey	Malleefowl (*Leipoa ocellata*) (VU)	Broad drainage lines Low rises Tall acacia shrublands
Mt Marion Project Fauna Assessment v4	Overlaps Survey Area	October 2016	Basic and targeted terrestrial vertebrate survey	Malleefowl (*Leipoa ocellata*) (VU)	Mixed eucalypt woodland on Greenstone hills Dense acacia shrubland

Report	Survey location	Survey Timing	Survey type	Significant fauna recorded	Fauna habitats recorded
(Bamford Consulting Ecologists, 2016)					Eucalypt woodland over mixed shrubs Mixed eucalypt woodland over *Melaleuca sheathiana* Dense mallee and eucalypt woodland associated with major drainage lines Dense acacia and allocasuarina shrubland on sandy clay flats Mixed eucalypt woodland over sclerophyll shrubland *Casuarina pauper* shrubland
Fauna Assessment of the Mt Marion Mining Lease Area (Bamford Consulting Ecologists, 2012)	Overlaps Survey Area	February 2012	Basic fauna survey	Nil	Greenstone hills and rocky ridges Stoney plains Drainage lines Loam plains Loam flats
Terrestrial Fauna Habitat Assessment; Mount Marion Lithium Project (Rapallo, 2010)	Overlaps Survey Area	March 2010	Basic Fauna Survey	Nil	Greenstone non-halophytic eucalypt woodlands Rocky hillslope shrubland Granite hill mixed shrubland Stony close allocasuarina shrubland Stony close Jam shrubland *Eucalyptus* woodland over low shrubs on undulating slopes Plain *Eucalyptus longicornis* woodland with Melaleuca Plain *Melaleuca pauperiflora* woodland Plain *Eucalyptus eremophila* woodland Plain *Eucalyptus eremophila*/ chenopod woodland

Report	Survey location	Survey Timing	Survey type	Significant fauna recorded	Fauna habitats recorded
					Plain mallee mixed shrubland *Eucalyptus celastroides* over low shrubs
Fauna Assessment of the Proposed Woolibar Borefields Stage 2 Pipeline Corridor (Bamford Consulting Ecologists, 2018)	Bordering Survey Area	July 2018	Basic fauna survey	Nil	Eucalypt woodland on sandy-loam and clay-loams Eucalypt woodland over melaleuca shrubland on gravelly clay-loam Tall dense Acacia shrubland
Fauna Assessment of Proposed Borefields Pipeline Corridor (Bamford Consulting Ecologists, 2017b)	Bordering Survey Area	September 2017	Basic and targeted terrestrial vertebrate survey	Nil	Eucalypt woodland on sandy-loam and clay-loams Eucalypt woodland over melaleuca shrubland on gravelly clay-loam Salmon Gum open woodland over open mixed shrubland

Appendix B Licences and Permits

Mt Marion Hamptons Tenements Terrestrial Fauna Survey

Basic Fauna and Targeted Malleefowl, Chuditch, and ABAB Surveys

Mineral Resources Limited

SLR Project No.: 675.VX5937.00001

19 April 2024

Department of
Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

Dr Mike Lohr
Principal Zoologist
360 Environmental

Dear Dr Lohr

WILDLIFE ANIMAL ETHICS COMMITTEE – ASSESSMENT DECISION

New Project Application #: NPA168
Project Title: Goldfields vertebrate fauna survey
Project Chief Investigator: Mike Lohr

Thank you for your application to use animals for scientific purposes which was reviewed and assessed by the Wildlife Animal Ethics Committee (WAEC) on 8 June 2023, and for your responses to their queries. The WAEC has **Approved** this application for one (1) year from **8 June 2023 to 7 June 2024.** Work on this project using animals for scientific purposes may commence from the date above. Work on this project beyond the 7 June 2024 will require a new application that provides more detail about the site(s) where the project will be undertaken and a more accurate listing of species most likely to be captured or observed in the study area. Estimates of the numbers of the species captured or observed will also be required.

The project's **WAEC Permit number** is: **WAEC 23-07-42**

The **Level of Impact** is determined as: **2. Minor conscious intervention.**

The approval of this project requires you to adhere to the conditions outlined in this letter and to comply with the *Animal Welfare Act* (2002) and the *Australian code for the care and use of animals for scientific purposes* (8th edition, 2013).

Specific Conditions of Approval that apply to this project:

1. Cooling then freezing is not to be used as a euthanasia technique in this project.

Conditions of Approval applicable to all projects:

1. Responsibilities of Chief Investigators

Investigators and teachers have personal responsibility for all matters related to the welfare of the animals they use and must act in accordance with all requirements of the Australian code of practice for the care and use of animals for scientific purposes. This responsibility begins when an animal is allocated to the project and ends with its fate and the completion of the project.

Chief Investigators are required to:

- Provide the WAEC Executive Officer with a copy of any current licences and permits required for the project e.g., from Department of Biodiversity, Conservation and Attractions (DBCA).
- Ensure all personnel associated with the project are competent to perform the tasks assigned to them.
- Provide prompt notification to the WAEC Executive Officer (wildlifeaec@dpird.wa.gov.au) immediately (within 24 hours) should any unforeseen or adverse event occur. In the event of the death of an animal, the cause needs to be determined as quickly as possible and a post-mortem examination by a qualified person undertaken where possible. In remote areas, any animals that die as a result of the project's activities should be refrigerated and retained until a post-mortem can be undertaken. Use photographs to record injuries, moribund animals and the adverse event scene wherever possible.
- Accommodate and facilitate requests from the WAEC to monitor the care and use of animals by inspecting animals, animal housing and the conduct of procedures, and / or reviewing records, photography and reports.
- Ensure accurate records of the care and use of animals are maintained.
- Provide information on your Annual Animal Use in the preceding year to the Scientific Licencing Unit when requested (usually in January – March).
- Where personnel from other Institutions are involved in the project, or when premises of another Institution are being utilised, that Institution must be advised of the project and must provide approval or formally delegate approval of the proposal.

2. Permits:

- Permits are valid for the dates shown above providing a satisfactory Annual Animal Use Report is submitted and approved by February of each year.
- Permits and application documents are treated in confidence. Information contained within your permit and application documents will only be provided to the Scientific Licensing Unit and other appropriate personnel as required. Any other requests for information will be referred to the Chief Investigator and their institution.
- Permits may be closed by a Chief Investigator with the submission of a Closed Permit form, or by a WAEC directive.
- Up to three major amendments to the project may be sought during this period.
- Investigators may be added to a permit following the submission of a signed amendment form. This will not be counted as one of the three amendments allowed per application.
- All forms are available on the DPIRD WAEC website or from the Executive Officer at: wildlifeaec@dpird.wa.gov.au.
- Please quote your ethics permit number in all correspondence.

3. Licences and Authorities:

- It is a requirement that your institution's licence to use animals for scientific purposes (Scientific Use Licence, SUL) obtained from the WA Department of Primary Industries and Regional Development (DPIRD) is available for public scrutiny. Therefore, you must ensure that a copy (an electronic copy is adequate) of the licence is:
- Displayed wherever animals are used for scientific purposes, e.g., in your laboratory, or
- Carried by Investigators when undertaking field work, e.g., in the car or boat.
- An approved animal ethics project and Permit does not constitute an Authorisation to take or disturb threatened species, or a Fauna Licence under the *Biodiversity Conservation Act* (2016) and Regulations (2018).

I wish you every success with your project.

Yours sincerely

Keith Morris
Chair, Wildlife Animal Ethics Committee
20 July 2023

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

FAUNA TAKING (BIOLOGICAL ASSESSMENT) LICENCE

Regulation 27, Biodiversity Conservation Regulations 2018

Licence Number: BA27000901

Licence Holder: Simon Girando
SLR Consulting
10 Bermondsey Street
West Leederville WA 6007

Date of Issue: 15/08/2023

Date Valid From: 15/08/2023
Date of Expiry: 14/08/2024

LICENSED ACTIVITIES

Subject to the terms and conditions on this licence, the licence holder may –

1. Disturb fauna through the deployment (installation and retrieval) of baited remote sensing cameras in suitable habitat for Mineral Resources Limited Mt Marion Lithium Project in the Goldfields Region. To inform future management plans for MinRes in their application for their Lithium Project and reduce the risk of impacting any significant fauna species in these areas.

LOCATIONS

1. Localities south of Coolgardie, north of Kambalda, and west of Kalgoorlie-Boulder in the Goldfields region also part of the Kambalda Nature Reserve.

AUTHORISED PERSONS

The following persons or persons of the specified class may assist in carrying out the licensed activities:

1. Michael Lohr
2. Evan Webb
3. Christina Walker
4. Li Yanlin
5. Rodney Eastwood
6. Lukas Geidans
7. Lachlan Crossley
8. Lewis Berry

CONDITIONS

1. Fauna must not be taken on CALM land, (as defined in the Conservation and Land Management Regulations 2002), unless authorised by a written notice of a lawful authority issued under regulations 4 and 8 of the Conservation and Land Management Regulations 2002.

2. If persons, other than the licence holder, are authorised to carry out/assist in carrying out the activities under the licence, the licence holder must ensure those persons have read and understand the licence terms and conditions.
3. The written authorisation of the person in possession or occupation of the land accessed and upon which fauna is taken, as required under regulation 101(2) and referred to in "Additional information" below, must:
   a) state location details (including lot or location number, street/road, suburb and local government authority);
   b) state land owner or occupier name, and contact phone number;
   c) specify the time period that the authorisation is valid for;
   d) be signed and dated; and
   e) be attached to this licence at all times.
4. This licence, and any written authorisation or lawful authority which authorises the take of fauna on specified locations must be carried at all times while conducting licensed activities and be produced on demand by a wildlife officer.
5. If a species of fauna listed as a threatened species under Section 19 of the *Biodiversity Conservation Act 2016* is inadvertently captured, that species is to be released immediately at the point of capture. If the fauna is injured or deceased, the licence holder shall contact the DBCA Wildlife Licensing Section (wildlifelicensing@dbca.wa.gov.au) for advice on treatment or disposal. Details of any capture of threatened fauna must be included in the "Return of Fauna Taken."
6. The licence holder must not:
   a) release any fauna in any area where it does not naturally occur;
   b) transfer fauna to any other person or authority (other than the Western Australian Museum) unless approved in writing by the CEO; or
   c) dispose of the remains of fauna in any manner likely to interfere the natural or present day distribution of the species.
7. The licence holder must not take and remove more than ten specimens of any one protected species of fauna from any location less than 20km apart. Where exceptional circumstances make it necessary to take a larger number of specimens from a particular location in order to obtain adequate statistical data, the collector must proceed with circumspection and justify their actions to the Director General in advance.
8. All holotypes and syntypes and a half share of paratypes of species or subspecies permitted to be permanently taken under this licence must be donated to the Western Australian Museum. Duplicates (one pair in each case) of any species collected, which represents a significant extension of geographic range must be offered to the Western Australian Museum.
9. All specimens and material retained under the authority of this licence must be offered to the Western Australian Museum for loan, for inclusion in its collection, or on request be made available to other persons involved in relevant scientific studies.
10. The licence holder must create, compile and maintain records and information as required in a DBCA approved "Return of Fauna Taken" of all fauna taking activities as they occur.
11. A DBCA approved "Return of Fauna Taken" must be completed in full (including nil taking details) and submitted to DBCA Wildlife Licensing Section (wildlifelicensing@dbca.wa.gov.au) prior to the end of each annual period of the licence (from the valid from date) (refer to "Additional Information" section

D Stefoni
LICENSING OFFICER
WILDLIFE PROTECTION BRANCH

Delegate of CEO

ADDITIONAL INFORMATION

1. It is an offence to take any species of fauna listed as a threatened species under Section 19 of the *Biodiversity Conservation Act 2016* unless the person is authorised under Section 40. The penalty ranges between $300 000 and $500 000; Section 150 Biodiversity Conservation Act 2016.
2. Regulation 82 empowers the CEO to add, substitute or delete a term or condition of a licence or to correct errors. Such power may be exercised on application of a licence holder or by the CEO's own initiative. If an amendment to a licence term or condition is required, please contact the CEO or the Licensing Section on wildlifelicensing@dbca.wa.gov.au in the first instance. The licence holder, if adversely affected by a condition imposed in this licence, may apply to the State Administrative Tribunal for review of the decision of the CEO to impose that condition on a licence: regulation 89(2) Biodiversity Conservation Regulations 2018.
3. A person must not contravene a condition of a licence. The penalty for an offence involving the contravention of a condition of a licence is a fine of $10 000: regulation 84 of the Biodiversity Conservation Regulations 2018.
4. It is an offence for persons authorised by this licence to enter land that is not in their possession or under their control without first having the *prior* written authorisation of the current owner or occupier of the land to:

   a) enter the land; and

   b) carry out the activity authorised by this licence.

   The penalty for this offence is a fine of $5 000: regulation 101(2) of the Biodiversity Conservation Regulations 2018.
5. The licence holder must be able to produce for inspection upon request any information or records required by regulation 85(2) of the Biodiversity Conservation Regulations 2018 Penalty $10 000. It is an offence to knowingly include false or misleading information or make statements in records: regulation 85(3) of the Biodiversity Conservation Regulations 2018 Penalty $10 000. It is an offence to include any information or make any statement in a return that the licence holder knows to be false or misleading in a material particular: regulation 86 (2) of the Biodiversity Conservation Regulations 2018 Penalty $10 000.
6. The approved DBCA "Return of Fauna Taken" data file can be downloaded from the DBCA webpage (https://www.dpaw.wa.gov.au/plants-and-animals/licences-and-authorities).
7. The issuing of a licence under the Biodiversity Conservation Regulations 2018 does not constitute an animal ethics approval or a licence to use animals for scientific purposes as required under the *Animal Welfare Act 2002,* Animal Welfare (Scientific Purposes) Regulations 2003. It is the responsibility of a licence applicant / licence holder to ensure that they comply with the requirements of all applicable legislation. Enquiries relating to the Animal Welfare Act licences and animal ethics approvals are to be directed to the Department of Primary Industries and Regional Development (https://www.agric.wa.gov.au/animalwelfare).

8. Threatened fauna can only be taken under a *Biodiversity Conservation Act 2016* Section 40 authorisation, Occurrences of threatened species must be reported to the CEO. For more information please see https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-animals.

9. Any interaction involving Nationally Listed Threatened Fauna that may be invasive and/or harmful to the fauna may require approval from the Commonwealth Department of the Environment and Energy http://www.environment.gov.au/about-us/business-us/permits-assessments-licences. Interaction with such species is controlled by the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and Environment Protection and Biodiversity Conservation Regulations 2000 as well as the *Biodiversity Conservation Act 2016* and Biodiversity Conservation Regulations 2018.

DEPARTMENT OF PARKS AND WILDLIFE

Department of
Parks and Wildlife

Enquiries: 17 DICK PERRY AVE, KENSINGTON, WESTERN AUSTRALIA
Telephone: 08 9219 9000
Facsimile: 08 9219 8242

Correspondence: **Locked Bag 30**
Bentley Delivery Centre WA 6983

CE006886

RECEIPT NO. **AMOUNT** $0.00

CONSERVATION AND LAND MANAGEMENT REGULATIONS 2002
REGULATION 4

WRITTEN NOTICE OF LAWFUL AUTHORITY

FOR THE PURPOSE(S) DESCRIBED

TO AUTHORIZE A PERSON TO DO AN ACT THAT WOULD, BUT FOR SUCH A NOTICE, BE UNLAWFUL UNDER THE CONSERVATION AND LAND MANAGEMENT REGULATIONS.

DIRECTOR GENERAL

CONDITIONS

1 This authority is a written notice for the purposes of regulation 4(1) of the Conservation and Land Management Regulations 2002 (the Regulations) and it authorises the person named as the authority holder to carry out certain acts as described under "Purpose" (below), that would otherwise be unlawful under the Regulations cited in this authority.

2 Where applicable, licenses issued under regulation 89 or section 15(1) and/or section 23C of the Wildlife Conservation Act 1950 for the taking of flora and/or fauna are required in addition to this authority.

3 This authority does not comprise a lawful authority to enter CALM Act land the subject of division 1 of part 3 of the Regulations unless the land and/or waters is described below. "CALM land" is defined in regulation 2 to mean land, or land and waters, to which the Regulations apply, including caves and parts of caves on, or under that land. The Regulations apply to the land and waters as described in regulation 3.

4 Licensee/authority holder must contact the applicable region/district at least one (1) week prior to activity commencement for site specific instructions. (Contact details provided in the covering letter and/or attached conditions to this licence/authority).

5 No bioprospecting involving the removal of sample aquatic and terrestrial organisms (both flora and fauna) for chemical extraction and bioactivity screening is permitted to be conducted without specific written approval by the Director General.

6 Where applicable, a licence issued under the Biodiversity Conservation Regulations 2018 is required in addition to this authority.

PURPOSE

DISTURB FAUNA (REGULATION 8) THROUGH THE DEPLOYMENT (INSTALLATION AND RETRIEVAL) OF BAITED REMOTE SENSING CAMERAS IN SUITABLE HABITAT FOR MINERAL RESOURCES LIMITED MT MARION LITHIUM PROJECT IN THE GOLDFIELDS REGION. TO INFORM FUTURE MANAGEMENT PLANS FOR MINRES IN THEIR APPLICATION FOR THEIR LITHIUM PROJECT AND REDUCE THE RISK OF IMPACTING ANY SIGNIFICANT FAUNA SPECIES IN THESE AREAS WITHIN KAMBALDA NATURE RESERVE.

AUTHORISED PERSONS

MICHAEL LOHR
EVAN WEBB
CHRISTINA WALKER
LI YANLIN
RODNEY EASTWOOD
LUKAS GEIDANS
LACHLAN CROSSLEY
LEWIS BERRY

DEPARTMENT OF PARKS AND WILDLIFE

Department of
Parks and Wildlife

Enquiries: 17 DICK PERRY AVE, KENSINGTON, WESTERN AUSTRALIA
Telephone: 08 9219 9000
Facsimile: 08 9219 8242

Correspondence: **Locked Bag 30**
Bentley Delivery Centre WA 6983

DATE OF ISSUE 15/08/2023
VALID FROM 15/08/2023
DATE OF EXPIRY 14/08/2024

LICENSING OFFICER

LICENSEE: S GIRANDO (SIMON)
ADDRESS SLR CONSULTING
10 BERMONDSEY STREET
WEST LEEDERVILLE WA 6007

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Appendix C Fauna Desktop Assessment Results

Mt Marion Hamptons Tenements Terrestrial Fauna Survey

Basic Fauna and Targeted Malleefowl, Chuditch, and ABAB Surveys

Mineral Resources Limited

SLR Project No.: 675.VX5937.00001

19 April 2024

Conservation Status: State - Listed under Biodiversity Conservation Act 2016 or Department of Biodiversity, Conservation and Attractions Conservation, Commonwealth - Listed under Environmental Protection and Biodiversity Conservation Act 1999.

CR - Critically Endangered, EN - Endangered, VU - Vulnerable, MI - Migratory, CD - Conservation Dependent fauna, OS - Other Specially Protected fauna, MA - Marine, P - Listed as Priority by DBCA.

Source: NM - NatureMap, PMST - EPBC Protected Matters Search Tool, DBCA - DBCA Threatened and Priority Fauna database search

Family	Scientific Name	Common Name	Conservation Status		Source		
			DBCA	Commonwealth	NM	PMST	DBCA
Birds							
Acanthizidae	*Acanthiza apicalis*	Inland Thornbill, Broad-tailed Thornbill	-	-	1		
	Acanthiza chrysorrhoa	Yellow-rumped Thornbill	-	-			
	Acanthiza uropygialis	Chestnut-rumped Thornbill	-	-	1		
	Aphelocephala leucopsis	Southern Whiteface	-	VU		1	
	Calamanthus cautus	Shy Groundwren, Shy Heathwren	-	-			
	Gerygone fusca	Western Gerygone	-	-			
	Pyrrholaemus brunneus	Redthroat	-	-	1		
	Smicrornis brevirostris	Weebill	-	-	1		
Accipitridae	*Accipiter fasciatus*	Brown Goshawk	-	MA			
	Aquila audax	Wedge-tailed Eagle	-	-			
	Circus assimilis	Spotted Harrier	-	-			
	Elanus axillaris	Black-shouldered Kite	-	-			
	Haliastur sphenurus	Whistling Kite	-	MA			
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar	-	-			
Alcedinidae	*Todiramphus pyrrhopygius*	Red-backed Kingfisher	-	-			
	Todiramphus sanctus	Sacred Kingfisher	-	MA			
Anatidae	*Anas gracilis*	Grey Teal	-	-			
	Anas superciliosa	Pacific Black Duck	-	-			
	Chenonetta jubata	Australian Wood Duck, Wood Duck, Maned Duck	-	-			
	Cygnus atratus	Black Swan	-	-			
	Malacorhynchus membranaceus	Pink-eared Duck	-	-			
	Oxyura australis	Blue-billed Duck	P4	-			8
	Tadorna tadornoides	Australian Shelduck, Mountain Duck	-	-			
Apodidae	*Apus pacificus*	Pacific Swift, Fork-tailed Swift	MI	MI, MA			2

Family	Scientific Name	Common Name	Conservation Status		Source		
			DBCA	Commonwealth	NM	PMST	DBCA
Ardeidae	*Egretta novaehollandiae*	White-faced Heron	-	-			
Artamidae	*Artamus cinereus*	Black-faced Woodswallow	-	-			
	Artamus cyanopterus	Dusky Woodswallow	-	-			
	Artamus personatus	Masked Woodswallow	-	-			
	Cracticus nigrogularis	Pied Butcherbird	-	-			
	Cracticus torquatus	Grey Butcherbird	-	-	1		
	Gymnorhina tibicen	Australian Magpie	-	-			
Artamidae	*Strepera versicolor*	Grey Currawong	-	-	1		
Cacatuidae	*Eolophus roseicapilla*	Galah	-	-	1		
	Zanda latirostris	Carnaby's Cockatoo	EN	EN			6
Campephagidae	*Coracina maxima*	Ground Cuckooshrike	-	-			
	Coracina novaehollandiae	Black-faced Cuckooshrike	-	MA			
	Lalage tricolor	White-winged Triller	-	-			
Caprimulgidae	*Eurostopodus argus*	Spotted Nightjar	-	MA			
Casuariidae	*Dromaius novaehollandiae*	Emu	-	-			
Charadriidae	*Charadrius ruficapillus*	Red-capped Plover	-	MA			
	Charadrius veredus	Oriental Plover	MI	MI, MA			4
	Elseyornis melanops	Black-fronted Dotterel	-	-			
	Thinornis cucullatus	Hooded Dotterel	P4	MA			4
Cinclosomatidae	*Cinclosoma clarum*	Western Chestnut Quail-thrush, Copperback Quail-thrush	-	-			
	Cinclosoma marginatum	Western Quail-thrush	-	-			
Climacteridae	*Climacteris rufus*	Rufous Treecreeper	-	-			
Columbidae	*Geopelia cuneata*	Diamond Dove	-	-			
	Ocyphaps lophotes	Crested Pigeon	-	-			
	Phaps chalcoptera	Common Bronzewing	-	-	1		
Corvidae	*Corvus bennetti*	Little Crow	-	-			
	Corvus coronoides	Australian Raven	-	-	1		
Cuculidae	*Chalcites basalis*	Horsfield's Bronze Cuckoo	-	MA			
	Chalcites osculans	Black-eared Cuckoo	-	MA			
	Heteroscenes pallidus	Pallid Cuckoo	-	MA			
Dicaeidae	*Dicaeum hirundinaceum*	Mistletoebird	-	-			
Estrildidae	*Taeniopygia castanotis*	Australian Zebra Finch	-	-			
Falconidae	*Falco berigora*	Brown Falcon	-	-			

Family	Scientific Name	Common Name	Conservation Status		Source		
			DBCA	Commonwealth	NM	PMST	DBCA
	Falco hypoleucos	Grey Falcon	VU	VU		1	1
	Falco peregrinus	Peregrine Falcon	OS	-			12
Hirundinidae	*Cheramoeca leucosterna*	White-backed Swallow	-	-			
	Hirundo neoxena	Welcome Swallow	-	MA			
	Petrochelidon ariel	Fairy Martin	-	-			
	Petrochelidon nigricans	Tree Martin	-	MA			
Maluridae	*Amytornis textilis textilis*	Western Grasswren	P4	(A. modestus VU)			1
	Malurus assimilis	Purple-backed Fairywren	(M. assimilis bernieri VU)	-			
	Malurus leucopterus	White-winged Fairywren	(M. leucopterus edouardi, M.s leucopterus leucopterus VU	(M. leucopterus edouardi, M. leucopterus leucopterus VU)			
	Malurus pulcherrimus	Blue-breasted Fairywren	-	-			
	Malurus splendens	Splendid Fairywren	-	-	1		
Megapodiidae	*Leipoa ocellata*	Malleefowl	VU	VU		1	224
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater	-	-	1		
	Anthochaera carunculata	Red Wattlebird	-	-	1		
	Epthianura albifrons	White-fronted Chat	-	-			
	Epthianura tricolor	Crimson Chat	-	-			
	Gavicalis virescens	Singing Honeyeater	-	-	1		
	Lichmera indistincta	Brown Honeyeater	-	-	1		
	Manorina flavigula	Yellow-throated Miner	-	-	1		
	Melithreptus brevirostris	Brown-headed Honeyeater	-	-			
	Nesoptilotis leucotis	White-eared Honeyeater	-	-	1		
	Ptilotula ornata	Yellow-plumed Honeyeater	-	-			
	Ptilotula penicillata	White-plumed Honeyeater	-	-			
	Purnella albifrons	White-fronted Honeyeater	-	-	1		
Meropidae	*Merops ornatus*	Rainbow Bee-eater	-	MA			
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	-	MA			
Motacillidae	*Anthus australis australis*		-	(A. australis MA)			
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella	-	-			
Oreoicidae	*Oreoica gutturalis*	Crested Bellbird	-	-	1		
Pachycephalidae	*Colluricincla harmonica*	Grey Shrikethrush	-	-	1		

Family	Scientific Name	Common Name	Conservation Status		Source		
			DBCA	Commonwealth	NM	PMST	DBCA
	Pachycephala inornata	Gilbert's Whistler	-	-	1		
	Pachycephala pectoralis	Golden Whistler	-				
	Pachycephala rufiventris	Rufous Whistler	-	-	1		
Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote	-	-			
	Pardalotus striatus	Striated Pardalote	-	-	1		
Petroicidae	*Drymodes brunneopygia*	Southern Scrub Robin	-	-	1		
	Eopsaltria griseogularis	Western Yellow Robin	-	-			
	Microeca fascinans	Jacky Winter	-	-			
	Petroica goodenovii	Red-capped Robin	-	-			
Podargidae	*Podargus strigoides*	Tawny Frogmouth	-	-			
Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe, Black-throated Grebe	-	-			
Pomatostomidae	*Pomatostomus superciliosus*	White-browed Babbler	-	-	1		
	Pomatostomus temporalis	Grey-crowned Babbler	-	-			
Psittaculidae	*Barnardius zonarius*	Australian Ringneck	-	-	1		
	Melopsittacus undulatus	Budgerigar	-	-			
	Parvipsitta porphyrocephala	Purple-crowned Lorikeet	-	-	1		
	Pezoporus occidentalis	Night Parrot	CR	EN		1	
	Platycercus icterotis xanthogenys		P4	-			3
	Polytelis alexandrae	Princess Parrot	P4	VU		1	
	Polytelis anthopeplus	Regent Parrot	-	-			
	Psephotellus varius	Mulga Parrot	-	-			
Rallidae	*Porzana fluminea*	Australian Spotted Crake, Australian Crake	-	-			
Recurvirostridae	*Cladorhynchus leucocephalus*	Banded Stilt	-	-			
	Himantopus himantopus	Black-winged Stilt	-	MA			
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	-	-			
	Rhipidura leucophrys	Willie Wagtail	-	-			
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	MI	MI, MA			9
	Arenaria interpres	Ruddy Turnstone	MI	MI, MA			2
	Calidris acuminata	Sharp-tailed Sandpiper	MI	MI, MA			9
	Calidris alba	Sanderling	MI	MI, MA			1
	Calidris ferruginea	Curlew Sandpiper	CR	CR, MI, MA		1	2
	Calidris ruficollis	Red-necked Stint	MI	MI, MA			3

Family	Scientific Name	Common Name	Conservation Status		Source		
			DBCA	Commonwealth	NM	PMST	DBCA
	Tringa brevipes	Grey-tailed Tattler	MI, P4	MI, MA			1
	Tringa glareola	Wood Sandpiper	MI	MI, MA			7
	Tringa nebularia	Common Greenshank	MI	MI, MA			10
Strigidae	*Ninox boobook boobook*	Southern Boobook	-	MA			
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	MI	MI, MA			2
Turnicidae	*Turnix velox*	Little Buttonquail	-	-			
Zosteropidae	*Zosterops lateralis*	Grey-breasted White-eye, Silvereye	-	MA			
Mammals							
Bovidae	*Bos primigenius taurus*	European Cattle	-	-			
	Capra aegagrus hircus	Goat	-	-			
Canidae	*Canis familiaris*	Dingo / Dog	-	-			
	Vulpes vulpes	Red Fox	-	-			
Dasyuridae	*Dasyurus geoffroii fortis*	Western Quoll, Chuditch	VU	VU		1	1
	Phascogale calura	Red-tailed Phascogale	CD	VU			1
	Sminthopsis dolichura	Little Long-tailed Dunnart	-	-			
Felidae	*Felis catus*	Cat	-	-			
Leporidae	*Oryctolagus cuniculus*	Rabbit	-	-			
Macropodidae	*Macropus fuliginosus melanops*	Western Grey Kangaroo	-	-			
	Osphranter rufus	Red Kangaroo, Marlu	-	-			
Molossidae	*Austronomus australis*	White-striped Free-tailed Bat	-	-			
Muridae	*Mus musculus*	House Mouse	-	-			
	Notomys mitchellii	Mitchell's Hopping-mouse	-	-			
Myrmecobiidae	*Myrmecobius fasciatus fasciatus*	Numbat, Walpurti	EN	EN			1
Tachyglossidae	*Tachyglossus aculeatus acanthion*	Short-beaked Echidna	-	-			
Thylacomyidae	*Macrotis lagotis*	Bilby, Dalgyte	VU	VU			3
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat	-	-			
	Chalinolobus morio	Chocolate Wattled Bat	-	-			
	Nyctophilus major tor	Central Long-eared Bat	P3	-			1
	Scotorepens balstoni	Inland Broad-nosed Bat	-	-			
	Vespadelus baverstocki	Inland Forest Bat	-	-			
	Vespadelus regulus	Southern Forest Bat	-	-			
Reptiles							
Agamidae	*Ctenophorus cristatus*	Bicycle Dragon	-	-	1		

Family	Scientific Name	Common Name	Conservation Status		Source		
			DBCA	Commonwealth	NM	PMST	DBCA
	Ctenophorus fordi	Western Mallee Dragon	-	-	1		
	Ctenophorus maculatus	Spotted Sand Dragon	-				
	Ctenophorus reticulatus	Western Netted Dragon	-	-	1		
	Ctenophorus salinarum	Salt Pan Dragon	-	-	1		
	Moloch horridus	Thorny Devil	-	-	1		
	Pogona minor minor	Western Bearded Dragon	-	-	1		
	Tympanocryptis pseudopsephos	Goldfields Pebble-mimic Dragons	-	-	1		
Carphodactylidae	*Underwoodisaurus milii*	Southern Barking Gecko	-	-	1		
Diplodactylidae	*Crenadactylus ocellatus*	South-western Clawless Gecko	-	-	1		
	Diplodactylus granariensis granariensis		-	-	1		
	Diplodactylus pulcher		-	-	1		
	Hesperoedura reticulata		-	-	1		
	Lucasium maini		-	-	1		
	Rhynchoedura ornata	Western Beaked Gecko	-	-	1		
	Strophurus assimilis	Goldfields Spiny-tailed Gecko	-	-	1		
	Strophurus elderi	Jewelled Gecko	-	-	1		
Elapidae	*Brachyurophis semifasciatus*		-	-	1		
	Demansia psammophis (doesn't occur in WA try reticulata)	Yellow-faced whipsnake	-	-	1		
	Furina ornata	Moon Snake	-	-	1		
	Pseudechis australis	Mulga Snake	-	-	1		
	Pseudonaja affinis	Dugite	(P. affinis exilis P4; P. affinis tanneri P4)				
	Pseudonaja mengdeni	Western Brown Snake	-	-	1		
	Pseudonaja modesta	Ringed Brown Snake	-	-	1		
	Simoselaps bertholdi	Jan's Banded Snake	-	-	1		
	Suta fasciata	Rosen's Snake	-	-	1		
	Suta gouldii	Gould's Hooded Snake	-	-	1		
	Suta monachus	Inland Hooded Snake	-	-	1		
	Suta nigriceps		-	-	1		
Gekkonidae	*Christinus marmoratus*	Marbled Gecko	-	-			
	Gehyra purpurascens		-	-	1		
	Gehyra variegata	Variegated Gehyra	-	-	1		
	Heteronotia binoei	Bynoe's Gecko	-	-	1		

Family	Scientific Name	Common Name	Conservation Status		Source		
			DBCA	Commonwealth	NM	PMST	DBCA
Pygopodidae	*Delma australis*		-	-	1		
	Delma fraseri	Fraser's Delma	-	-	1		
	Pygopus lepidopodus	Common Scaly Foot	-	-	1		
Pythonidae	*Morelia spilota imbricata*		-	-	1		
Scincidae	*Cryptoblepharus buchananii*		-	-	1		
	Ctenotus atlas		-	-	1		
	Ctenotus schomburgkii	Barred Wedge-snouted Ctenotus	-	-			
	Ctenotus uber uber	Western Spotted Ctenotus	-	-	1		
	Cyclodomorphus melanops elongatus	Spinifex Slender Blue-tongue	-	-	1		
	Egernia depressa	Southern Pygmy Spiny-tailed Skink	-	-	1		
	Egernia formosa	Goldfields Crevice-skink	-	-			
	Egernia stokesii badia	Western Spiny-tailed Skink	VU	EN			1
	Eremiascincus richardsonii	Broad-banded Sand Swimmer	-	-	1		
	Hemiergis initialis initialis		-	-	1		
	Hemiergis peronii peronii		-	-	1		
	Lerista kingi		-	-	1		
	Lerista timida	Timid Slider	-	-	1		
	Liopholis inornata		-	-	1		
	Liopholis multiscutata	Bull Skink	-	-	1		
	Menetia greyii	Common Dwarf Skink	-	-	1		
	Morethia butleri		-	-	1		
	Tiliqua occipitalis	Western Bluetongue	-	-			
	Tiliqua rugosa	Bobtail	(T. rugosa konowi VU)				
Typhlopidae	*Anilios australis*		-	-	1		
	Anilios bicolor		-	-	1		
	Anilios bituberculatus		-	-	1		
Varanidae	*Varanus gouldii*	Bungarra Or Sand Goanna	-	-	1		
	Varanus tristis	Racehorse Goanna	-	-	1		
Insects							
Lycaenidae	*Jalmenus aridus*		P1	-			5
	Ogyris subterrestris petrina		CR	CR		1	17
Amphibians							
Limnodynastidae	*Neobatrachus kunapalari*	Kunapalari Frog	-	-	1		

Family	Scientific Name	Common Name	Conservation Status		Source		
			DBCA	Commonwealth	NM	PMST	DBCA
	Neobatrachus pelobatoides	Humming Frog	-	-	1		
	Neobatrachus sutor	Shoemaker Frog	-	-	1		
Myobatrachidae	*Pseudophryne occidentalis*	Western Toadlet	-	-	1		

Appendix D Fauna Habitat Assessment Sheets

Mt Marion Hamptons Tenements Terrestrial Fauna Survey

Basic Fauna and Targeted Malleefowl, Chuditch, and ABAB Surveys

Mineral Resources Limited

SLR Project No.: 675.VX5937.00001

19 April 2024

5937-CAM-01-DL

Project:	5937				
Date	28-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 930133		**Northing**	6555112
Landform and Soil			**Rock**		
Landform	Drainage line		**Rock type/s**	Dolerite, Granite, Ironstone	
Aspect	East		**Surface stone cover**	0 - 5%	
Soil type	Sandy loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Brown,Red				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Woody debris	
Disturbance	None observed				
Introduced fauna	Cattle,Rabbit		**Ground Cover**	26-50%	
Vegetation					
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus spp.*		
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Melaleuca sp., Acacia acuminata, Atriplex sp., Senna sp.*		
Ground stratum	Mid (0.5-1 m)	Isolated forbs (<0.25%)	*Samphire, Carpobrotus sp., Maireana sp.*		

Fulcrum photo ID	647bde13-0acf-4ab3-9428-57c4189f3e17

5937-CAM-02-DL

Project:	5937				
Date	28-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 921368		**Northing**	6559224
Landform and Soil			**Rock**		
Landform	Drainage line		**Rock type/s**	Granite, Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Clay loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Red				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Hollows - trees, Leaf litter, Logs > 10 cm, Woody debris	
Disturbance	None observed				
Introduced fauna	Cattle		**Ground Cover**	26-50%	
Vegetation					
Upper stratum	Low (<10 m)	Isolated trees (<0.25%)	*Eucalyptus spp.*		
Mid stratum	Tall (>2 m)	Open shrubland and/or heathland (20-50%)	*Acacia acuminata, Hakea sp., Melaleuca sp., Maireana sp., Atriplex*		
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)			

Fulcrum photo ID	eadc2035-4460-4860-807b-772e3c71b06d

5937-CAM-03-DL

Project:	5937				
Date	29-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 924683		**Northing**	6555659
Landform and Soil			**Rock**		
Landform	Outcrop/breakaway		**Rock type/s**	Granite, Ironstone	
Aspect	West		**Surface stone cover**	75 - 100%	
Soil type	Clay loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Brown, Red				
Condition			**Habitat Features**		
Quality	High quality		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Hollows - logs, Leaf litter, Logs > 10 cm, Peeling bark, Rock crevices, Woody debris	
Disturbance	None observed				
Introduced fauna	None observed		**Ground Cover**	<10%	
Vegetation					
Upper stratum	Low (<10 m)	Isolated trees (<0.25%)	*Eucalyptus spp.*		
Mid stratum	Tall (>2 m)	Shrubland and/or heathland (50-80%)	*Allocasuarina sp., Acacia spp., young Eucalyptus sp., Brachychiton p*		
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)	*Young melaleuca spp.*		

Fulcrum photo ID	414301b3-b7f9-43be-b27f-f3f44ffe07bb

5937-CAM-03-PW

Project:	5937				
Date	28-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 909150		**Northing**	6548377
Landform and Soil			**Rock**		
Landform	Undulating plain		**Rock type/s**	Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Clay loam		**Surface stone size classes present**	Pebbles (<0.6 cm)	
Soil colour	Red				
Condition			**Habitat Features**		
Quality	High quality		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark, Woody debris	
Disturbance	Vehicle tracks				
Introduced fauna	None observed		**Ground Cover**	11-25%	
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus salmonophloia, Eucalyptus salubris*		
Mid stratum	Tall (>2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia spp.*		
Ground stratum	Tall (1-2 m)	Sparse forbland (0.25-20%)	Mixed herbs		

Fulcrum photo ID	529700a8-9f92-4826-8a65-4363af52e9d7

5937-CAM-04-PW

Project:	5937				
Date	27-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 908710		**Northing**	6563067
Landform and Soil			**Rock**		
Landform	Drainage line		**Rock type/s**	None	
Aspect	Negligible		**Surface stone cover**		
Soil type	Clay		**Surface stone size classes present**		
Soil colour	Red				
Condition			**Habitat Features**		
Quality	Good		**Water Source**	Present	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Woody debris	
Disturbance	Overgrazing				
Introduced fauna	Cattle		**Ground Cover**	26-50%	
Vegetation					
Upper stratum	Absent				
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)		*Chenopod, mixed shrubs*	
Ground stratum	Absent				

Fulcrum photo ID	1f2d0e79-06c4-47b8-8471-fecd9a154ce

5937-CAM-06-PW

Project:	5937				
Date	29-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 917359		**Northing**	6558492
Landform and Soil			**Rock**		
Landform	Drainage line		**Rock type/s**	None	
Aspect	Negligible		**Surface stone cover**		
Soil type	Clay		**Surface stone size classes present**		
Soil colour	Red				
Condition			**Habitat Features**		
Quality	High quality		**Water Source**	after rain	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark, Woody debris	
Disturbance	None observed				
Introduced fauna	Dog		**Ground Cover**	51-75%	
Vegetation					
Upper stratum	Low (<10 m)	Woodland (20-50%)		*Eucalyptus sp.*	
Mid stratum	Tall (>2 m)	Shrubland and/or heathland (50-80%)		Mixed shrubs	
Ground stratum	Absent				

Fulcrum photo ID	6cd54528-141f-44e4-8eca-910472bc7e7

5937-CAM-07-PW

Project:	5937				
Date	29-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 916715		**Northing**	6557806

Landform and Soil		**Rock**	
Landform	Drainage line	**Rock type/s**	Ironstone, Laterite, Quartz
Aspect	West	**Surface stone cover**	0 - 5%
Soil type	Clay	**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Orange		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hollows - logs, Hollows - trees, Leaf litter, Logs > 10 cm, Peeling bark, Woody debris
Disturbance	Trampling		
Introduced fauna	Cattle	**Ground Cover**	26-50%

Vegetation			
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus sp.*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	Mixed shrubs
Ground stratum	Absent		

Fulcrum photo ID	98301aba-7c58-4b88-ae96-0e6d2119c6a

5937-CAM-08-PW

Project:	5937				
Date	27-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 908886		**Northing**	6551361

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Quartz
Aspect	Negligible	**Surface stone cover**	0 - 5%
Soil type	Clay	**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm)
Soil colour	Red		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hollows - logs, Hollows - trees, Leaf litter, Logs > 10 cm, Peeling bark, Woody debris
Disturbance	Vehicle tracks		
Introduced fauna	Cattle	**Ground Cover**	26-50%

Vegetation			
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus salubris*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Mixed shrubs (myrtaceae)*
Ground stratum	Absent		

Fulcrum photo ID	e90fa72b-ede0-4a0b-8762-d9835915659c

5937-CAM-09-DL

Project:	5937				
Date	28-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 926414		**Northing**	6557356

Landform and Soil		**Rock**	
Landform	Drainage line	**Rock type/s**	Dolerite, Granite, Ironstone, Quartz
Aspect	West	**Surface stone cover**	0 - 5%
Soil type	Sandy loam	**Surface stone size classes present**	Pebbles (<0.6 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Brown, Red		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Leaf litter, Logs > 10 cm, Woody debris
Disturbance	Erosion		
Introduced fauna	Cattle	**Ground Cover**	11-25%

Vegetation			
Upper stratum	Low (<10 m)	Isolated trees (<0.25%)	*Eucalyptus spp.*
Mid stratum	Mid (1-2 m)	Isolated shrubs and/or heath shrubs (<0.25%)	*Acacia spp., Senna sp., Atriplex spp., Maireana sp.*
Ground stratum	Absent		

Fulcrum photo ID	78d0d443-5ef4-49f1-8b80-a99ccedc0d7a

5937-CAM-10-PW

Project:	5937				
Date	27-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 904921		**Northing**	6566262

Landform and Soil		**Rock**	
Landform	Drainage line	**Rock type/s**	None
Aspect	Negligible	**Surface stone cover**	
Soil type	Sandy clay	**Surface stone size classes present**	
Soil colour	Red		
Condition		**Habitat Features**	
Quality	Good	**Water Source**	creek line, currently dry
Fire History	Unknown	**Microhabitats**	Leaf litter, Peeling bark, Woody debris
Disturbance	grazing		
Introduced fauna	Cattle,horse	**Ground Cover**	11-25%

Vegetation			
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus loxophleba*
Mid stratum	Low (0.5-1 m)	Open shrubland and/or heathland (20-50%)	Mixed shrubs
Ground stratum	Low (>0.5 m)	Sparse forbland (0.25-20%)	Mixed herbs

Fulcrum photo ID	d5d2c7fc-2865-44e4-8beb-b303c5a2b03e

5937-CAM-12-PW

Project:	5937				
Date	29-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 917994		**Northing**	6555783

Landform and Soil		**Rock**	
Landform	Outcrop/breakaway	**Rock type/s**	Limestone
Aspect	Southwest	**Surface stone cover**	75 - 100%
Soil type	Rock	**Surface stone size classes present**	Pebbles (<0.6 cm), Rocks (20 - 60 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm), outcrop
Soil colour	Red, White, Yellow, silt		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Present
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Rock crevices
Disturbance	Litter		
Introduced fauna	None observed	**Ground Cover**	<10%

Vegetation			
Upper stratum	Low (<10 m)	Isolated trees (<0.25%)	*Allocasuarina sp.*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia sp.*
Ground stratum	Low (>0.5 m)	Sparse forbland (0.25-20%)	Mixed herbs

Fulcrum photo ID	2afc4305-ce32-432a-95f3-c600e757ca8b

5937-CAM-13-SG

Project:	5937				
Date	29-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 917370		**Northing**	6560206

Landform and Soil		**Rock**	
Landform	Outcrop/breakaway	**Rock type/s**	Granite
Aspect	Negligible	**Surface stone cover**	75 - 100%
Soil type	Rock	**Surface stone size classes present**	Big Rocks (60 cm - 2 m), Pebbles (<0.6 cm), Rocks (20 - 60 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Brown		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Present
Fire History	Unknown	**Microhabitats**	Burrows, Exfoliating rock, Peeling bark, Rock crevices, Woody debris
Disturbance	None observed		
Introduced fauna	None observed	**Ground Cover**	<10%

Vegetation			
Upper stratum	Absent		
Mid stratum	Tall (>2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia acuminata, Hakea sp.*
Ground stratum	Mid (0.5-1 m)	Sparse forbland (0.25-20%)	

Fulcrum photo ID	297f5497-1e50-4cf8-b8e5-978e38e4d626

5937-CAM-30-PW

Project:	5937				
Date	27-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 903130		**Northing**	6563420
Landform and Soil			**Rock**		
Landform	Mid slope		**Rock type/s**	Ironstone, Quartz	
Aspect	East		**Surface stone cover**	25 - 50%	
Soil type	Sandy loam		**Surface stone size classes present**	Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Red				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter	
Disturbance	Vehicle tracks, some logging				
Introduced fauna	None observed		**Ground Cover**	11-25%	
Vegetation					
Upper stratum	Low (<10 m)	Woodland (20-50%)	*Allocasuarina sp.*		
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	Mixed shrubs		
Ground stratum	Absent				

Fulcrum photo ID	6d1db409-6812-46eb-8016-757bb5082154

5937-CAM-31-DL

Project:	5937				
Date	28-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 931128		**Northing**	6550160
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Unknown	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Clay loam		**Surface stone size classes present**		
Soil colour	Red				
Condition			**Habitat Features**		
Quality	High quality		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Hollows - logs, Hollows - trees, Leaf litter, Logs > 10 cm, Peeling bark, Woody debris	
Disturbance	None observed				
Introduced fauna	None observed		**Ground Cover**	76-100%	
Vegetation					
Upper stratum	Low (<10 m)	Woodland (20-50%)	*Eucalyptus salmonophloia*		
Mid stratum	Tall (>2 m)	Isolated shrubs and/or heath shrubs (<0.25%)	*Solanum acuminata*		
Ground stratum	Mid (0.5-1 m)	Sparse hummock grassland (0.25-20%)	*Melaleuca spp., Senna sp., Eremophila sp.*		

Fulcrum photo ID	c0f2c2a7-fca9-4348-be24-a6d1782ce477

5937-CAM-32-DL

Project:	5937				
Date	28-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting**	923736	**Northing**	6556303

Landform and Soil		**Rock**	
Landform	Mid slope	**Rock type/s**	Granite
Aspect	West	**Surface stone cover**	5 - 25%
Soil type	Sandy loam	**Surface stone size classes present**	Pebbles (<0.6 cm), Rocks (20 - 60 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Brown, Orange		
Condition		**Habitat Features**	
Quality	High quality	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Exfoliating rock, Hollows - logs, Hollows - trees, Leaf litter, Logs > 10 cm, Peeling bark, Woody debris
Disturbance	None observed		
Introduced fauna	None observed	**Ground Cover**	26-50%

Vegetation			
Upper stratum	Low (<10 m)	Isolated trees (<0.25%)	*Eucalyptus spp.*
Mid stratum	Tall (>2 m)	Open shrubland and/or heathland (20-50%)	*Acacia acuminata, Solanum spicatum, Hakea sp., myrtaceous plants*
Ground stratum	Low (>0.5 m)	Isolated rushes and/or sedges (<0.25%)	*Dianella revoluta, dryland sedges*

Fulcrum photo ID	b1c8e652-d69a-4799-8af5-99e833cdca7c

5937-CAM-33-DL

Project:	5937				
Date	27-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting**	921712	**Northing**	6554196

Landform and Soil		**Rock**	
Landform	Wetland	**Rock type/s**	Granite, Ironstone, Quartz
Aspect	Negligible	**Surface stone cover**	0 - 5%
Soil type	Clay	**Surface stone size classes present**	Pebbles (<0.6 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Brown,Red		
Condition		**Habitat Features**	
Quality	Highly degraded	**Water Source**	Present
Fire History	Unknown	**Microhabitats**	Leaf litter
Disturbance	Clearing, Erosion, Infrastructure, Litter, Overgrazing, Vehicle tracks, Weeds		
Introduced fauna	Cattle,Rabbit	**Ground Cover**	76-100%

Vegetation			
Upper stratum	Absent		
Mid stratum	Absent		
Ground stratum	Absent		

Fulcrum photo ID	84beeca9-0468-4fa5-bd04-4230fba82f10

5937-CAM-98-EW

Project:	5937				
Date	09-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** -804267		**Northing**	6482766

Landform and Soil		**Rock**	
Landform	Outcrop/breakaway	**Rock type/s**	Laterite, Unknown
Aspect	Southeast	**Surface stone cover**	75 - 100%
Soil type	Loam	**Surface stone size classes present**	Big Rocks (60 cm - 2 m), Pebbles (<0.6 cm), Rocks (20 - 60 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Brown, Orange		
Condition		**Habitat Features**	
Quality	High quality	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Burrows, Caves, Leaf litter, Peeling bark, Rock crevices
Disturbance	None observed		
Introduced fauna	None observed	**Ground Cover**	26-50%

Vegetation			
Upper stratum	Low (<10 m)	Open mallee woodland (0.25-20%)	*Eucalyptus sp.*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Acacia sp., Myrtaceae spp.*
Ground stratum	Absent		

Fulcrum photo ID	b39b9e16-b205-4a62-94bd-cf5864e9a8c3

5937-CAM-99-PW

Project:	5937				
Date	27-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 908338		**Northing**	6548846

Landform and Soil		**Rock**	
Landform	Outcrop/breakaway	**Rock type/s**	Granite
Aspect	Negligible	**Surface stone cover**	50 - 75%
Soil type	Sand	**Surface stone size classes present**	Boulders (>2 m), outcropping
Soil colour	Orange		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	likely during wet times
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Rock crevices, Woody debris
Disturbance	Litter, Vehicle tracks, grazing		
Introduced fauna	Cattle	**Ground Cover**	26-50%

Vegetation			
Upper stratum	Absent		
Mid stratum	Tall (>2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia spp.*
Ground stratum	Low (>0.5 m)	Sparse forbland (0.25-20%)	*Mixed herbs*

Fulcrum photo ID	954ee7f8-4c4a-441a-a9a5-561c78d6441a

5937-HAB-02b-PW

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 924393		**Northing**	6557232

Landform and Soil		**Rock**	
Landform	Mid slope	**Rock type/s**	Quartz, Unknown
Aspect	North	**Surface stone cover**	75 - 100%
Soil type	Clay	**Surface stone size classes present**	Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Red		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Leaf litter, Peeling bark, Woody debris
Disturbance	Vehicle tracks		
Introduced fauna	None observed	**Ground Cover**	51-75%

Vegetation			
Upper stratum	Low (<10 m)	Woodland (20-50%)	*Eucalyptus spp.*
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Acacia sp., Myrtaceous plants*
Ground stratum	Absent		

Fulcrum photo ID	17574c24-a4e2-429f-9822-c14661a86d19

5937-HAB-02-PW

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 924438		**Northing**	6557225

Landform and Soil		**Rock**	
Landform	Lower slope	**Rock type/s**	Ironstone, Quartz
Aspect	East	**Surface stone cover**	0 - 5%
Soil type	Clay	**Surface stone size classes present**	Stones (2 - 6 cm)
Soil colour	Red		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Leaf litter, Peeling bark, Woody debris
Disturbance	Vehicle tracks		
Introduced fauna	None observed	**Ground Cover**	51-75%

Vegetation			
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Acacia sp.*
Mid stratum	Low (0.5-1 m)	Open shrubland and/or heathland (20-50%)	*Mixed shrubs*
Ground stratum	Low (>0.5 m)	Sparse forbland (0.25-20%)	*Mixed herbs*

Fulcrum photo ID	2a6d1784-c765-4fe5-a601-336ad40c2ffd

5937-HAB-03-PW

Project:	5937				
Date	12-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 920397		**Northing**	6558543
Landform and Soil			**Rock**		
Landform	Undulating plain		**Rock type/s**	Quartz	
Aspect	Northwest		**Surface stone cover**	75 - 100%	
Soil type	Clay		**Surface stone size classes present**	Pebbles (<0.6 cm), Rocks (20 - 60 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Grey				
Condition			**Habitat Features**		
Quality	Good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Rock crevices	
Disturbance	Clearing, Vehicle tracks				
Introduced fauna	None observed		**Ground Cover**		
Vegetation					
Upper stratum	Low (<10 m)	Isolated trees (<0.25%)	*Eucalyptus sp.*		
Mid stratum	Tall (>2 m)	Isolated shrubs and/or heath shrubs (<0.25%)	*Myrtaceous plants*		
Ground stratum	Low (>0.5 m)	Sparse forbland (0.25-20%)			

Fulcrum photo ID	61d90fc3-847f-440d-bd31-884080fd5715

5937-HAB-05-SG

Project:	5937				
Date	09-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 916348		**Northing**	6559954
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Granite	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Sandy loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Brown, Orange				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Burrows, Hummocks, Leaf litter, Woody debris	
Disturbance	None observed				
Introduced fauna	Rabbit		**Ground Cover**	11-25%	
Vegetation					
Upper stratum	Absent				
Mid stratum	Tall (>2 m)	Shrubland and/or heathland (50-80%)	*Acacia spp., Melaleuca spp., Eucalyptus sp., Eremophila spp.*		
Ground stratum	Mid (0.5-1 m)	Open forbland (20-50%)			

Fulcrum photo ID	5b8266ad-f122-49d3-9760-69e2ba76effa

5937-HAB-08-PW

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 929902		**Northing**	6559089
Landform and Soil			**Rock**		
Landform	Drainage line		**Rock type/s**	None	
Aspect			**Surface stone cover**		
Soil type	Clay		**Surface stone size classes present**		
Soil colour	Brown				
Condition			**Habitat Features**		
Quality	Good		**Water Source**	Present	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Logs > 10 cm	
Disturbance	Vehicle tracks				
Introduced fauna	Cattle		**Ground Cover**	26-50%	
Vegetation					
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus sp.*		
Mid stratum	Low (0.5-1 m)	Open shrubland and/or heathland (20-50%)	*Mixed Chenopod*		
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)	*Mixed herbs, Carpobrotus sp.*		

Fulcrum photo ID	cfa8775f-cba9-4903-96ac-65d1da01dc06

5937-HAB-09-PW

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 932443		**Northing**	6558118
Landform and Soil			**Rock**		
Landform	Undulating plain		**Rock type/s**	Ironstone, Quartz	
Aspect	East		**Surface stone cover**	50 - 75%	
Soil type	Clay		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Brown, Red				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Hollows - logs, Hollows - trees, Leaf litter, Logs > 10 cm, Peeling bark, Woody debris	
Disturbance	Vehicle tracks				
Introduced fauna	None observed		**Ground Cover**	26-50%	
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus spp.*		
Mid stratum	Low (0.5-1 m)	Open shrubland and/or heathland (20-50%)	*Mixed Chenopod*		
Ground stratum	Low (>0.5 m)				

Fulcrum photo ID	f3b8305d-70ad-448a-88be-6b11fff505c5

5937-HAB-10-EW

Project:	5937				
Date	02-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** -802048		**Northing**	6485391
Landform and Soil			**Rock**		
Landform	Mid slope		**Rock type/s**	Ironstone	
Aspect	Northeast		**Surface stone cover**	50 - 75%	
Soil type	Clay		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Orange, Red				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Logs > 10 cm, Peeling bark, Woody debris	
Disturbance	Vehicle tracks				
Introduced fauna	Rabbit		**Ground Cover**	26-50%	
Vegetation					
Upper stratum	Mid (10-30 m)	Woodland (20-50%)	*Eucalyptus salubris*		
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Melaleuca sp.*		
Ground stratum	Low (>0.5 m)	Sparse forbland (0.25-20%)			

Fulcrum photo ID	9015aa46-61e7-47d6-92da-68058da0283f

5937-HAB-11-PW

Project:	5937				
Date	12-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 920446		**Northing**	6559707
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Greenstone, Ironstone, Quartz	
Aspect	Northwest		**Surface stone cover**	75 - 100%	
Soil type	Clay		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Red				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark, Woody debris	
Disturbance	None observed				
Introduced fauna	None observed		**Ground Cover**	11-25%	
Vegetation					
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus sp.*		
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Acacia sp.*		
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)	Mixed herbs		

Fulcrum photo ID	0376c855-f9b8-4fba-846c-71fadcadb9ad

5937-HAB-12-PW

Project:	5937				
Date	01-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting**	918277	**Northing**	6557206

Landform and Soil		**Rock**	
Landform	Undulating plain	**Rock type/s**	Quartz
Aspect	West	**Surface stone cover**	50 - 75%
Soil type	Clay	**Surface stone size classes present**	Pebbles (<0.6 cm), Rocks (20 - 60 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	White		
Condition		**Habitat Features**	
Quality	High quality	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Rock crevices
Disturbance	None observed		
Introduced fauna	None observed	**Ground Cover**	<10%

Vegetation			
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus spp.*
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia sp.*
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)	Mixed herbs

Fulcrum photo ID	db9c7c7a-80da-4938-bf0b-27fe5db97d4b

5937-HAB-14-PW

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting**	923199	**Northing**	6554294

Landform and Soil		**Rock**	
Landform	Undulating plain	**Rock type/s**	Ironstone, Laterite
Aspect	South	**Surface stone cover**	75 - 100%
Soil type	Clay	**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Orange		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Leaf litter, Peeling bark, Woody debris
Disturbance	Vehicle tracks		
Introduced fauna	None observed	**Ground Cover**	11-25%

Vegetation			
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus spp., with stands of closed low Melaleuca sp.*
Mid stratum	Low (0.5-1 m)	Sparse shrubland and/or heathland (0.25-20%)	Mixed shrubs
Ground stratum	Absent		

Fulcrum photo ID	25394e2d-f2d5-4e6f-bfd4-c18711103ecc

5937-HAB-16-PW

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 928553		**Northing**	6559008
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Granite	
Aspect	South		**Surface stone cover**	25 - 50%	
Soil type	Clay		**Surface stone size classes present**	Big Rocks (60 cm - 2 m), Boulders (>2 m), Rocks (20 - 60 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Brown, Orange				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Rock crevices, clay cracks	
Disturbance	None observed				
Introduced fauna	None observed		**Ground Cover**	<10%	
Vegetation					
Upper stratum	Absent				
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)		*Myrtaceous plants*	
Ground stratum	Absent				

Fulcrum photo ID	30b9b03a-8471-4db2-a362-c479b28fbec1

5937-HAB-20-PW

Project:	5937				
Date	28-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 909077		**Northing**	6548162
Landform and Soil			**Rock**		
Landform	Undulating plain		**Rock type/s**	Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	50 - 75%	
Soil type	Clay loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Red				
Condition			**Habitat Features**		
Quality	High quality		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Hollows - trees, Leaf litter, Woody debris	
Disturbance	Vehicle tracks				
Introduced fauna	None observed		**Ground Cover**	<10%	
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)		*Eucalyptus salmonophloia, Eucalyptus salubris*	
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)		Mixed shrubs	
Ground stratum	Low (>0.5 m)	Sparse forbland (0.25-20%)		Mixed herbs	

Fulcrum photo ID	52c73192-4da5-45bc-9bbc-f6331e59acad

5937-HAB-22-PW

Project:	5937				
Date	02-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 920552		**Northing**	6556452
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	75 - 100%	
Soil type	Sandy clay		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm)	
Soil colour	Red				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark, Woody debris	
Disturbance	Vehicle tracks				
Introduced fauna	None observed		**Ground Cover**	11-25%	
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus sp., over stands of low Eucalyptus salubris open woodlan*		
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	Mixed shrubs		
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)	Mixed herbs		

Fulcrum photo ID	790bb1a0-2cd1-4feb-86d8-9c46c3f1f42f

5937-HAB-26-EW

Project:	5937				
Date	10-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 909236		**Northing**	6567054
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	25 - 50%	
Soil type	Clay		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Brown, Orange				
Condition			**Habitat Features**		
Quality	Good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark	
Disturbance	Infrastructure, Vehicle tracks, old fence				
Introduced fauna	Rabbit		**Ground Cover**	51-75%	
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus spp.*		
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Acacia sp., Myrtaceous plants*		
Ground stratum	Low (>0.5 m)		*Chenopod spp.*		

Fulcrum photo ID	adb67e7f-9dc4-47db-a447-4d63b299bee8

5937-HAB-28-DL

Project:	5937				
Date	11-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 930350		**Northing**	6557372
Landform and Soil			**Rock**		
Landform	Salt lake		**Rock type/s**	Unknown	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Sandy clay		**Surface stone size classes present**		
Soil colour	Brown, Red				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Unknown		**Microhabitats**	Hummocks, Leaf litter	
Disturbance	Overgrazing, Weeds				
Introduced fauna	Cattle		**Ground Cover**	<10%	
Vegetation					
Upper stratum	Absent				
Mid stratum	Absent				
Ground stratum	Mid (0.5-1 m)	Open forbland (20-50%)		*Atriplex and chenopod spp.*	

Fulcrum photo ID	dcba6efa-f66c-4a48-aa82-52e96ca5f83c

5937-HAB-30-EW

Project:	5937				
Date	31-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** -814623		**Northing**	6488615
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Unknown	
Aspect	Northwest		**Surface stone cover**	0 - 5%	
Soil type	Sandy loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm)	
Soil colour	Orange				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Hollows - logs, Hollows - trees, Hummocks, Leaf litter, Logs > 10 cm, Peeling bark, Woody debris	
Disturbance	Vehicle tracks				
Introduced fauna	Horse		**Ground Cover**	26-50%	
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)		*Eucalyptus salmonophloia, Mallee*	
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)		*Mixed shrubs, two distinct strata (tall and low)*	
Ground stratum	Mid (0.5-1 m)	Sparse hummock grassland (0.25-20%)		*Triodia sp.*	

Fulcrum photo ID	9aeacec7-b075-4c28-bb0c-8840ed532a58

5937-HAB-32-PW

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 917441		**Northing**	6560650
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Quartz	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Clay		**Surface stone size classes present**	Pebbles (<0.6 cm)	
Soil colour	Orange				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark, Woody debris	
Disturbance	None observed				
Introduced fauna	None observed		**Ground Cover**	11-25%	
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus salmonophloia, Eucalyptus salubris*		
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia sp., Myrtaceous plants*		
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)			

Fulcrum photo ID	af1005a5-3ff2-4e45-9a81-9303aef4db59

5937-HAB-33-ML

Project:	5937				
Date	31-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 907598		**Northing**	6560987
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Calcrete	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Clay loam		**Surface stone size classes present**	Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Brown, Orange				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark, Woody debris	
Disturbance	Overgrazing				
Introduced fauna	Cattle, Rabbit		**Ground Cover**	<10%	
Vegetation					
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus with rough base and smooth pale peeling upper bark*		
Mid stratum	Tall (>2 m)	Open shrubland and/or heathland (20-50%)	*Melaleuca sp., Eremophila sp., Acacia sp., and Exocarpos sp.*		
Ground stratum	Low (>0.5 m)	Sparse hummock grassland (0.25-20%)	*Triodia sp.*		

Fulcrum photo ID	db5bfafc-9dc5-4f91-9e99-6cf2b059788

5937-HAB-34-PW

Project:	5937				
Date	10-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting**	907694	**Northing**	6563068
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	25 - 50%	
Soil type	Clay loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm)	
Soil colour	Orange				
Condition			**Habitat Features**		
Quality	Good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Logs > 10 cm, Peeling bark	
Disturbance	Clearing, Litter, Vehicle tracks				
Introduced fauna	None observed		**Ground Cover**	11-25%	
Vegetation					
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus salubris*		
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Myrtaceous plants*		
Ground stratum	Absent				

Fulcrum photo ID	935ace55-52f4-4e9f-807d-0695bc2312f1

5937-HAB-37-ML

Project:	5937				
Date	27-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting**	925468	**Northing**	6558584
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	50 - 75%	
Soil type	Clay loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Orange				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Hollows - trees, Leaf litter, Peeling bark, Woody debris	
Disturbance	Overgrazing, Vehicle tracks				
Introduced fauna	Cattle, Rabbit		**Ground Cover**		
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus salmonophloia and other smooth-barked Eucalyptus spp.*		
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Eremophila sp., Maireana sp.*		
Ground stratum	Absent				

Fulcrum photo ID	506e2684-a190-491e-a56d-0ada1e3402cb

5937-HAB-41-PW

Project:	5937				
Date	10-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 903994		**Northing**	6566656
Landform and Soil			**Rock**		
Landform	Mid slope		**Rock type/s**	Ironstone, Quartz	
Aspect	North		**Surface stone cover**	75 - 100%	
Soil type	Sandy loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Orange				
Condition			**Habitat Features**		
Quality	Disturbed		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark	
Disturbance	Clearing, Vehicle tracks, rehab				
Introduced fauna	None observed		**Ground Cover**	<10%	
Vegetation					
Upper stratum	Low (<10 m)	Woodland (20-50%)	*Eucalyptus sp.*		
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacia sp., Myrtaceous plants*		
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)	Mixed herbs		

Fulcrum photo ID	f72bdd0f-a20a-49f1-b470-dbfa75777d28

5937-HAB-43-ML

Project:	5937				
Date	10-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 905751		**Northing**	6551768
Landform and Soil			**Rock**		
Landform	Plain		**Rock type/s**	Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Clay loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm)	
Soil colour	Orange				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Hollows - trees, Leaf litter, Peeling bark, Woody debris	
Disturbance	Overgrazing				
Introduced fauna	Cattle		**Ground Cover**	11-25%	
Vegetation					
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus salmonophloia and other smooth-barked Eucalyptus spp.*		
Mid stratum	Mid (1-2 m)	Open shrubland and/or heathland (20-50%)	*Eremophila sp., Maireana sp.*		
Ground stratum	Absent				

Fulcrum photo ID	a7d4b824-fdc7-4c7d-afcc-88243486fa9c

5937-HAB-49-ML

Project:	5937				
Date	28-07-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 927947		**Northing**	6554885
Landform and Soil			**Rock**		
Landform	Undulating plain		**Rock type/s**	Ironstone, Quartz	
Aspect	Negligible		**Surface stone cover**	0 - 5%	
Soil type	Clay loam		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm)	
Soil colour	Orange				
Condition			**Habitat Features**		
Quality	Very good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Logs > 10 cm, Peeling bark, Woody debris	
Disturbance	Overgrazing				
Introduced fauna	Cattle		**Ground Cover**		
Vegetation					
Upper stratum	Low (<10 m)	Woodland (20-50%)	*Eucalyptus salmonophloia, Calitris sp., Eucalyptus sp.*		
Mid stratum	Mid (1-2 m)	Sparse shrubland and/or heathland (0.25-20%)	*Eremophila sp., Maireana sp.*		
Ground stratum	Absent				

Fulcrum photo ID	f596b5ca-c691-4c3b-8aea-de4da0c7c9e8

5937-HAB-50-PW

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting** 923648		**Northing**	6559083
Landform and Soil			**Rock**		
Landform	Upper slope		**Rock type/s**	Ironstone, Quartz	
Aspect	Northeast		**Surface stone cover**	75 - 100%	
Soil type	Clay		**Surface stone size classes present**	Pebbles (<0.6 cm), Small Rocks (6 - 20 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)	
Soil colour	Red				
Condition			**Habitat Features**		
Quality	Good		**Water Source**	Absent	
Fire History	Little or no fire evidence (>5 years)		**Microhabitats**	Leaf litter, Peeling bark, Woody debris	
Disturbance	Clearing, Vehicle tracks				
Introduced fauna	None observed		**Ground Cover**	51-75%	
Vegetation					
Upper stratum	Mid (10-30 m)	Open woodland (0.25-20%)	*Eucalyptus spp., with low woodland of Melalueca sp.*		
Mid stratum	Low (0.5-1 m)	Sparse shrubland and/or heathland (0.25-20%)	*Mixed shrubs*		
Ground stratum	Absent				

Fulcrum photo ID	3a66e75b-d11a-4545-bfb3-89aee1f6e8da

5937-HAB-99-SG

Project:	5937				
Date	13-08-2023		**Sample Type**	Terrestrial vertebrate fauna	
Zone	51	**Easting**	907686	**Northing**	6549292

Landform and Soil		**Rock**	
Landform	Plain	**Rock type/s**	Granite, Greenstone, Quartz
Aspect	Negligible	**Surface stone cover**	0 - 5%
Soil type	Sandy loam	**Surface stone size classes present**	Pebbles (<0.6 cm), Small Stones (0.6 - 2 cm), Stones (2 - 6 cm)
Soil colour	Brown, Orange		
Condition		**Habitat Features**	
Quality	Very good	**Water Source**	Absent
Fire History	Little or no fire evidence (>5 years)	**Microhabitats**	Hollows - logs, Hollows - trees, Leaf litter, Logs > 10 cm, Peeling bark, Woody debris
Disturbance	None observed		
Introduced fauna	horse	**Ground Cover**	11-25%

Vegetation			
Upper stratum	Low (<10 m)	Open woodland (0.25-20%)	*Eucalyptus sp.*
Mid stratum	Low (0.5-1 m)	Sparse shrubland and/or heathland (0.25-20%)	*Acacaia spp., Eremophila spp., Atriplex spp.*
Ground stratum	Low (>0.5 m)	Isolated forbs (<0.25%)	*Mixed herbs, Carpobrotus sp.*

Fulcrum photo ID	No Image Avaliable

Appendix E Fauna Recorded During the Survey

Mt Marion Hamptons Tenements Terrestrial Fauna Survey

Basic Fauna and Targeted Malleefowl, Chuditch, and ABAB Surveys

Mineral Resources Limited

SLR Project No.: 675.VX5937.00001

19 April 2024

Conservation Status: State - Listed under Biodiversity Conservation Act 2016, Federal - Listed under Environmental Protection and Biodiversity Conservation Act 1999. CR - Critically Endangered, EN - Endangered, VU - Vulnerable, MI/IA - Migratory, CD - Conservation Dependent fauna, OS - Other Specially Protected fauna, MA - Marine, P - Listed as Priority by DBCA.

Family	Scientific Name	Common Name	Conservation Status		Method									
			State	Commonwealth	Call	Remains	Sighting	Sighting - overhead	Tracks	Scat	Baited Camera Trap	Burrow	Feather	Collected
Birds														
Acanthizidae	*Acanthiza apicalis*	Inland Thornbill, Broad-tailed Thornbill	-	-			21				14			
	Acanthiza uropygialis	Chestnut-rumped Thornbill	-	-			19							
	Pyrrholaemus brunneus	Redthroat	-	-	6		6							
	Sericornis maculatus	Spotted Scrubwren	-	-			2				1			
	Smicrornis brevirostris	Weebill	-	-	28		32							
Accipitridae	*Aquila audax*	Wedge-tailed Eagle	-	-				1						
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar	-	-							1			
Anatidae	*Tadorna tadornoides*	Australian Shelduck, Mountain Duck	-	-							2			
Artamidae	*Artamus cyanopterus*	Dusky Woodswallow	-	-			4							
	Cracticus nigrogularis	Pied Butcherbird	-	-			3							
	Cracticus torquatus	Grey Butcherbird	-	-	1						2			
	Gymnorhina tibicen	Australian Magpie	-	-	2		6				1			
	Strepera versicolor	Grey Currawong	-	-	9		8				26			
Cacatuidae	*Eolophus roseicapilla*	Galah	-	-			2							
Casuariidae	*Dromaius novaehollandiae*	Emu	-	-	2		8		6	1	24			
Cinclosomatidae	*Cinclosoma clarum*	Western Chestnut Quail-thrush, Copperback Quail-thrush	-	-			4				13			
Climacteridae	*Climacteris rufus*	Rufous Treecreeper	-	-	2		2				1			
Columbidae	*Ocyphaps lophotes*	Crested Pigeon	-	-			6							
	Phaps chalcoptera	Common Bronzewing	-	-			2				24			
Corvidae	*Corvus bennetti*	Little Crow	-	-			3							
	Corvus coronoides	Australian Raven	-	-			1	2			5			
Cuculidae	*Chalcites basalis*	Horsfield's Bronze Cuckoo	-	-	1									
	Chalcites osculans	Black-eared Cuckoo	-	-	4									
Falconidae	*Falco berigora*	Brown Falcon	-	-				1						
	Falco longipennis	Australian Hobby	-	-			1							
Maluridae	*Malurus assimilis*	Purple-backed Fairywren	-	-			3							
	Malurus leucopterus	White-winged Fairywren	-	-			6							
	Malurus pulcherrimus	Blue-breasted Fairywren	-	-	1		18				32			
	Malurus splendens	Splendid Fairywren	-	-							1			
Megapodiidae	*Leipoa ocellata*	Malleefowl	VU	VU			2		2		1			
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater	-	-	9		3				1			
	Anthochaera carunculata	Red Wattlebird	-	-	4									
	Gavicalis virescens	Singing Honeyeater	-	-	4		6							
	Lichmera indistincta	Brown Honeyeater	-	-	2		2							
	Manorina flavigula	Yellow-throated Miner	-	-	4									

Family	Scientific Name	Common Name	Conservation Status		Method									
			State	Commonwealth	Call	Remains	Sighting	Sighting - overhead	Tracks	Scat	Baited Camera Trap	Burrow	Feather	Collected
	Melithreptus brevirostris	Brown-headed Honeyeater	-	-			23							
	Nesoptilotis leucotis	White-eared Honeyeater	-	-	3		15	2			4			
	Ptilotula ornata	Yellow-plumed Honeyeater	-	-			18				1			
	Purnella albifrons	White-fronted Honeyeater	-	-	7		7							
Motacillidae	*Anthus australis*	Australian Pipit	-	-							2			
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella	-	-			12							
Oreoicidae	*Oreoica gutturalis*	Crested Bellbird	-	-	11		1				1			
Pachycephalidae	*Colluricincla harmonica*	Grey Shrikethrush	-	-	6		6				36			
	Pachycephala fuliginosa	Western Whistler	-	-	4		1							
	Pachycephala inornata	Gilbert's Whistler	-	-	1									
	Pachycephala rufiventris	Rufous Whistler	-	-	5									
Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote	-	-	1									
	Pardalotus striatus	Striated Pardalote	-	-	17		2							
Petroicidae	*Drymodes brunneopygia*	Southern Scrub Robin	-	-			2							
	Eopsaltria griseogularis	Western Yellow Robin	-	-			5							
	Melanodryas cucullata	Hooded Robin	-	-			1							
	Microeca fascinans	Jacky Winter	-	-	3		2							
	Petroica goodenovii	Red-capped Robin	-	-	1		3							
	Podargus strigoides	Tawny Frogmouth	-	-			9						1	
Pomatostomidae	*Pomatostomus superciliosus*	White-browed Babbler	-	-	4		23				3			
Psittaculidae	*Barnardius zonarius*	Australian Ringneck	-	-	1		9							
	Parvipsitta porphyrocephala	Purple-crowned Lorikeet	-	-	4		15							
	Psephotellus varius	Mulga Parrot	-	-			10							
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	-	-			2				1			
Mammals														
Bovidae	*Bos primigenius taurus*	European Cattle	-	-			22		13	3	3			
Canidae	*Canis familiaris*	Dingo / Dog	-	-					7	2				
Dasyuridae	*Sminthopsis dolichura*	Little Long-tailed Dunnart	-	-							12			
	Sminthopsis sp.	Dunnart sp.	-	-							15			
Equidae	*Equus africanus asinus*	Donkey	-	-					2	3				
	Equus ferus caballus	Horse	-	-			8		3	1				
Felidae	*Felis catus*	Cat	-	-			2			4	11			
Leporidae	*Oryctolagus cuniculus*	Rabbit	-	-			1			9	31	8		
Macropodidae	*Macropus fuliginosus melanops*	Western Grey Kangaroo	-	-							2			
	Osphranter robustus	Common Wallaroo	-	-			5							
	Osphranter rufus	Red Kangaroo, Marlu	-	-			1				13			
Muridae	*Mus musculus*	House Mouse	-	-							12			
	Notomys mitchellii	Mitchell's Hopping-mouse	-	-					2		2			
Tachyglossidae	*Tachyglossus aculeatus acanthion*	Short-beaked Echidna	-	-						2	2			
Reptiles														

Family	Scientific Name	Common Name	Conservation Status		Method									
			State	Commonwealth	Call	Remains	Sighting	Sighting - overhead	Tracks	Scat	Baited Camera Trap	Burrow	Feather	Collected
Agamidae	*Tympanocryptis pseudopsephos*	Goldfields Pebble-mimic Dragons	-	-			2							
Carphodactylidae	*Underwoodisaurus milii*	Southern Barking Gecko	-	-			2							
Diplodactylidae	*Crenadactylus ocellatus*	South-western Clawless Gecko	-	-			2							
Elapidae	*Suta monachus*	Inland Hooded Snake	-	-			1							
Gekkonidae	*Gehyra variegata*	Variegated Gehyra	-	-			4							
	Heteronotia binoei	Bynoe's Gecko	-	-			9							
Pythonidae	*Morelia spilota*	Carpet Python	-	-		1								
Scincidae	*Egernia depressa*	Southern Pygmy Spiny-tailed Skink	-	-			5							
	Lerista timida	Timid Slider	-	-			2							
	Tiliqua occipitalis	Western Bluetongue	-	-		1								
	Tiliqua rugosa rugosa	Bobtail	-	-		1	1				4			
Varanidae	*Varanus gouldii*	Bungarra Or Sand Goanna	-	-		1			1					
Insects														
Cicadellidae	*Pogonoscopus* sp.	Leafhopper	-	-										2
Formacidae	*Aphaenogaster poultoni*	Aphaenogaster Ant	-	-										2
	Camponotus ephippium sp. grp	Sugar Ant	-	-										1
	Camponotus gouldianus	Sugar Ant	-	-										25
	Camponotus nigriceps	Sugar Ant	-	-										3
	Camponotus sp. nr. *terebrans*	Sugar Ant	-	-										6

Appendix F Significant Fauna Likelihood of Occurrence

Mt Marion Hamptons Tenements Terrestrial Fauna Survey

Basic Fauna and Targeted Malleefowl, Chuditch, and ABAB Surveys

Mineral Resources Limited

SLR Project No.: 675.VX5937.00001

19 April 2024

Conservation Status: State - Listed under Biodiversity Conservation Act 2016 or Department of Biodiversity, Conservation and Attractions Conservation, Commonwealth - Listed under Environmental Protection and Biodiversity Conservation Act 1999. CR - Critically Endangered, EN - Endangered, VU - Vulnerable, MI - Migratory, CD - Conservation Dependent fauna, OS - Other Specially Protected fauna, MA - Marine, P - Listed as Priority by DBCA.

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Birds						
Acanthizidae	*Aphelocephala leucopsis* Southern Whiteface	-	VU	This taxon prefers dry, sparse open forest/woodland and inland scrubland (Pizzey and Knight, 2001).	No nearby records identified from the database searches or literature (DCCEEW, 2023).	**Low** No nearby records. Suitable habitat is present within the Survey Area
AAAA**natidae**	*Oxyura australis* Blue-billed Duck	P4	-	This taxon prefers densely vegetated freshwater lakes, swamps, dams (Morcombe, 2003).	The DBCA database identified eight records within 100 km of the Survey Area, including 65.0 km northeast in 2015 and 66.0 km northeast in 2014 (DBCA, 2023c).	**Low** No nearby recent records. Limited suitable habitat is present within the Survey Area
Apodidae	*Apus pacificus* Pacific Swift, Fork-tailed Swift	MI	MI, MA	This taxon occupies low to very high airspace over varied habitat (Morcombe, 2003).	The DBCA database identified two records within 100 km of the Survey Area, including 70.4 km east in 2022 and 90.7 km northwest in 2002 (DBCA, 2023c).	**Low** Limited recent and nearby records

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Cacatuidae	*Zanda latirostris* Carnaby's Cockatoo	EN	EN	This taxon is commonly found in forests, woodlands, heathlands, and farms; common food sources include banksias, hakeas, and pine plantations (Morcombe, 2003).	The DBCA database identified six records within 100 km of the Survey Area, including 26.2 km north in 2018 and 27.4 km north in 2016 (DBCA, 2023c).	**Medium** Nearby recent records of this taxon have been recorded. Suitable habitat is present within the Survey Area.
Charadriidae	*Charadrius veredus* Oriental Plover	MI	MI, MA	This taxon is commonly found in grasslands and thinly vegetated plains (Menkhorst *et al.*, 2017).	The DBCA database identified four records within 100 km of the Survey Area, including 63.7 km northwest in 2013 and 65.0 km northwest in 2012 (DBCA, 2023c)	**Low** No nearby recent records. Suitable habitat is present within the Survey Area
Charadriidae	*Thinornis cucullatus* Hooded Dotterel	P4	MA	This taxon prefers beaches and margins of inland salt lakes (Menkhorst *et al.*, 2017).	The DBCA database identified four records within 100 km of the Survey Area, including 48.0 km north in 1992 and 48.4 km north in 2001 (DBCA, 2023c).	**Low** No nearby recent records. Limited suitable habitat is present within the Survey Area

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Falconidae	*Falco hypoleucos* Grey Falcon	VU	VU	This taxon prefers open plains with treed watercourses in arid inland (Menkhorst *et al.*, 2017).	The DBCA database identified one record within 100 km of the Survey Area, 90.0 km south in 1979 (DBCA, 2023c).	**Low** No nearby recent records. Suitable habitat is present within the Survey Area
Falconidae	*Falco peregrinus* Peregrine Falcon	OS	-	This taxon is found in most environments with suitable nest sites: cliff faces preferred, including man-made ones, commonly uses stick nests built by other species (Menkhorst *et al.*, 2017). May use the Survey Area for hunting.	The DBCA database identified 121 records within 100 km of the Survey Area, including 46.8 km south in 1998 and 58.3 km south in 2001 (DBCA, 2023c).	**Low** No nearby recent records. Suitable habitat is present within the Survey Area
Maluridae	*Amytornis textilis textilis* Western Grasswren	P4	-	Located in the Shark Bay region, this taxon prefers acacia shrubland with dense shrub clumps and lower recumbent shrubs (<1 m high) in which foliage extends to ground (Menkhorst *et al.*, 2017).	The DBCA database identified one record within 100 km of the Survey Area, 53.2 km east of the Survey Area in 1908 (DBCA, 2023c).	**Low** No recent records. Outside current distribution of taxon
Megapodiidae	*Leipoa ocellata* Malleefowl	VU	VU	This taxon is commonly found in long unburned mallee and woodland with abundant litter and low scrub (Morcombe, 2003).	The DBCA database identified 19 records within 100 km of the Survey Area, including 6.5 km east in 2012 and 6.6 km east in 2012 (DBCA, 2023c).	**Recorded** Multiple records made during the field survey

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Psittaculidae	*Pezoporus occidentalis* Night Parrot	CR	EN	This taxon is not commonly found but is believed to occupy long unburnt spinifex and samphire shrublands bordering salt lakes (Morcombe, 2017). Was once widely distributed throughout arid and semi-arid Australia but has since been declared extinct. Recent discoveries of this species have been found in Queensland and WA since 2013 (Van Dyck and Strahan, 2008).	No nearby records identified from the database searches or literature (DCCEEW, 2023).	**Low** Outside current distribution of taxon
Psittaculidae	*Platycercus icterotis xanthogenys* Western Rosella	P4	-	This taxon prefers salmon gum and wandoo woodlands or farmlands; less common in heavy wet Karri and Jarrah; scarce on sandy west coastal plain (Menkhorst *et al.*, 2017).	The DBCA database identified three records within 100 km of the Survey Area, including 46.6 km east 2008 and 58.7 km south in 1989 (DBCA, 2023c).	**Low** No nearby recent records. Suitable habitat is present within the Survey Area
Psittaculidae	*Polytelis alexandrae* Princess Parrot	P4	VU	This taxon prefers areas of spinifex with eucalypt trees, acacia shrubland, desert oaks, or hakeas around salt lakes (Pizzey and Knight, 2001).	No nearby records identified from the database searches or literature (DCCEEW, 2023).	**Low** No nearby recent records. Suitable habitat is present within the Survey Area

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Scolopacidae	*Actitis hypoleucos* Common Sandpiper	MI	MI, MA	This taxon prefers coastal and interior wetlands, narrow muddy edges of billabongs, river pools, mangroves, rocky beaches, estuaries, near-coastal salt lakes, lagoons, claypans, sewage ponds (Morcombe, 2003), (Johnstone and Storr, 1998).	The DBCA database identified nine records within 100 km of the Survey Area, including 1.9 km west in 2013 and 2.0 km west in 2014 (DBCA, 2023c)	**Medium** Nearby recent records. Suitable habitat is present within the Survey Area
Scolopacidae	*Arenaria interpres* Ruddy Turnstone	MI	MI, MA	This taxon prefers coastal, tidal flats, beaches, rocky shorelines (Menkhorst *et al.*, 2017).	The DBCA database identified two records within 100 km of the Survey Area, both 66 km north in 2016 (DBCA, 2023c).	**Low** No nearby recent records. No suitable habitat is present with the Survey Area
Scolopacidae	*Calidris acuminata* Sharp-tailed Sandpiper	MI	MI, MA	This taxon is commonly found in fresh and salt wetlands, muddy edges of lagoons, swamps, lakes, dams, soaks, sewage farms, temporary floodwaters (Morcombe, 2003)	The DBCA database identified nine records within 100 km of the Survey Area, including 12.2 km north in 1980 and 15.7 km southeast in 2012 (DBCA, 2023c).	**Low** No nearby recent records. Limited suitable habitat is present within the Survey Area

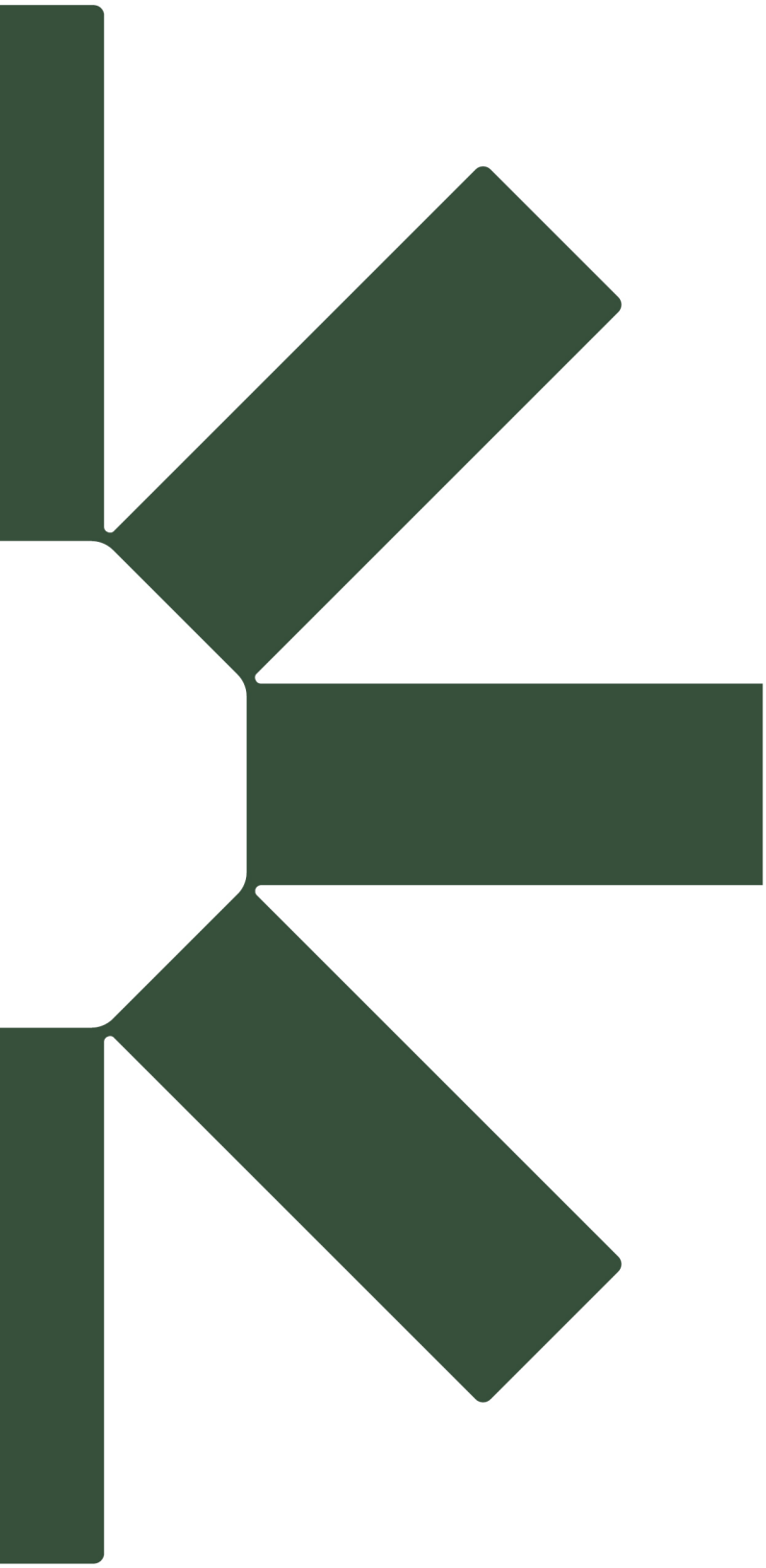
Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Scolopacidae	*Calidris alba* Sanderling	MI	MI, MA	This taxon is commonly found in beaches and sandy tidal flats (Menkhorst *et al.*, 2017).	The DBCA database identified one record within 100 km of the Survey Area, 22.1 km north in 2016 (DBCA, 2023c).	**Low** No suitable habitat is present within the Survey Area
Scolopacidae	*Calidris ferruginea* Curlew Sandpiper	CR	CR, MI, MA	This taxon prefers inter-tidal mudflats of estuaries, lagoons, mangrove channels, dams, floodwaters, flooded saltbush surrounds of inland lakes (Morcombe, 2003).	The DBCA database identified two records within 100 km of the Survey Area, including 25.5 km northwest in 2006 and 50 km north in 1999 (DBCA, 2023c).	**Low** No nearby recent records. Limited suitable habitat is present within the Survey Area
Scolopacidae	*Calidris ruficollis* Red-necked Stint	MI	MI, MA	This taxon is commonly found in tidal mudflats, saltmarshes, sandy or shelly beaches, saline and freshwater wetlands, salt fields, sewage ponds (Pizzey and Knight, 2001).	The DBCA database identified three records within 100 km of the Survey Area, including 25.5 km northwest in 2006 and 50.7 km east in 2012 (DBCA, 2023c).	**Low** No nearby recent records. Limited suitable habitat is present within the Survey Area
Scolopacidae	*Tringa brevipes* Grey-tailed Tattler	MI, P4	MI, MA	This taxon is commonly found in coastal areas, tidal flats, and rocky shorelines (Menkhorst *et al.*, 2017).	The DBCA database identified one records within 100 km of the Survey Area, 15.4 km north in 2017 (DBCA, 2023c).	**Low** One nearby recent record but no suitable habitat is present within the Survey Area

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Scolopacidae	*Tringa glareola* Wood Sandpiper	MI	MI, MA	This taxon prefers freshwater wetlands with emergent sedges and taller fringing vegetation (Menkhorst *et al.*, 2017)	The DBCA database identified seven records within 100 km of the Survey Area, including 23.0 km north in 2005 and 23.8 km north in 2005 (DBCA, 2023c).	**Low** No nearby recent records. Limited suitable habitat is present within the Survey Area
Scolopacidae	*Tringa nebularia* Common Greenshank	MI	MI, MA	This taxon is commonly found near permanent and temporary wetlands, billabongs, swamps, lakes, floodplains, sewage farms and salt works ponds, flooded irrigated crops, mudflats, mangrove swamps, muddy shallows of lagoons (Morcombe, 2003).	The DBCA database identified 10 records within 100 km of the Survey Area, including 1.9 km east in 2013 and 22.3 km north 2001 (DBCA, 2023c).	**Low** No nearby recent records. Limited suitable habitat is present within the Survey Area
Threskiornithidae	*Plegadis falcinellus* Glossy Ibis	MI	MI, MA	This taxon prefers shallow, fresh water, and estuarine waters, dry grasslands (Menkhorst *et al.*, 2017).	The DBCA database identified two records within 100 km of the Survey Area, including 25.8 km north in 1981 and 65.4 km north in 1981 (DBCA, 2023c).	**Low** No nearby recent records. Limited suitable habitat is present within the Survey Area

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Mammals						
Dasyuridae	*Dasyurus geoffroii fortis* Western Quoll, Chuditch	VU	VU	This taxon prefers sclerophyll forest or drier woodland, heath, and mallee shrubland. Often dens in deep rock crevices and hollows of fallen trees (Van Dyck and Strahan, 2008).	The DBCA database identified one record within 100 km of the Survey Area, 16.3 km east in 1974 (DBCA, 2023c).	**Low** No nearby recent records. Suitable habitat is present within the Survey Area
Dasyuridae	*Phascogale calura* Red-tailed Phascogale	CD	VU	This taxon is commonly found in Allocasuarina woodlands with hollow-containing eucalypts (e.g. *Eucalyptus wandoo*) and *Gastrolobium* spp.; prefers vegetation not burnt for at least 20 years (Van Dyck and Strahan, 2008).	The DBCA database identified one record within 100 km of the Survey Area, 74.0 km southeast in 2005 (DBCA, 2023c).	**Low** No nearby recent records. Suitable habitat is present within Survey Area
Myrmecobiidae	*Myrmecobius fasciatus fasciatus* Numbat, Walpurti	EN	EN	This taxon is not commonly found, but has been found in Jarrah forests, and Wandoo woodlands; requires hollow logs and branches for shelter and termites for food (Van Dyck and Strahan, 2008). Was once commonly found throughout much of the southern half of Australia but has since been reduced to two isolated populations in southwest WA(Van Dyck and Strahan, 2008).	The DBCA database identified one record within 100 km of the Survey Area, 28.0 km north (DBCA, 2023c).	**Low** Outside current distribution of taxon

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
Thylacomyidae	*Macrotis lagotis* Bilby, Dalgyte	VU	VU	This taxon is found in areas of mitchell grass and stony downs country of cracking clays, desert sandplains and dune fields sometimes containing laterite, hummock grassland and massive red earths with Acacia shrubland (Van Dyck and Strahan, 2008). Was once widely distributed throughout arid and semi-arid mainland Australia but has since been reduced to areas of the Pilbara, Kimberley, and Northern Territory, and small isolated pockets of Queensland (Van Dyck and Strahan, 2008).	The DBCA database identified three records within 100 km of the Survey Area, including two records 28.0 km north and 46.6 km north (DBCA, 2023c).	**Low** Outside current distribution of taxon
Vespertilionidae	*Nyctophilus major tor* Central Long-eared Bat	P3	-	This taxon is commonly found in dry woodland and shrubland in arid and semi-arid regions (Baker and Gynther, 2023).	The DBCA database identified one record within 100 km of the Survey Area, 70.5 km west in 1981 (DBCA, 2023c).	**Low** No nearby recent records. Suitable habitat is present within Survey Area
Reptiles						
Scincidae	*Egernia stokesii badia* Western Spiny-tailed Skink	VU	EN	This taxon commonly occupies rock crevices and hollow timber in southwest interior of WA and on Dirk Hartog Island, Shark Bay (Menkhorst and Knight, 2010).	The DBCA database identified one record within 100 km of the Survey Area, 36.1 km northeast (DBCA, 2023c).	**Low** No nearby recent records. Suitable habitat is present

Family	Scientific Name	Conservation Status		Habitat	Previous Records	Likelihood of Occurrence
		State	Commonwealth			
						within Survey Area
Invertebrates						
Lycaenidae	*Jalmenus aridus* Inland Hairstreak Butterfly	P1	-	This taxon is known only from a few localities west of Kalgoorlie-Boulder and is found in open woodland with mature *Senna artemisioides* ssp. *flifolia* as well as mixed flowering shrubs with open areas of well drained exposed ground adjoining the hostplants. The ant *Froggattella kirbii* must be present (Eastwood *et al.*, 2023).	The DBCA database identified five records within 100 km of the Survey Area, all records are 26.2 km north of the Survey Area from 1985 to 1997 (DBCA, 2023c). SLR internal records returned 16 records within 3 km of the Survey Area in 2021.	**High** Multiple nearby recent records. Suitable habitat is present within the Survey Area
Lycaenidae	*Ogyris petrina* Arid Bronze Azure Butterfly	CR	CR	The Arid Bronze Azure Butterfly is currently known from a single locality adjacent to Barbalin Nature Reserve in the northern wheatbelt. In order to reproduce, the butterfly has an obligate association with a single form of one species of ant, the pale-coloured or 'Goldfields' form of Camponotus sp. nr. Terebrans (DBCA, 2020a).	The DBCA database identified 17 records within 100 km of the Survey Area, 13.9 km north in 1991 and 11 records 15.0 km north between 1989 and 1991 (DBCA, 2023c).	**High** Nearby records of taxon. Host ant colonies are present within the Survey Area



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