



Ora Banda Mining Native Vegetation Clearing Permit Application for the Golden Eagle TSF Expansion Supporting Document

Prepared for Ora Banda Mining Ltd

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1 Overview

Ora Banda Mining Ltd (OBM) submits the following information in support of a Native Vegetation Clearing Permit (Purpose) to support the development of the Golden Eagle TSF Expansion project (the project). OBM is proposing a total allowable clearing area of 160.8 hectares (ha) within a 357.4 ha clearing envelope. The clearing purpose is for mineral production and associated activities.

This document provides context and supporting information for proposed clearing and includes an assessment against the ten clearing Principles, as defined under Schedule 5 of the *Environmental Protection Act 1986* and submitted alongside the NV-F01 form (application for a new permit or referral to clear native vegetation).

2 Proposed Activities

OBM operates the Davyhurst mining operation located 50 kilometres (km) south-west of Menzies and 110 km north-west of Kalgoorlie-Boulder, Western Australia (WA). Activities include several open pit mines and associated waste rock landforms (WRL), the Davyhurst Processing Plant, tailings storage facilities (TSF) and support infrastructure. OBM is proposing to expand the Golden Eagle In-pit TSF into an above ground facility to increase tailings capacity which will require clearing of native vegetation.

A Mining Development and Closure Proposal (MDCP) required under the *Mining Amendment Act 2022* will be submitted concurrently with this application. The project is wholly located on tenement M30/255.

2.1 Location

The project is located 50 km south-west of Menzies and 110 km north-west of Kalgoorlie-Boulder, WA. It is situated within the Menzies Local Government Area and accessed via Goldfields Highway.

Project tenements held by Carnegie Gold Pty Ltd, a wholly owned subsidiary of Ora Banda Mining Ltd. Proof of ownership is attached as **Appendix A**.

Project tenements are located over the historic Davyhurst townsite as well as Unallocated Crown Land (UCL) and several Crown Reserves. Tenement conditions apply for some of these Reserves and compliance will be managed in accordance with the *Mining Act 1978*

Project tenements are detailed in **Table 1** and shown in **Figure 1**.

Table 1: Project tenements

Tenement	Legal Area (ha)	Holder	Granted	Expiry
M30/255	7,411	Carnegie Gold Pty Ltd	11/01/2017	10/01/2038

2.2 Clearing

OBM is proposing a total allowable clearing area of 160.8 ha within a 357.4 ha clearing envelope, as demonstrated in **Figure 1**.

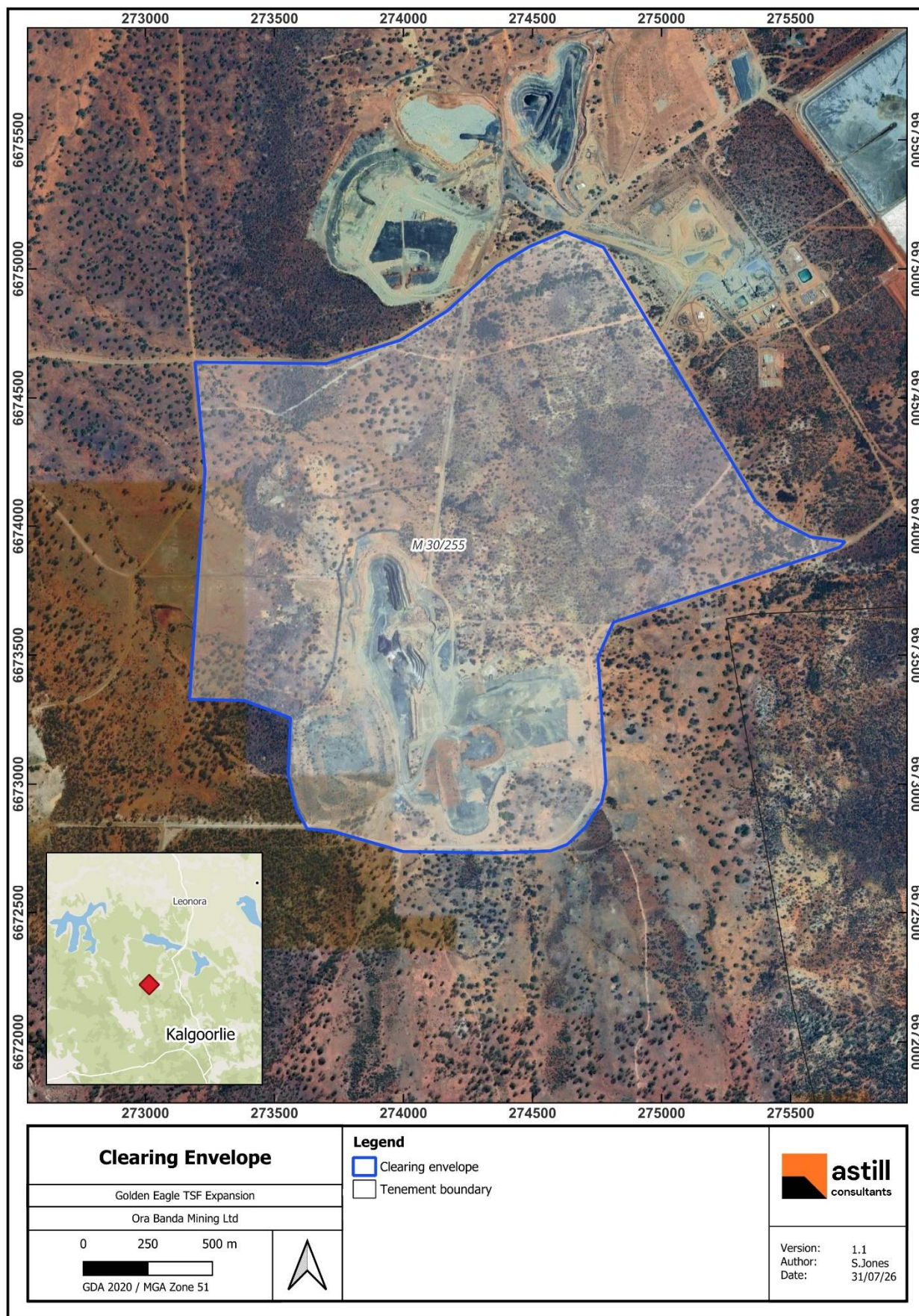


Figure 1: Clearing envelope

3 Environmental Setting

3.1 Climate

The project is situated within the Goldfields region of WA, experiencing an arid to semi-arid climate with hot, dry summers and cool, wet winters. The nearest Bureau of Meteorology (BOM) weather station is located 110 km south-east at Kalgoorlie-Boulder Airport (Station ID 012038) (BOM 2026).

Temperatures recorded at the Kalgoorlie Boulder weather station are generally hot in summer. Between December and February, the mean daily maximum temperatures range from 32.2°C to 33.7°C, while the mean daily minimum temperature range from 16.7°C to 18.4°C (BoM, 2026). Winter conditions occur between June to August, with the mean daily maximum and minimum temperatures 16.9°C to 18.8°C, and 5.1°C to 6.3°C respectively (BoM, 2026). Annual average rainfall is 265.5 millimetres (mm) with a mean of 39.1 days of rain per year (≥ 1 mm). Rainfall is highest in February at 31.8 mm and lowest in September at 13.3 mm. Mean monthly rainfall and temperature are shown in **Figure 2** (BOM 2026). Based on the intensity-frequency-duration (IFD) chart for the project, a 1:100-year annual exceedance probability, 72-hour storm event can be expected to generate approximately 197 mm of rainfall (BOM 2016).

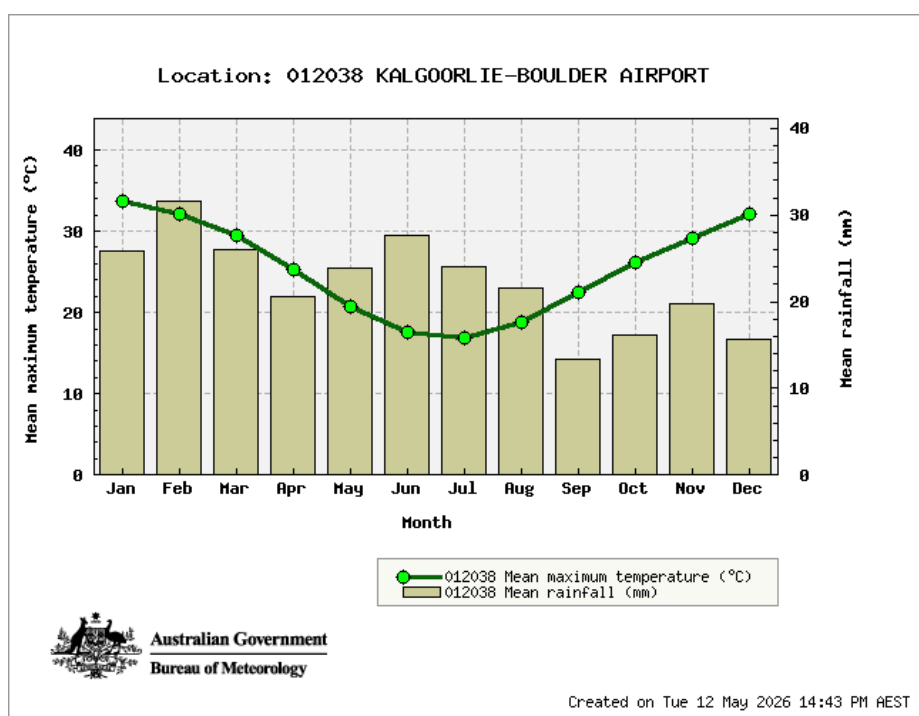


Figure 2: Mean rainfall and maximum temperature (BOM 2026)

3.2 Landscape

3.2.1 Bioregion

The Biogeographic Regionalisation of Australia (IBRA7) 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 (DCCEE 2025a). The project sits across the boundaries of the Coolgardie 3 (Eastern Goldfields [COO3] subregion) and Murchison (East Murchison [MUR1] subregion) bioregions.

3.2.1.1 Coolgardie 3 (Eastern Goldfields [COO3])

The Coolgardie climate is arid to semi-arid with 200-300 mm annual rainfall, sometimes in summer but usually in winter. The relief is limited and consists of 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 (Cowan 2001a). The underlying geology is of gneisses and granites eroded into a flat plane covered with tertiary soils and with scattered exposures of bedrock. Calcareous earths are the dominant soil group and cover much of the plains and greenstone areas.

Vegetation consists of Mallees, Acacia thickets and shrub heaths on sandplains. Diverse Eucalyptus woodlands occur around salt lakes, on ranges, and in valleys. Woodlands and Dodonaea shrubland occur on basic granulites of the Fraser Range. The area is rich in endemic Acacias. Land use consists primarily of Crown reserves, grazing, conservation and mining (Cowan 2001a).

3.2.1.2 Murchison (East Murchison [MUR1])

The Murchison bioregion has low hills and mesas separated by flat colluvium and alluvial plains. Vegetation is predominantly low mulga woodlands. The northern parts of the 'Southern Cross' and 'Eastern Goldfields' Terrains of the Yilgarn Craton are characterised by its internal drainage, and extensive areas of elevated red desert sandplains with minimal dune development. Salt lake systems are associated with the occluded Paleodrainage system. Broad plains of red-brown soils and breakaway complexes as well as red sandplains are characteristic (Cowan 2001b).

Vegetation is dominated by Mulga Woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands (Cowan 2001b).

3.2.2 Soil Landscape Systems

The project is located within the Kambalda Soil Mapping Zone (265) which predominantly consists of greenstone hills and ranges, granitic hills and rises and the intervening broad, level to undulating plains between the upland areas. Soils vary according to the diverse geology and are often highly calcareous. Broad, sheetwash plains are dominated by calcareous loamy earth soils often with gravel, and calcareous clay loam soils becoming more prevalent on the lower slopes of sheetwash plains. The geology coincides with vegetation composed of *Eucalyptus salmonophloia* (salmon gum) and *E. salubris* (gimlet) dominated woodlands over either chenopod or eremophila dominated understoreys. Chenopod dominated understoreys are commonly associated with alkaline red loamy duplex soils that are usually calcareous at depth. In contrast, Eremophila dominated understoreys tend to occur on red loamy earth and loamy duplex soils, which are not alkaline or only alkaline at great depth. Acacia shrublands frequently dominate the hills, ranges and stony rises that commonly contain calcareous, loamy, shallow and stony soils. The lower slopes have calcareous shallow loam and loamy earth soils (Waddell & Galloway 2023).

Within the Kambalda zone, the project is situated over four Soil Mapping Systems described as:

- Coolgardie Land System (265Co) – Uplands and undulating plains associated with ultramafic greenstones, supporting eucalypt woodlands and halophytic shrublands.
- Gumland System (265Gm) – Extensive pediplains supporting eucalypt woodlands with halophytic and non-halophytic shrub understoreys.
- Helag System (265Hg) – Hardpan plains and central drainage tracts with mulga shrublands and minor chenopod shrublands.
- Illara System (265Il) – Plains with ironstone gravel or calcrete mantles supporting eucalypt woodlands and mulga-casuarina shrublands (Waddell & Galloway 2023).

3.3 Biodiversity

3.3.1 Flora

Anders Environmental Consulting (2026) was engaged to undertake a flora and vegetation survey of the project. The survey involved a desktop assessment followed by a field survey in October 2025.

3.3.1.1 Conservation Significant Flora

The desktop assessment identified 17 conservation significant flora species occurring within 50 km of the survey area (**Table 2**). The potential occurrence of the conservation significant species within the survey area was determined as either 'High', 'Medium' or 'Low' likelihood to be present. Two species were considered to have a high likelihood of occurrence within the survey area: *Eucalyptus crucis subsp. crucis* and *Ricinocarpos brevis*. A total of 8 species identified in the desktop assessment were considered to have a medium likelihood of occurrence within the survey area. Suitable habitat was present within the survey area, and these species have been recorded in the last 26 years; however, these species occurred between 10 km and 20 km from the survey area. The remaining 7 conservation significant species were considered to have a low likelihood of occurrence in the survey area (Anders 2026).

Table 2: Conservation significant flora desktop results

Species	Conservation status		Distance from survey area	Likelihood
	BC Act (WA)	EPBC Act (CWTH)		
<i>Acacia cylindrica</i>	P3	-	48.1 km	Low
<i>Calytrix hislopii</i>	P3	-	14.6 km	Medium
<i>Eleocharis papillosa</i>	P3	VU	Within 50 km	Low
<i>Eucalyptus crucis subsp. crucis</i>	TH	-	7.2 km	High
<i>Eucalyptus educta</i>	P2	-	11.9 km	Medium
<i>Eutaxia nanophylla</i>	P3	-	33.3 km	Low
<i>Grevillea georgeana</i>	P3	-	12.3 km	Medium
<i>Menkea draboides</i>	P3	-	21.9 km	Low
<i>Myriophyllum lapidicola</i>	TH	EN	Within 50 km	Low
<i>Notisia intonsa</i>	P3	-	36.1 km	Medium
<i>Pterostylis virens</i>	P3	-	18.7 km	Low
<i>Ricinocarpos digynus</i>	P1	-	36.9 km	Medium
<i>Ricinocarpos brevis</i>	TH	EN	In survey area	High
<i>Stackhousia muricata subsp. Perennial (W.R. Barker 3641)</i>	P3	-	38.6 km	Medium
<i>Thysanotus sp. Yellowdine (A.S. George 6040)</i>	P2	-	49.6 km	Medium
<i>Wurmbea murchisoniana</i>	P4	-	18.7 km	Low
<i>Xanthoparmelia subbarbatica</i>	P1	-	38.8 km	Medium

VU = Listed as Vulnerable under the EBPC Act, EN = Listed as Endangered under the EPBC Act, TH = Listed as Threatened under the BC Act, P = Listed as Priority by the DBCA

A targeted survey was undertaken for the 17 species identified in the desktop assessment. Species determined to have a high or medium likelihood of occurrence within the survey area were the focus of the targeted survey.

No flora species recorded within the field survey area were classified as Threatened under the *Biodiversity Conservation Act 2016* (BC Act) or *Environmental Protection & Biodiversity Conservation Act 1999* (EPBC Act). Additionally, no Priority flora species were identified. The targeted survey effort, combined with seasonal conditions sufficient for identification of most taxa during the field survey, provides a reasonable level of confidence that significant populations of listed flora are unlikely to occur within the survey area (Anders 2026).

The field survey identified one conservation significant flora species present within the survey area: *Santalum spicatum* (VU). *Santalum spicatum* (Sandalwood), listed as Vulnerable on the IUCN Red List, however it is not listed under the BC Act. It is commercially harvested for its fragrant oils and has been heavily cleared particularly within the Wheatbelt region which has fragmented populations. It was recorded from five locations with six plants recorded (Anders 2026), these plants will be avoided where possible and marked out prior to clearing activities, and if clearing is not avoidable, they will be stockpiled.

3.3.1.2 Weeds

Four introduced (weed) species were recorded within the survey area, which represents 5% of the total recorded species, these included:

- *Brassica tournefortii* (Mediterranean Turnip, Brassicaceae)
- *Carrichtera annua* (Ward's Weed, Brassicaceae)
- *Centaurea melitensis* (Maltese Cockspur, Asteraceae)
- *Cuscuta planiflora* (Small-seeded Dodder, Convolvulaceae).

None of these species are classified as a Weed of National Significance (WoNS), or Declared Pest under the *Biosecurity and Agricultural Management Act 2007* (Anders 2026).

3.3.2 Vegetation

The activity area is located across two pre-European vegetation associations as described in **Table 3**. It is considered that areas retaining less than 30% of their pre-European vegetation extent generally experience exponentially accelerated species loss, while areas with less than 10% are considered "endangered". All vegetation associations within the activity area retain >95% of the pre-European extent (DPIRD 2019).

Table 3: Pre-European vegetation associations

System	Pre-European extent (ha)	Current extent (ha)	Remaining %	Current extent managed in DBCA lands %
Representation across WA				
Kunanalling 468	186,202.68	182,938.32	98.25%	53.69
Barlee 538	19,228.57	19,112.21	99.39%	80.46
Representation across the Coolgardie Bioregion				
Kunanalling 468	185,070.12	181,924.12	98.3	53.73
Barlee 538	0.68	0.68	100	
Representation across the Murchison Bioregion				
Kunanalling 468	1,132.56	1,014.20	89.55	46.08
Barlee 538	19,227.89	19,111.53	99.39	80.47
Representation across the Shire of Coolgardie				
Kunanalling 468	25,081.99	22,805.77	90.92	23.06

Barlee 538	396.26	392.26	100	35.61
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Three distinct vegetation types were identified within the survey area through soil and landform characteristics, floristic structure and multivariate statistical analysis (**Figure 3**). The vegetation types represent broadly distributed eucalypt woodland communities associated with plains, low slopes, rocky outcrops and drainage features typical of the eastern Goldfields landscape. None of the vegetation types were considered restricted locally or regionally, and all were represented by a minimum of three quadrats, providing confidence in the vegetation classification (Anders 2026).

- **Vegetation Type 1 (VT1)** comprised mixed *Eucalyptus loxophleba* subsp. *lissophloia*, *Eucalyptus salubris* and *Eucalyptus salmonophloia* woodland over chenopod shrubland on plains. This vegetation type occupied approximately 30% of the survey area and represents a common woodland association within semi-arid landscapes of the Coolgardie bioregion. The chenopod-dominated understorey reflects heavier soil profiles and mildly saline or calcareous conditions typical of plains environments.
- **Vegetation Type 2 (VT2)** occurred on low to mid slopes and was characterised by *Eucalyptus griffithsii*, *Eucalyptus oleosa* and *Acacia aneura* woodland over mixed acacia shrubland. This vegetation type displayed greater structural complexity in the mid-storey and likely reflects transitional landform and soil conditions between plains and rocky uplands. The relatively lower proportional extent of this vegetation type within the survey area is likely related to the limited occurrence of suitable slope habitats.
- **Vegetation Type 3 (VT3)** was associated with rocky outcrops, hills which are incised by drainage areas and supported *Eucalyptus clelandii*, *Eucalyptus transcontinentalis* and *Allocasuarina acutivalvis* woodland over diverse shrub strata. Rocky habitats generally supported higher structural diversity and provided habitat heterogeneity within the broader landscape. These areas may provide local refugia for fauna and flora species due to increased topographic complexity and localised moisture retention (Anders 2026).

No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were identified within the survey area, either through desktop assessment or field verification. Furthermore, none of the mapped vegetation types displayed floristic or structural affinities with known conservation significant ecological communities. The vegetation communities recorded are considered widespread and well represented within the surrounding region. The vegetation condition within the survey area varied from Completely Degraded to Very Good, with no areas classified as Excellent or Pristine. This is largely due to a high level of disturbance from old mining activity throughout the survey area (Anders 2026).

The clearing envelope includes areas without survey due to the area being highly degraded from previous mine activity disturbances, these areas have been included in the clearing envelope to allow for the alignment and management of our approvals including approval under the *Mining Act 1978*.



Figure 3: Vegetation types

3.3.3 Fauna

Western Ecological (2025) was engaged to undertake a basic and targeted fauna survey of the project. The survey involved a desktop assessment followed by a field survey in August 2025.

The desktop assessment involved searches of the Department of Biodiversity, Conservation and Attractions (DBCA) Threatened Fauna Database and the *Environment Protection and Biodiversity Conservation Act 1999* Protected Matters Search Tool. The DBCA threatened fauna database returned a total of 126 threatened fauna species within a 60 km radius of survey area. The most recent record is a Malleefowl (*Leipoa ocellata*) record from April 2025. This record is from approximately 16 km to the south-east of the survey area from the Ora Banda – Davyhurst Road. The closest record is also a Malleefowl record. This record is from March 2019 approximately 6.3 km to the north of the survey area on Davyhurst Road (Western Ecological 2025).

Based on the desktop assessment, a total of four conservation significant fauna species were considered to potentially occur within the survey area. Following field assessment, one species Malleefowl (*Leipoa ocellata*) was considered possibly occurring whilst the other species were considered unlikely to occur based on habitat suitability in the area (**Table 4**). No evidence of conservation significant species was directly observed during the field survey (Western Ecological 2025).

The Likelihood of each species is based on the following criteria (whilst also considering the number and validity of DBCA records for each species):

- Recorded: Recorded during the field survey or site reconnaissance
- Likely: Suitable habitat is present in the survey area and the survey area is in the species' known distribution
- Possible: Limited or no suitable habitat is present in survey area but is nearby. The species has good dispersal abilities and is known from the general area
- Unlikely: No suitable habitat is present in survey area but is nearby, the species has poor dispersal abilities but is known from the general area; or suitable habitat is present, however the survey area is outside of the species' known distribution (Western Ecological 2025).

Table 4: Conservation significant fauna potentially occurring in the area

Common Name	Species Name	Conservation Status (EPBC Act)	Conservation Status (WA BC Act)	Likelihood
Birds				
Malleefowl	<i>Leipoa ocellata</i>	VU	CR	Possible
Peregrine Falcon	<i>Falco peregrinus</i>		OS	Unlikely
Invertebrates				
Arid Bronze Azure Butterfly	<i>Ogyris subterrestris petrina</i>	CR	CR	Unlikely
Inland Hairstreak Butterfly	<i>Jalmenus aridus</i>		P2	Unlikely

CR = Critically Endangered under the EBPC Act, VU = Listed as Vulnerable under the EBPC Act/BC Act, OS = Other specially protected species under the BC Act, P = Listed as Priority by the DBCA

3.3.3.1 Fauna Habitat

A total of three broad fauna habitat types were identified from 22 habitat assessments undertaken during the field survey as follows:

1. **Mixed Eucalyptus Woodland (45%)** – Mixed mallee Eucalyptus trees, including *E. graffithsii* (Griffiths Grey Gum), *E. oleosa* (Red Mallee) and *E. ewartiana* (Ewart's Mallee) over mixed Acacia, Casuarina, Eremophila and Senna on stony hills. The mixed Eucalyptus trees and mid-storey shrubs provide structure and habitat for several birds, including the various Honeyeater species, including Singing Honeyeater, Brown Honeyeater and White-eared Honeyeater. As well as the Grey Shrike-thrush, Crested Bellbird, Striated Pardalote and Splendid Fairy-wren, all of which were recorded in this habitat. Mixed Eucalyptus Woodland also provides potential breeding and foraging habitat for Malleefowl (**Plate 1**).
2. **Open Eucalyptus Woodland (34%)** – Mixed Eucalyptus trees, including *E. salmonophloia* (Salmon Gum), *E. salubris* (Gimlet) and *E. lesouefii* (Goldfields Blackbutt) over scattered Ptilotus on sandy-loam flats. The large Eucalyptus trees provide structure and habitat for several larger bird species, including the Australian Ringneck, Australian Magpie and Grey Currawong, all of which were recorded in this habitat. Open Eucalyptus Woodland also provides some potential foraging habitat for Malleefowl. In some areas, leaf-litter is present which provides shelter required by small reptiles and small mammals, while in some areas, the sandy substrate provides habitat for burrowing species, particularly reptile species (**Plate 2**).
3. **Degraded/Cleared (these areas offer little value to fauna species) (21%)** – Heavily disturbed from past mining and exploration activities, an old townsite, roads and tracks and offered little value to fauna species (Western Ecological 2025).



Plate 1: Mixed Eucalyptus Woodland



Plate 2: Open Eucalyptus Woodland

3.3.3.2 Conservation Significant Fauna

Malleefowl (*Leipoa ocellata*)

The DBCA threatened fauna database returned 81 records of the Malleefowl in the vicinity of the survey area, between 1964 and 2025. Approximately 75% of these 81 records are more than 20 km from the survey area. The most recent record (2025) is from the Ora Banda – Davyhurst Road, approximately 16 km to the south-east of the survey area. The closest record of the Malleefowl is 6.3 km from the survey area. This sighting is from 2019 and classed as a very certain day sighting on Davyhurst Road.

The survey area was traversed by foot and by vehicle to assess the suitability for Malleefowl and potentially limited habitat for the species was recorded. Open Eucalyptus Woodland is considered to be too sparse to provide adequate shelter or cover for mound construction. Open Eucalyptus Woodland was also low and flat and in a number of locations, evidence of standing water was present, this also contributed to this habitat being considered unsuitable for Malleefowl to build mounds due to the risk of flooding, albeit episodically.

The Mixed Eucalyptus Woodland in general was also too sparse, however there were some areas with thicker vegetation. In these areas, mounds and signs of Malleefowl were searched for, however no mounds were recorded and no sightings of Malleefowl or their tracks were observed. In addition, this habitat was generally on stony hills and so mound construction would be difficult in much of this substrate. A lack of leaf litter was also evident throughout the survey area, which results in a lack of suitable mound-building material.

While it is considered that the majority of the survey area is unsuitable for Malleefowl to build mounds, both the Open Eucalyptus Woodland and Mixed Eucalyptus Woodland provide potential foraging habitat for the species therefore it is considered as Possibly occurring in the survey area (Western Ecological 2025).

Arid Bronze Azure Butterfly (*Ogyris subterrestris petrina*)

There are a total of five records of (ABAB) in the DBCA threatened fauna database. Four of these records are from 2021 and one was from 2022, all of which were classed as certain/very certain and originated from fauna surveys. These records are from the Canegrass area approximately 70 km north of Kalgoorlie, and are considered likely to be the records outlined in the WABSI workshop (WABSI 2022).

The survey area was traversed by foot and by vehicle to assess the potential suitability for ABAB and suitable habitat in the way of smooth barked Eucalypts on sandy-loam soils was present. The Open Eucalyptus Woodland habitat, which was comprised of *E. salmonophloia* and *E. salubris* (both smooth-barked Eucalypt species), provided potential habitat for Sugar Ant colonies. In addition, these areas were often near roads/tracks, where ants (and the ABAB) are typically more abundant (DBCA 2020a). The Sugar Ant was not recorded during the field survey (Western Ecological 2025).

While the above detail indicates suitable habitat and climate conditions for the ABAB (or more specifically the Sugar Ant), this is the case for vast areas of the south-west of WA and only four locations have reliable records of the species. As such the ABAB is considered as Unlikely to occur in the survey area (Western Ecological 2025).

Inland Hairstreak Butterfly (*Jalmenus aridus*)

There are three records of this species within 60 km of the study area within DBCA's Threatened and Priority Fauna Database. One record was located 56 km east of the survey area, on Goldfields Highway as part of a fauna survey undertaken in 2022. These records are from the Canegrass survey in 2021, approximately 48 km to the south-east of the survey area.

Western Ecological (2025) completed a field survey of the Golden Eagle area to assess the potential suitability of habitat for the Inland Hairstreak Butterfly (IHB). Suitable habitat was present in the survey area in the way of Mixed Eucalyptus Woodland habitat. This habitat contained mature Senna shrubs, with mixed flowering shrubs including Eremophila and tall scattered shrubs such as Casuarina, which are some of the known species preferred by the Butterfly. In addition, this habitat contained open areas of well drained exposed ground adjoining the hostplants, which are required for thermoregulation and mate location (Eastwood et al. 2023).

The survey area contains suitable habitat in the way of Mixed Eucalyptus Woodland, with species present including Senna species, mixed flowering shrubs and open areas of well drained exposed ground. A lack of nearby records, however and a lack of sightings during the survey, results in the species being considered Unlikely to occur on the survey area. (Western Ecological 2025).

Peregrine Falcon (*Falco peregrinus*)

The DBCA threatened fauna database returned five records of the Peregrine Falcon, between 2002 and 2014. None of these records have any contextual details provided in the DBCA threatened fauna database. Three of these records are from 15.5 km away from the survey area and the remaining two records are almost 50 km from the survey area.

The survey area lacks suitable foraging or nesting habitat in the form of rivers, however numerous old mine pits in the immediate vicinity of the survey area are deep and so the walls of the pit could be considered analogous to cliff or rock outcrop habitat utilised by the species. This could therefore be considered suitable nesting and foraging habitat. The Peregrine Falcon may fly over the survey area however the species is considered Unlikely to occur in the survey area (Western Ecological 2025).

3.4 Hydrology

3.4.1 Surface Water

The project is situated within the Raeside-Ponton catchment at an internal catchment divide where surface waters flow in a north-east or south-east direction towards chains of small salt lakes. A search of Geoscience Australia Surface Hydrology Lines (Regional) (Crossman & Li 2015) found one ephemeral watercourse known as 'Papertalk Brook' within the clearing envelope, located in the south-west corner. This water course experiences infrequent low flows only after significant rainfall events and given its location at the top of the catchment divide, clearing in the area is unlikely to result in significant modification of natural surface water flows or impacts to riparian vegetation.

3.4.2 Groundwater

A search of the Department of Water and Environmental Regulation's (DWER) 1:250,000 Hydrogeology Aquifers (2001) determined the project is located over fractured and deeply weathered rocks considered minor groundwater resources from local aquifers in fracture zones and permeable horizons of the weathering profile. It is not located within a known paleochannel.

Groundwater in the region is hypersaline with total dissolved solids (TDS) up to 200,000 mg/L therefore there is limited beneficial users of groundwater resources outside mining. Due to the high salinity, it is considered unlikely that subterranean fauna (stygo fauna and troglo fauna) would occur in the area.

3.5 Heritage

3.5.1 Native Title

The project is located over the Marlinyu Ghoorlie Native Title claimant area. OBM maintain regular ongoing consultation with the Marlinyu Ghoorlie people in relation to project activities and proposed disturbances.

3.5.2 Aboriginal Heritage

A search of the Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS) found no Registered or Lodged sites within the clearing envelope. The nearest listed site is 'Willow Tree Rock Hole (ID 38840, Lodged) located approximately 6 km west of the project (DPLH 2026a).

OBM undertake Aboriginal heritage surveys prior to ground disturbance to identify any Aboriginal sites. Any Aboriginal sites identified are managed in consultation with the relevant knowledge holders and in accordance with the *Aboriginal Heritage Act 1972*. OBM acknowledge the importance of Aboriginal heritage and are committed to its protection and respectful management, to avoid impacts wherever practicable. An identified Aboriginal site and its buffer is located 1.5 km to the southwest of the clearing envelope and will not be impacted as a result of the Golden Eagle Project.

3.5.3 European Heritage

A search of DPLH InHerit database found Davyhurst Townsite (ID 16605) located approximately 1 km west of the activity envelope. The site is a local listing pending assessment and disturbance is managed in accordance with tenement conditions issued under the *Mining Act 1978* (DPLH 2026b).

4 Assessment Against Clearing Principles

Clearing Principle	Assessment	Outcome
a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	The desktop assessment identified 17 conservation significant flora species occurring within 50 km of the survey area. Two species were considered to have a high likelihood of occurrence, and eight species were considered to have a medium likelihood of occurrence within the survey area (Anders 2026). No Threatened or Priority Flora were recorded within the survey area during the field survey. One conservation significant flora species <i>Santalum spicatum</i> (Sandalwood) was recorded from five locations with six plants recorded (Anders 2026). None of the vegetation types recorded were considered restricted locally or regionally. Furthermore, none of the mapped vegetation types displayed floristic or structural affinities with known conservation significant ecological communities. The vegetation communities recorded are considered widespread and well represented within the surrounding region (Anders 2026).	Unlikely to be at variance.
b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	Malleefowl (<i>Leipoa ocellata</i>) was considered to Possible likelihood of occurrence within the activity area. While it is considered that majority of the survey area is unsuitable for Malleefowl to build mounds, habitats present provide potential foraging habitat for the species. No evidence of Malleefowl activity was recorded during the field survey. The species has good dispersal abilities and is known from the general area (Western Ecological 2025). Peregrine Falcon (<i>Falco peregrinus</i>), Arid Bronze Azure Butterfly (<i>Ogyris subterrestris petrina</i>) and Inland Hairstreak Butterfly (<i>Jalmenus aridus</i>) identified during the desktop assessment were considered unlikely to occur due to unsuitable habitat and/or lack of nearby survey records (Western Ecological 2025).	Unlikely to be at variance.
c) Native vegetation should not be cleared if it includes or is necessary for the continued existence of rare flora.	No flora species recorded within the field survey area were classified as Threatened under the Biodiversity Conservation Act 2016 (BC Act) or Environmental Protection & Biodiversity Conservation Act 1999 (EPBC Act). Additionally, no Priority flora species were identified. The targeted survey effort, combined with seasonal conditions sufficient for identification of most taxa during the field survey, provides a reasonable level of confidence that significant populations of listed flora are unlikely to occur within the survey area (Anders 2026). One conservation significant flora species <i>Santalum spicatum</i> (Sandalwood) was recorded from five locations with six plants recorded (Anders 2026).	Unlikely to be at variance.
d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.	There are no conservation significant ecological communities and associated buffers occurring within 50 km of the activity area. No threatened or priority ecological communities were identified within the survey area, either through desktop assessment or field verification (Anders 2026).	Not at variance.
e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	The activity area is located across two pre-European vegetation associations. Both vegetation associations retain >95% of the pre-European extent (DPIRD 2019): Coolgardie Bioregion: Kunanalling 468 (98.3%), Barlee 538 (100%) Murchison Bioregion: Kunanalling 468 (89.55%), Barlee 538 (99.39%)	Not at variance.

f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	There are no permanent watercourses or wetlands within the application area. There is one minor ephemeral drainage line located in the south-west corner of the activity area (Crossman & Li 2015). One quadrat site (GEQ09) located within vegetation association VT3 (AaaEoaPo) was described as hills with drainage however drainage lines were not defined and the vegetation type was well represented throughout the area (Anders 2026).	Unlikely to be at variance.
g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The application area is located within the Kambalda Soil Mapping Zone (265) across four soil mapping systems described as upland and undulating plains, extensive pedeplains, hardpan plans and central drainage tracts and plains with ironstone gravel or calcrete mantles (Waddell & Galloway 2023). The area is relatively flat and the region receives relatively low annual rainfall. Although the removal of vegetation cover may result in localised erosion it is considered unlikely to cause appreciable land degradation.	Unlikely to be at variance.
h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	The nearest conservation area is Clear and Muddy Lakes Nature Reserve, located 40 km south-east (Anders 2026)	Not at variance.
i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	Given no permanent water courses, wetlands, or Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.	Unlikely to be at variance.
j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	There are no permanent watercourses or wetlands within the application area. There is one minor ephemeral drainage line located in the south-west corner of the activity area (Crossman & Li 2015). Proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.	Unlikely to be at variance.

5 Clearing Process

Vegetation will be cleared by mechanical clearing. Clearing areas will be kept to the minimum required for mine activities and undertaken progressively as required. Existing disturbances will be utilised where possible.

5.1 Methodology

Clearing will be authorised under a clearing permit or valid clearing exemption (i.e., Regulation 20 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*). Clearing will also be authorised internally via an approved Ground Disturbance Permit.

Proposed clearing will be demarcated by a surveyor using high visibility tape / survey pegs to ensure clear visual boundaries for operators prior to clearing commencement or alternatively a spotter with handheld GPS will guide the clearing. A meeting will be held between the supervisor and clearing operator to ensure awareness of clearing areas and any areas to be avoided.

Equipment required to undertake and support clearing activities may include a combination of a dozer, loader, excavator, water cart and service vehicles. Where practicable, raised blade clearing will be used. Where this is not practicable, topsoil will be stripped to 150 mm depth and stockpiled for use in rehabilitation, along with removed vegetation.

Once clearing has been completed, surveyors will complete a pickup of cleared areas and provide the data for records and external reporting obligations.

5.2 Rehabilitation

Rehabilitation of cleared areas will occur in accordance with the relevant Approval Statement and Mine Closure Plan (MCP).

6 Environmental Management

The following sections describe environmental management practices to be implemented relevant to clearing.

6.1 Vegetation

In determining the amount of native vegetation to be cleared, OBM will apply the following principles, set out in descending order of preference:

- (a) Avoid the clearing of native vegetation;
- (b) Minimise the amount of native vegetation to be cleared; and
- (c) Reduce the impact of clearing on any environmental value.

6.2 Flora

6.2.1 Weeds

Baseline surveys found four introduced (weed) species within the survey area. None of these species are classified as a WoNS or Declared Pest.

When undertaking clearing, OBM will take the following steps to minimise the risk of the introduction and spread of weeds:

- (a) Clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) Ensure that no known weed-affected soil, mulch, fill or other material is brought into the area to be cleared; and
- (c) Restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

6.3 Surface Water

Surface water quality and natural flow patterns may be effected by clearing activities. The following management measures will be implemented to mitigate impacts to natural surface water:

- (a) Where practicable OBM shall avoid clearing riparian vegetation; and
- (b) Where a watercourse or drainage line is to be impacted by clearing, OBM shall ensure that the existing surface flow is maintained or reinstated downstream into existing natural drainage lines.

6.4 Dust

Dust may be generated from clearing activities and topsoil stripping. Excessive dust can increase local particulate levels, impacting surrounding vegetation and sensitive receptors. The following management measures will be implemented to mitigate dust impacts during clearing:

- (a) Weather conditions are monitored, and dust impacts are assessed during clearing;
- (b) Topsoil stripping and spreading activities will be restricted if dust cannot be adequately controlled during periods of high winds; and
- (c) Water carts are available and utilised for wetting down of soils as required.

6.5 Hydrocarbons

Soils may be impacted by hydrocarbon spills (e.g. diesel, oils) which may occur during clearing activities which can contaminate the local environment. The following management measures will be implemented to mitigate hydrocarbon spills during clearing:

- (a) Regular inspections and maintenance of machinery including daily pre-starts;
- (b) Spill kits closely available during clearing activities; and
- (c) Immediate clean up of any spills followed by appropriate reporting and remediation.

7 Record Keeping and Reporting

OBM will maintain records in relation to the authorised clearing activities including:

- the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- the date that the area was cleared;
- the size of the area cleared (in hectares);
- actions taken to avoid, minimise, and reduce the impacts and extent of clearing; and
- actions taken to minimise the risk of the introduction and spread of weeds.

OBM will provide a written report to the CEO by 31 July each year for the life of the permit, demonstrating adherence to all conditions of the permit, and setting out the records required in relation to clearing carried out between 1 July and 30 June of the previous financial year.

References

- Anders Environmental Consulting (Anders) (2026). *Flora and Vegetation Survey for the Golden Eagle Project*. Prepared for Ora Banda Mining Ltd. Date May 2026.
- Bureau of Meteorology (BOM) (2016). *Design Rainfall Data System for location coordinates: -30.0375, 120.6625*. Australian Government. May 2026.
- Bureau of Meteorology (BOM) (2026). *Climate Summary Statistics for Kalgoorlie-Boulder*. Australian Government. May 2026.
- Cowan, M. (2001a). *A Biodiversity Audit of Western Australia's 53 Biogeographical Region in 2001- Eastern Goldfields (COO3 Eastern Goldfields subregion)*. Department of Conservation and Land Management.
- Cowan, M. (2001b). *A Biodiversity Audit of Western Australia's 53 Biogeographical Region in 2001- Murchison 1 (MUR1 – East Murchison subregion)*. Department of Conservation and Land Management.
- Crossman, S. & Li, O. (2015). *Surface Hydrology Lines (Regional)*. Geoscience Australia.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2020a). *Guideline for the survey of arid bronze azure butterfly (ABAB) in Western Australia*. Version 1, September 2020.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2025a). *Interim Biogeographic Regionalisation for Australia (IBRA)*.
- Department of Water and Environmental Regulation (DWER) (2001). *1:250,000 Hydrogeology Aquifers*. Dated 17 July 2001.
- Department of Primary Industries and Regional Development (DPIRD) (2019). *Pre-European Vegetation Associations (DPIRD-006)*.
- Department of Planning, Lands and Heritage (DPLH) (2026a). *Aboriginal Cultural Heritage Inquiry System*. Accessed 2 June 2026.
- Department of Planning, Lands and Heritage (DPLH) (2026b). *InHerit Database*. Accessed 2 June 2026.
- Eastwood, R., Jacks, AA., Williams, A. E., Petersen, L. & Cameron, J. (2023). *Current distribution, preferred habitat, behaviour, and biology of the Inland Hairstreak, Jalmenus aridus Graham & Moulds, 1988 (Lepidoptera: Lycaenidae) in the Eastern Goldfields region of Western Australia*. Records of the Western Australian Museum, 38, 68-75.
- The Western Australian Biodiversity Science Institute (WABSI). *Arid Bronze Azure Butterfly Workshop Report 2022*.
- Waddell, PA. & Galloway, PD. (2023). *Land systems, soils and vegetation of the southern Goldfields and Great Western Woodlands of Western Australia - Volume 1*. Department of Primary Industries and Regional Development, Western Australian Government.
- Western Ecological (2025). *Basic Fauna and Targeted Fauna Survey – Golden Eagle Draft Report, Davyhurst Gold Operations*. Prepared for Ora Banda Mining. October 2025.

Appendix A: Proof of Ownership

MINING TENEMENT SUMMARY REPORT

MINING LEASE 30/255

Status: Live

TENEMENT SUMMARY

Area: 7,411.00000 HA	Death Reason :
Mark Out : 31/03/2016 11:35:00	Death Date :
Received : 31/03/2016 15:37:00	Commence : 11/01/2017
Term Granted : 21 Years	Expiry : 10/01/2038

CURRENT HOLDER DETAILS

Name and Address

CARNEGIE GOLD PTY LTD

JACQUILINE LY, PO BOX 1868, SUBIACO PO, WA, 6904, xxxxxxxxx@orabandamining.com.au, xxxxx548

DESCRIPTION

Locality: Davyhurst

Datum: MGA (GDA94) coordinates, Zone 51, 278196 metres East and 6673418 metres North

Boundary: Thence: 275297 metres East and 6673411 metres North 275878 metres East and 6670536 metres North 275584 metres east and 6670481 metres North 275593 metres East and 6670006 metres North 275729 metres East and 6670009 metres North 275918 metres East and 6668956 metres North 276088 metres East and 6667767 metres North 275588 metres East and 6667757 metres North 275615 metres East and 6666457 metres North 274815 metres East and 6666441 metres North 274790 metres East and 6667641 metres North 273609 metres East and 6667617 metres North 273651 metres East and 6666352 metres North 273311 metres East and 6666345 metres North 273572 metres East and 6665103 metres North 273874 metres East and 6663567 metres North 274186 metres East and 6662069 metres North 274383 metres East and 6660704 metres North 274715 metres East and 6658997 metres North 276073 metres East and 6656835 metres North 274933 metres East and 6656121 metres North 273306 metres East and 6658702 metres North 273880 metres East and 6659060 metres North 273528 metres East and 6660548 metres North 273392 metres East and 6661917 metres North 273119 metres East and 6663411 metres North 272842 metres East and 6664969 metres North 272567 metres East and 6666321 metres North 272191 metres East and 6666270 metres North 272161 metres East and 6667098 metres North 271944 metres East and 6667085 metres North 271634 metres East and 6673629 metres North 271750 metres East and 6673654 metres North 271565 metres East and 6674595 metres North 271491 metres East and 6674686 metres North 271537 metres East and 6674745 metres

North 271513 metres East and 6674858 metres North
 270641 metres East and 6674687 metres North 269969
 metres East and 6679184 metres North 270553 metres
 East and 6679273 metres North 270505 metres East and
 6679492 metres North 270937 metres East and 6679567
 metres North 270912 metres East and 6679917 metres
 North 272822 metres East and 6680117 metres North
 272823 metres East and 6680025 metres North 272799
 metres East and 6680025 metres North 272881 metres
 East and 6678579 metres North 272969 metres East and
 6678584 metres North 272975 metres East and 6677143
 metres North 273395 metres East and 6677154 metres
 North 273399 metres East and 6677377 metres North
 273680 metres East and 6677385 metres North 273688
 metres East and 6677163 metres North 273757 metres
 East and 6677165 metres North 273782 metres East and
 6678954 metres North 274716 metres East and 6678955
 metres North 274716 metres East and 6679062 metres
 North 275521 metres East and 6679063 metres North
 275523 metres East and 6677784 metres North 278192
 metres East and 6677817 metres North Back to Datum
 Tenement boundary identical to M16/220, M30/1, M30/5,
 M30/7, M30/39, M30/42, M30/43, M30/44, M30/63,
 M30/72, M30/73, M30/74, M30/80, M30/100, M30/106,
 M30/107, M30/108, M30/126, M30/129, M30/131,
 M30/132, M30/135, M30/137, P30/1042 & P30/1043

Area :	Type	Dealing No	Start Date	Area
	Surveyed		21/05/2019	7,411.00000 HA
	Granted		11/01/2017	7,539.21900 HA
	Applied For		31/03/2016	7,539.21900 HA

SHIRE DETAILS

Shire	Shire No	Start	End	Area
COOLGARDIE SHIRE	1960	31/03/2016		556.56600 HA
MENZIES SHIRE	5390	31/03/2016		6,854.43400 HA

RENT STATUS

Due For Year End 10/01/2027: PAID IN FULL
Due For Year End 10/01/2028: \$223,071.10

EXPENDITURE STATUS

Expended Year End 10/01/2026: EXPENDED IN FULL
Current Year Commitment : \$741,100.00

Appendix B: Flora and Vegetation Survey Report (Anders 2026)

Flora and Vegetation Survey

Golden Eagle Project

Prepared for Ora Banda Mining Ltd

May 2026

FLORA AND VEGETATION SURVEY: GOLDEN EAGLE PROJECT

Author: Catherine Krens, Lucy Keays

Date: May 2026

Client: Ora Banda Mining Ltd

Version: Draft 1.0

Chain of authorship and review			
Name	Task	Version	Date
C. Krens, L. Keays	Draft report for client	1.0	May 2026

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EXECUTIVE SUMMARY

A detailed flora and vegetation survey was undertaken by Anders Environmental Consulting on behalf of Ora Banda Mining Ltd to support the proposed expansion of the Golden Eagle In-Pit Tailings Storage Facility (TSF), located within the Davyhurst Gold Project approximately 120 km north-west of Kalgoorlie-Boulder. The survey area comprised approximately 256 ha and occurs within the Coolgardie and Murchison IBRA bioregions. The survey was completed in accordance with the Environmental Protection Authority (EPA) Technical Guidance: *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).

The assessment included a desktop review, detailed flora and vegetation field survey, targeted searches for conservation significant flora, vegetation mapping, and vegetation condition assessment. Nine quadrats were established across the survey area to characterise vegetation communities and support floristic analysis.

A summary of the flora and vegetation survey key findings is provided below.

Flora summary:

- The desktop assessment identified 17 conservation significant flora species within 50 km of the survey area.
- Two species were considered to have a high likelihood of occurrence due to the presence of suitable habitat and nearby records:
 - o *Eucalyptus crucis* subsp. *crucis* (Threatened)
 - o *Ricinocarpos brevis* (Threatened)
- No Threatened flora listed under the EPBC Act or BC Act recorded
- No Priority flora recorded
- One IUCN Red List species, *Santalum spicatum* (Vulnerable), recorded from five locations (six plants)
- 92 vascular flora species including subspecies and variants
- The most dominant families were Chenopodiaceae (18 species), Fabaceae (11 species), and Scrophulariaceae (nine species)
- A total of 17 annual species (18%) and 75 perennial species (72%)
- No recorded species occur outside their population range
- Four weed species were recorded, none of which were a Declared Pest or a Weed of National Significance.

Vegetation summary:

- No Threatened Ecological Community (TEC) or Priority Ecological Communities (PECs) occur within the survey area
- Three vegetation types were mapped within the survey area including:
 - o VT1 – *Eucalyptus loxophleba* subsp. *lissophloia*, *Eucalyptus salubris* and *Eucalyptus salmonophloia* woodland
 - o VT2 – *Eucalyptus griffithsii*, *Eucalyptus oleosa* and *Acacia aneura* woodland

- VT3 – *Eucalyptus clelandii*, *Eucalyptus transcontinentalis* and *Allocasuarina acutivalvis* woodland
- Two broad vegetation associations occur within the survey. Kununulling 468 and Barlee 538. Both vegetation associations are well represented with over 89% of their original extent remaining at the state, regional and local levels.
- Vegetation condition ranged from Completely Degraded to Very Good. A high level of disturbance throughout the survey area was noted, including old mining activities, tracks, infrastructure, and disturbance from the old Davyhurst townsite.
- The proposed Golden Eagle TSF footprint was assessed as having comparatively lower ecological value, with vegetation predominantly in Degraded to Completely Degraded condition.

Overall, the survey concluded that the project area supports flora and vegetation communities typical of the Coolgardie and Murchison bioregions and does not contain significant constraints associated with Threatened flora or ecological communities. The survey findings indicate that the proposed TSF development is unlikely to result in significant impacts to conservation significant flora or vegetation values, provided standard environmental management and rehabilitation measures are implemented.

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DEFINITIONS

Acronym	Definition
Anders	Anders Environmental Consulting
BAM Act	<i>Biosecurity and Agricultural Management Act 2007</i>
BC Act	<i>Biodiversity Conservation Act 2016</i>
BOM	Bureau of Meteorology
Cwth	Commonwealth
DBCA	Department of Biodiversity Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPIRD	Department of Primary Industries and Regional Development
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESA	Environmentally Sensitive Area
FCT	Floristic Community Type
ha	Hectare
IBRA	Interim Biogeographic Regionalisation of Australia
km	Kilometre
m	Metre
MNES	Matter of National Environmental Significance
NVIS	National Vegetation Information System
PEC	Priority Ecological Community
TEC	Threatened Ecological Community
WoNS	Weed of National Significance

1.0 INTRODUCTION

1.1 BACKGROUND

Ora Banding Mining Ltd (OBM) plans to develop an above-ground tailings storage cell adjacent to the existing Golden Eagle Inpit Tailings Facility as part of the OBM Davyhurst Gold Project. The project site is located approximately 120 km northwest of Kalgoorlie (Figure 1) and occurs within both the Coolgardie and Murchison bioregions.

A flora and vegetation survey was conducted to support the environmental approvals process for the proposed development. The assessment covered approximately 256 hectares. The findings of the survey are presented in this report.

1.2 SCOPE AND OBJECTIVE

The purpose of the flora and vegetation survey was to identify the regional and local flora and vegetation values. The scope of works included:

- Desktop assessment
- Detailed flora and vegetation survey
- Targeted search to map Threatened and Priority flora populations.

1.3 LEGISLATIVE CONTEXT

1.3.1 EPBC ACT

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the main piece of Commonwealth legislation protecting biodiversity in Australia. All matters of national environmental significance (MNES) are listed under the EPBC Act. These include:

- listed threatened species and ecological communities
- migratory species protected under international agreements
- Ramsar wetlands of international importance
- the Commonwealth marine environment
- World Heritage properties
- National Heritage places
- Great Barrier Reef Marine Park
- water resources in relation to coal seam gas disturbance and large coal mining disturbance
- nuclear actions.

If an action is likely to have a significant impact on a MNES this action must be referred to the Commonwealth Minister for the Environment for a decision on whether assessment and approval is required under the EPBC Act.

Species at risk of extinction are recognised at a Commonwealth level and are categorised in one of six categories as outlined in Table 1.

Table 1 Categories of species listed under the Commonwealth EPBC Act

Conservation Code	Category
Ex	Extinct Taxa
ExW	Extinct in the Wild
CE	Critically Endangered
E	Endangered
V	Vulnerable
CD	Conservation Dependent
OS	Other specially protected fauna

1.3.2 BC ACT

Threatened flora are plants which have been assessed as being at risk of extinction. Under the *Biodiversity Conservation Act 2016* (BC Act), the Western Australian Minister for the Environment may declare species of flora to be protected if they are considered to be in danger of extinction, rare or otherwise in need of special protection. Species that are considered Threatened and need to be specially protected because they are under an identifiable threat of extinction are listed under the BC Act. These categories are defined in Table 2.

Table 2 Conservation codes for species listed under the Western Australian BC Act

Code	Category
CR	Critically endangered species Threatened species considered to be “facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines”.
EN	Endangered species Threatened species considered to be “facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines”.
VU	Vulnerable species Threatened species considered to be “facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines”.
EX	Extinct species Species where “there is no reasonable doubt that the last member of the species has died”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).
EW	Extinct in the wild species Species that “is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).
MI	Migratory species Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).
CD	Species of species conservation interest Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).
OS	Other specially protected species Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Threatened Ecological Communities (TECs) are naturally occurring biological assemblages that occur in a particular type of habitat and that may be subject to processes that threaten to destroy or significantly modify the assemblage across its range. Vegetation communities in Western Australia are described as TECs if they have been endorsed by the Western Australian Minister for Environment following recommendations made by the TEC Scientific Committee. Categories of TECs are defined in Table 3.

Table 3 Conservation categories of Western Australian TECs

Conservation Code	Category
PD	Presumed Totally Destroyed An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future
CR	Critically Endangered An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.
EN	Endangered An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.
VU	Vulnerable An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

1.3.3 DBCA PRIORITY SPECIES AND COMMUNITIES

Species that have not yet been adequately surveyed to warrant being listed under the BC Act, or are otherwise data deficient, are added to Priority Lists under Priorities 1, 2 or 3 by the Western Australian Minister for the Environment. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species are placed in Priority 4. Categories and definitions of Priority Flora species are provided in Table 4.

Table 4 Conservation categories for species listed by DBCA and endorsed by the Minister for the Environment

Conservation Code	Category
Priority One	Poorly-known species Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g., agricultural, or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
Priority Two	Poorly-known species Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g., national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority Three	Poorly-known species Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
Priority Four	Rare, Near Threatened and other species in need of monitoring (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.



Figure 1 Survey Area

Davyhurst Gold Operations

0 250 500 m



Legend

— Survey area



GDA2020 - MGA Zone 50

2.0 METHODS

2.1 REQUIREMENTS FOR FLORA AND VEGETATION SURVEYS

The flora and vegetation survey was conducted in accordance with the Environmental Protection Authority (EPA) and Department of Climate Change, Energy, the Environment and Water (DCCEEW) guidelines relevant to environmental surveying and reporting in Western Australia. Key documents referenced include:

- *EPA Statement of Environmental Principles, Factors and Objectives* (EPA, 2018)
- *EPA Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016).

2.2 FLORA AND VEGETATION DESKTOP ASSESSMENT

A desktop assessment was conducted to identify potential conservation significant flora species, Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs) occurring within 50 km of the survey area. Data sources reviewed are listed in Table 5.

Table 5 Information reviewed during the desktop assessment

Source	Databases and reports
Department of Biodiversity Conservation and Attractions (DBCA)	- Threatened and Priority Flora Database and Flora List (DBCA 2025a) - Western Australian Herbarium Specimen Database (DBCA 2025b) - Threatened and Priority Ecological Communities Database (DBCA 2025c)
Department of the Environment and Energy (DCCEEW)	- EPBC Act Protected Matters Search Tool (DCCEEW 2025a)

The likelihood of occurrence for conservation significant flora, TECs and PECs was assessed before and after the survey, using the criteria outlined in Table 6.

Table 6 Criteria for likelihood of occurrence of conservation significant flora and ecological communities

Likelihood of occurrence	Criteria prior to survey	Criteria following survey
High likelihood to be present	Known population or TEC/PEC occurs within 10 km of the survey area. Based on reviewing aerial imagery, potential habitat appears to be present.	Habitat is present within the survey area, and the closest known record is less than 10 km from the survey area.
Medium likelihood to be present	Known population or TEC/PEC occurs within 20 km of the survey area. Based on reviewing aerial imagery, potential habitat appears to be present. Records occur from 2000.	Habitat is present within the survey area however the closest known record is less than 40 km of the survey area.
Low likelihood to be present	Known population or TEC/PEC occurs more than 20 km from the survey area, and records are preceding 2000. Based on reviewing aerial imagery, potential habitat does not appear to be present.	Habitat is not present within the survey area, and the closest known record is more than 40 km from the survey area.

2.3 FLORA AND VEGETATION FIELD SURVEY

The field survey was conducted in October 2025 during spring. The methodology followed *EPA Technical Guide – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016a).

The survey aimed to:

- Verify the desktop assessment results.
- Map vegetation types and condition.
- Record all observed flora species, and compile an inventory of species, including weeds.
- Conduct targeted searches for conservation significant flora.

Data was collected from nine non-permanent 20 m x 20 m quadrats, mapping notes, vegetation condition assessments, opportunistic flora collections, and observations across the survey area. Quadrats were established within intact vegetation, with a minimum of three quadrats per vegetation type where feasible. In cases where restricted vegetation types were present, areas of highest quality were selected.

Each quadrat recorded:

- Site number
- GPS coordinate from the north-west corner
- Photograph from the north-west corner
- Landform
- Soil description
- Drainage
- Leaf litter, bare ground, and rock percentage covers
- Fire history

- Vegetation condition and description of disturbances
- Vegetation structure
- Species present: estimated height and estimated foliage cover.

A specimen of all recorded flora was collected for verification and identification against specimens from the Western Australian Herbarium. Taxonomists from DBCA and the Western Australian Herbarium were consulted to confirm the identification of conservation-significant species.

2.3.1 SURVEY PERSONNEL

The survey was conducted by Western Australian botanists:

- Catherine Krens – Principal Botanist (Flora Collecting Licence FB62000188-2)
- Sammantha Dunbar-Smith – Environmental Consultant.

The Principal Botanist has extensive experience conducting similar surveys within the Coolgardie and Murchison bioregion in which the survey area is located.

2.3.2 TARGETED FLORA SURVEY

The targeted flora survey was conducted concurrently with the detailed survey. Most of the survey area is located within the Coolgardie bioregion, where the peak flowering period occurs in spring (September to November). A small portion of the eastern boundary occurs within the Murchison bioregion, where the peak flowering period occurs from autumn to late winter (March to June). As these flowering periods do not overlap, the survey was undertaken in spring (October) to coincide with the peak flowering period for majority of the survey area.

Searches were conducted in suitable habitats for conservation significant species identified during the desktop assessment. All potential conservation significant populations were recorded, including the GPS coordinates, population size, number of individuals, and photographic evidence. Survey tracks were logged using a Garmin GPS to demonstrate survey effort.

Any conservation significant species identified during the survey were submitted to the Western Australian Herbarium for verification by specialist taxonomists.

2.3.3 SURVEY LIMITATIONS

Limitations are common in flora and vegetation surveys which may result in reduced data quality and survey effort and deviations from the EPA guidelines. An assessment of the limitations of the survey as outlined in the EPA guidelines (2016a) are addressed in Table 7.

Table 7 Limitations of the flora and vegetation survey

Limitation	Determination	Justification
Availability of contextual information at a regional and local scale	Not a limitation	All contextual information was available at the time of survey. Database search results and desktop assessment was completed prior to commencing the survey.
Competency/experience of the team conducting the survey, including experience in the bioregion	Not a limitation	The lead surveying botanist Catherine Krens has over 18 years' experience undertaking flora and vegetation surveys within Western Australia.
Proportion of flora recorded and collected and any identification issues	Not a limitation	A specimen of all flora species recorded was collected for confirmation at the Western Australian Herbarium. All species observed were recorded including opportunistic records outside quadrats.
Effort and extent - was the survey area fully surveyed	Not a limitation	The survey area was traversed on foot, and a targeted survey was undertaken within suitable habitat. All vegetation types were surveyed with a minimum of three quadrats established within each vegetation type.
Access restrictions within the survey area	Not a limitation	There were many tracks throughout the survey area, and no access issues were encountered.
Survey timing, rainfall, season of survey	Minor limitation	The survey was conducted in October, which is within the peak flowering period of the Coolgardie bioregion (September to November), which the majority of the survey area occurs in. Rainfall was above the mean average in the three months leading up to the survey, which may have assisted in triggering flowering.
Disturbance that may have affected the results of survey such as fire, flood or clearing	Minor limitation	The survey area was heavily disturbed by historical mining activity with numerous tracks throughout the survey area.

2.4 VEGETATION MAPPING

Vegetation types were classified using the National Vegetation Information System (NVIS) standard to the sub-association level (Commonwealth of Australia, 2003). Floristic composition and vegetation classification followed the EPA (2016a) guidelines for detailed surveys, providing a structured analysis of species composition within each quadrat. To assess similarities between quadrats, a multivariate comparative (cluster) analysis was conducted.

Vegetation descriptions were refined using the NVIS standard to level V (Commonwealth of Australia, 2003), which categorizes vegetation into three traditional strata: upper, mid, and ground layers. Vegetation mapping was performed using QGIS 3.8 software, integrating aerial imagery and quadrat data to delineate vegetation units.

Floristic data was analysed using PC-Ord v7.0, applying cluster analysis to group quadrats based on similarity. The Bray-Curtis distance measure determined the dissimilarity index, ranging from 0 (identical species composition) to 1 (no shared species), with lower values indicating greater similarity. The inverse of this index was used to calculate percentage similarity for each quadrat. A dendrogram illustrating hierarchical relationships between quadrats is provided in Appendix C.

The survey area occurs within two botanical provinces; with the majority of the survey area occurring within the South-Western Interzone where vegetation condition is classified using the Keighery (1994) scale. A small portion along the eastern boundary occurs within the Eremaean Botanical Province where vegetation condition is classified using Trudgen (1998) scale. Condition ratings account for vegetation structure, disturbance levels at each structural layer, and regeneration potential (EPA 2016a). Table 8 outlines the vegetation condition ratings for both the Keighery and Trudgen scales.

Table 8 Vegetation condition scales

Vegetation Condition	South-West Interzone Botanical Province (Keighery 1994)	Eremaean Botanical Province (Trudgen 1998)
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.	No rating
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	No rating	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition

Vegetation Condition	South-West Interzone Botanical Province (Keighery 1994)	Eremaean Botanical Province (Trudgen 1998)
	intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.	without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

3.0 EXISTING ENVIRONMENT

3.1 CLIMATE

The closest long-term Bureau of Meteorology (BOM) weather station with a complete dataset is Kalgoorlie-Boulder Airport Weather Station (Station 12038) which has recorded monthly rainfall and temperature since 1939. The long-term mean maximum temperature for Kalgoorlie-Boulder Airport ranges from 16.9°C during July to 33.7°C during January (BOM 2025).

The Kalgoorlie-Boulder Airport Weather Station recorded 309 mm of rainfall in the 12 months prior to the survey (October 2024 to September 2025) which was 43.1 mm above the long-term average of 265.9 mm (BOM 2025). In the three months prior to the survey, from July to September 2025, 97.4 mm of rainfall was recorded, which is 48.3 mm above the long-term average of 49.1 mm for the same period (BOM 2025).

A comparison of the mean temperature and mean rainfall against the temperature and rainfall in the 12 months prior to the survey is provided in Figure 2.

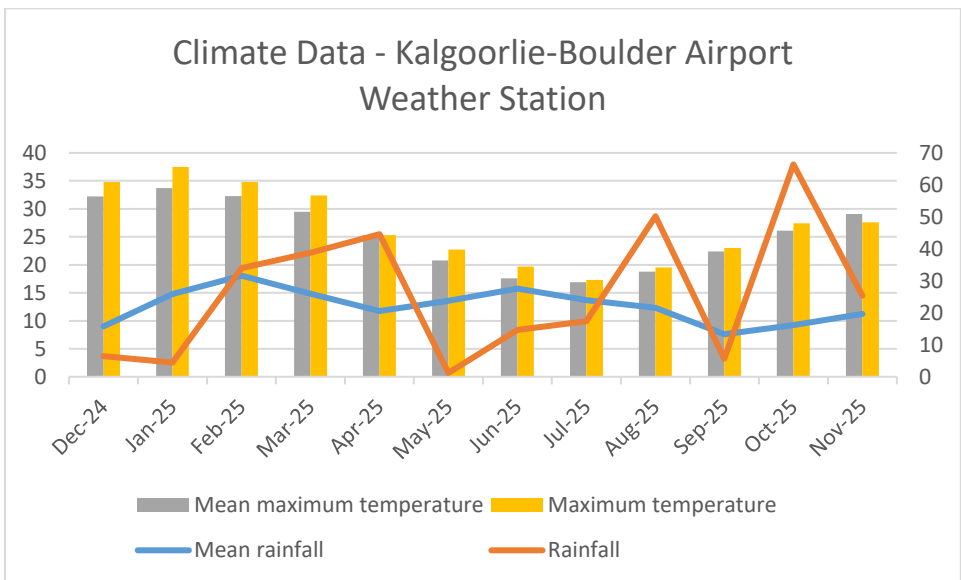


Figure 2 Climate data recorded at Kalgoorlie-Boulder Airport Weather Station displaying mean monthly rainfall and maximum temperatures for the 12 months preceding the survey against the mean long-term rainfall and maximum temperature (Bureau of Meteorology 2025).

3.2 IBRA BIOREGIONS

The survey area occurs primarily within the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion, specifically the Eastern Goldfield subregion. A small eastern portion of the survey area occurs within the Murchison IBRA Bioregion, specifically the Eastern Murchison subregion (Figure 3).

The Coolgardie bioregion is comprised on granite rocky outcrops, low greenstone hills, laterite uplands, and broad plains (DCCEEW 2026). The laterised uplands are characterised by mallees and shrublands, and the low greenstone hills and valleys are characterised by endemic eucalypts. The west of the bioregion has shrublands rich in Proteaceae, and the east is rich in Acacias (Grant et al. 2002)

The Murchison bioregion comprise low hills and mesas separated by flat colluvium and alluvial plains. Mulga low-woodlands dominate. Other vegetation types include saltbush shrubland on calcareous soils, saline areas with samphire, and hummock grassland on red sandplain (Bastin 2008).

3.3 GEOLOGY AND SOILS

There are three geological units occurring within the survey area as mapped by the 1:500,000 State interpreted bedrock geology (DPIRD 2021a) (Figure 4):

- A-b-YEG – Eastern Goldfields Superterrane greenstones: Fine to very fine grained mafic rock with minor ultramafic rock, undivided; metamorphosed.
- A-uk-YEG – Eastern Goldfields Superterrane greenstones: Komatiite and komatiite flow units; olivine spinifex texture and locally well developed cumulate zones; metamorphosed; silicified or weathered
- A-gm-Y – Yilgarn Craton granites: Monzogranite; common biotite and rare local hornblende; minor granodiorite and syenogranite; fine to coarse grained; equigranular to porphyritic; massive to weakly foliated; metamorphosed.

Three soil groups were identified within the survey area (Figure 5):

- 265k6; Mx40 atlas system: Flat to undulating valley plains and pediments; some rock outcrop
- 265Mo; Moriarty system: Low greenstone rises and stony plains supporting chenopod shrublands with patchy eucalypt overstoreys
- 265k9; Mx43 Atlas system - Gently undulating valley plains and pediments; some outcrop of basic rock.

3.4 BROAD VEGETATION TYPES

Mapping of pre-European vegetation units within Western Australia is based on broad scale mapping by Beard (1976) at 1:3,000,000 which showed the distribution of 75 major categories of plants at the time of European settlement. Beards mapping was re-assessed by Shepherd et al. (2002) with some larger vegetation units divided into smaller units. Together, this pre-European database contains a total of 819 vegetation types recognised within Western Australia.

Two broad vegetation associations are mapped within the survey area (Figure 6) The vegetation types are described below. Both vegetation associations are well represented at a local, regional, and state level with at least 90% of their Pre-European extent remaining (Table 9).

- Kununulling 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
- Barlee 538: Scrub, open scrub or sparse scrub; Wattle, teatree & other species *Acacia* spp. *Melaleuca* spp.

Table 9 Broad vegetation types within the state, regional and local representation (DPIRD 2019)

Vegetation Association	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	Current extent managed in DBCA lands (%)
Representation across Western Australia				
Kununulling 468	186,202.68	182,938.32	98.25	53.69
Barlee 538	19,228.57	19,112.21	99.39	80.46
Representation across the Coolgardie Bioregion				
Kununulling 468	185,070.12	181,924.12	98.3	53.73
Barlee 538	0.68	0.68	100	
Representation across the Murchison Bioregion				
Kununulling 468	1,132.56	1,014.20	89.55	46.08
Barlee 538	19,227.89	19,111.53	99.39	80.47
Representation across the Shire of Kalgoorlie-Boulder				
Kununulling 468	25,081.99	22,805.77	90.92	23.06
Barlee 538	396.26	392.26	100	35.61

3.5 CONSERVATION AREAS

Environmentally Sensitive Areas (ESAs) are declared to prevent degradation of important environmental values such as Threatened flora, TECs or significant wetlands. Exemptions contained in the Environmental Protection (Clearing of Native vegetation) Regulations 2004 for low impact land clearing do not apply in ESAs and a clearing permit is required.

Five Environmentally Sensitive Areas occur within 100km of the survey area (Figure 7) and are outlined in Table 10.

Table 10 Broad vegetation types within the state, regional and local representation (DPIRD 2019)

Conservation Area	Distance to survey area
Mount Manning Range Nature Reserve	66km west
Lake Barlee	98km northwest
Lake Ballard	61km north
Lake Marmion	79km northeast
Coongarrie National Park	73km east

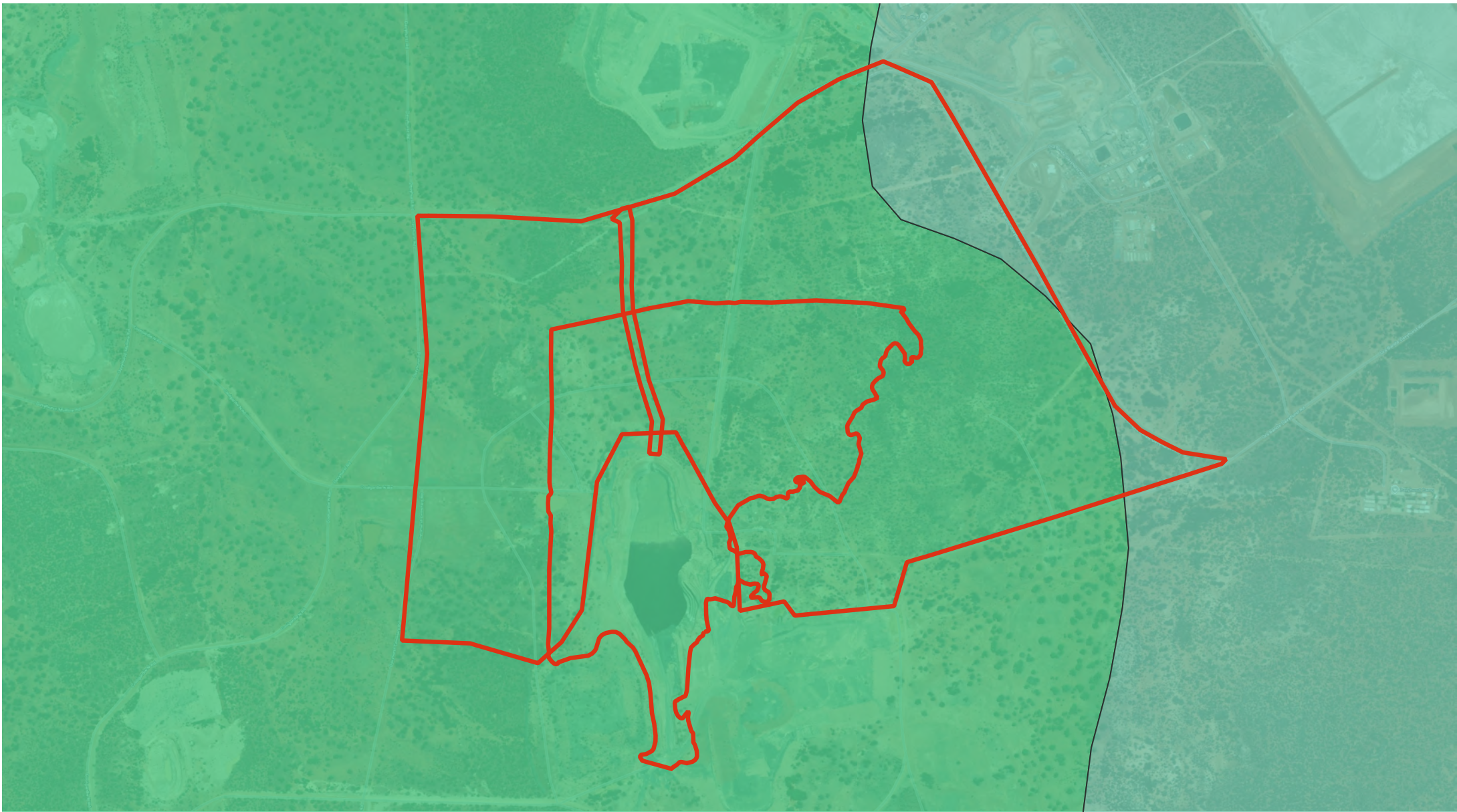
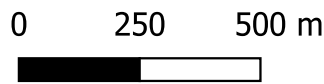


Figure 3 IBRA sub-regions

Davyhurst Gold Operations



GDA2020 - MGA Zone 50



Legend

- Survey Area
- IBRA sub-region
 - COO03: Eastern Goldfield
 - MUR01: Eastern Murchison



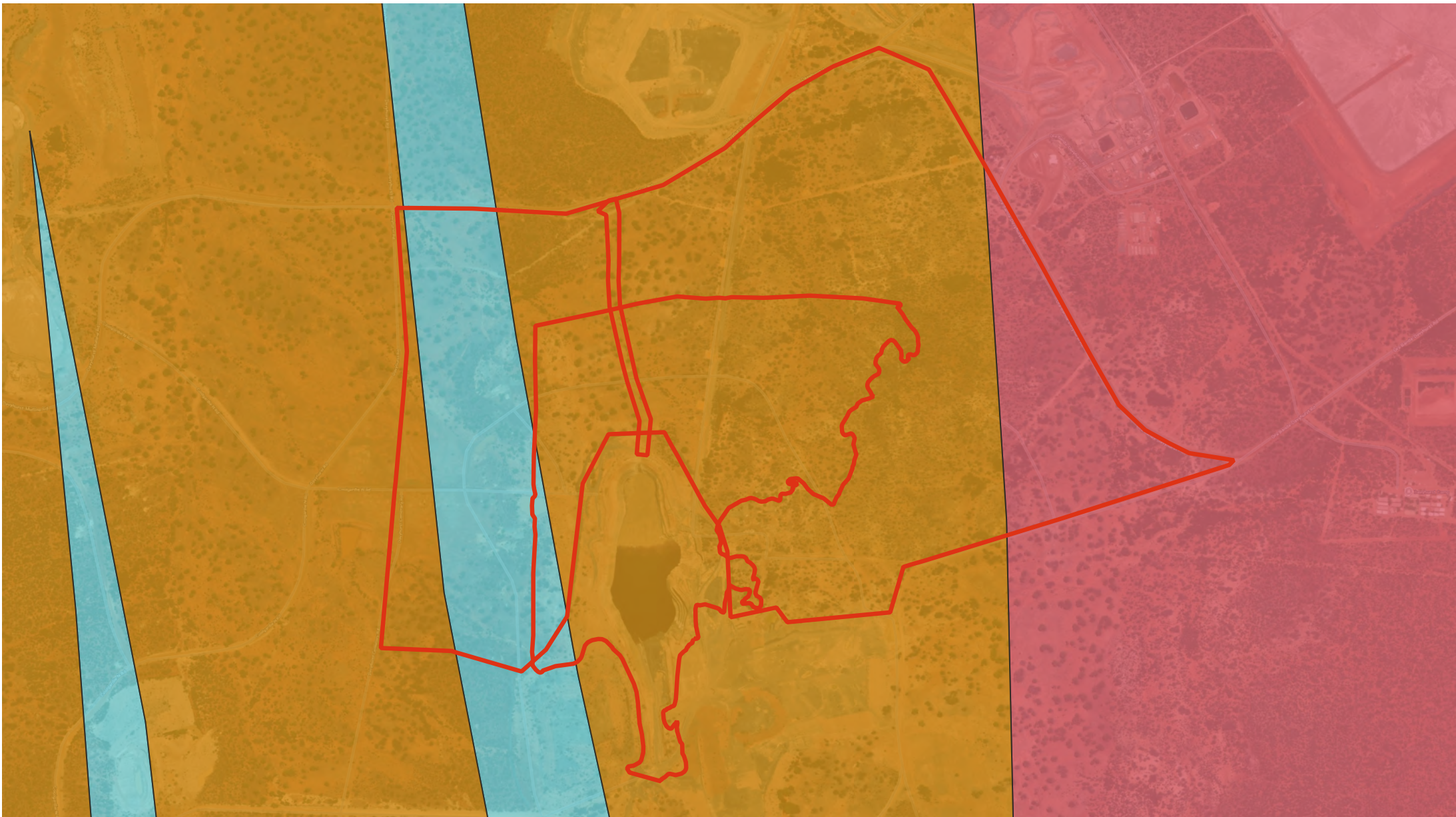


Figure 4 Bedrock Geology

Davyhurst Gold Operations

0 250 500 m



GDA2020 - MGA Zone 50



Legend

— Survey area

Bedrock geology

A-b-YEG: Eastern Goldfields Superterrane greenstones

A-gm-Y: Yilgarn Craton granites

A-uk-YEG: Eastern Goldfields Superterrane greenstones



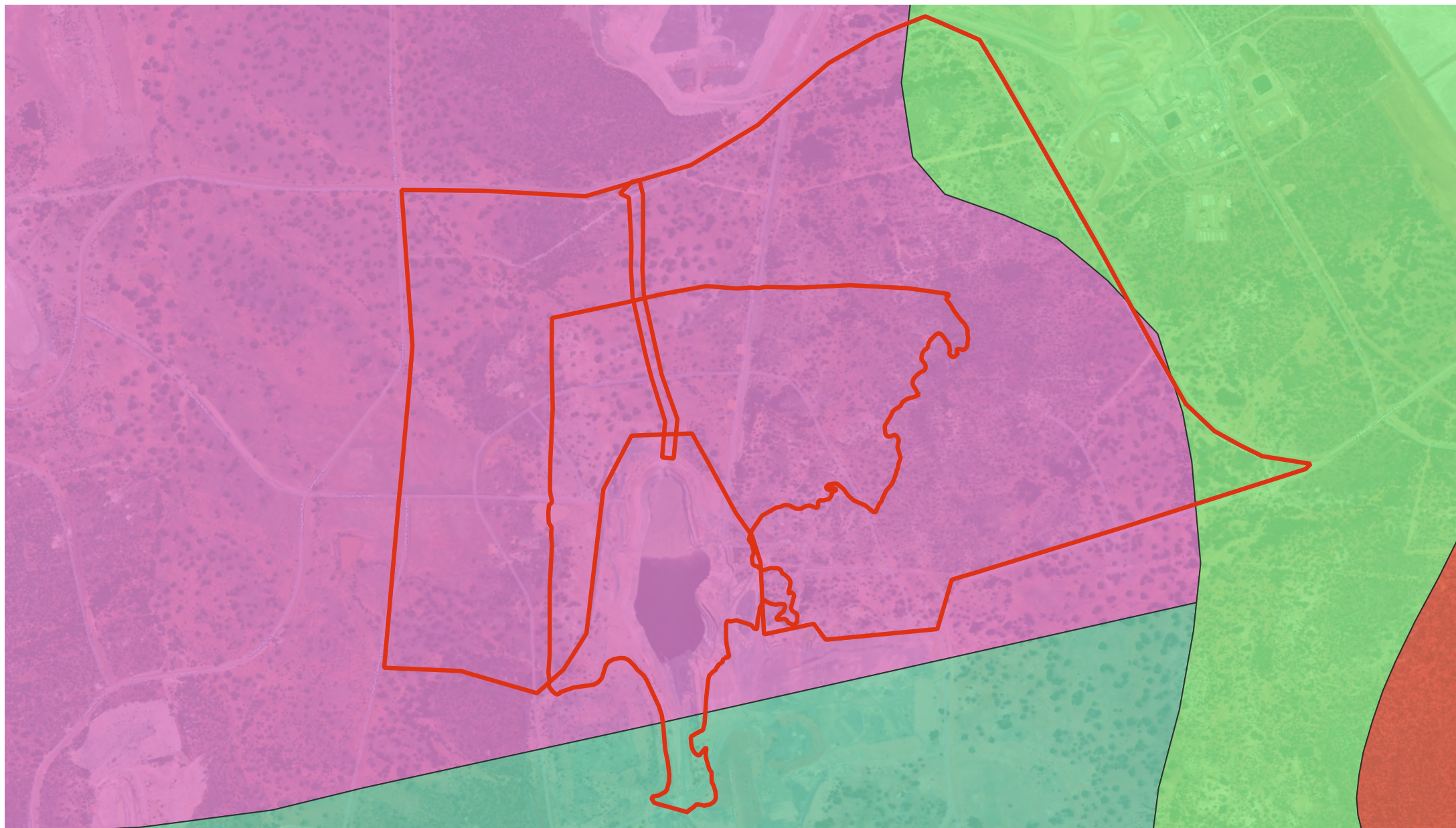


Figure 5 Soils

Davyhurst Gold Operations



GDA2020 - MGA Zone 50



Legend

— Survey area

Soil system

265k6: Mx40 atlas system

265k9: Mx43 atlas system

265Mo: Moriarty system

266Ma: Marmion system



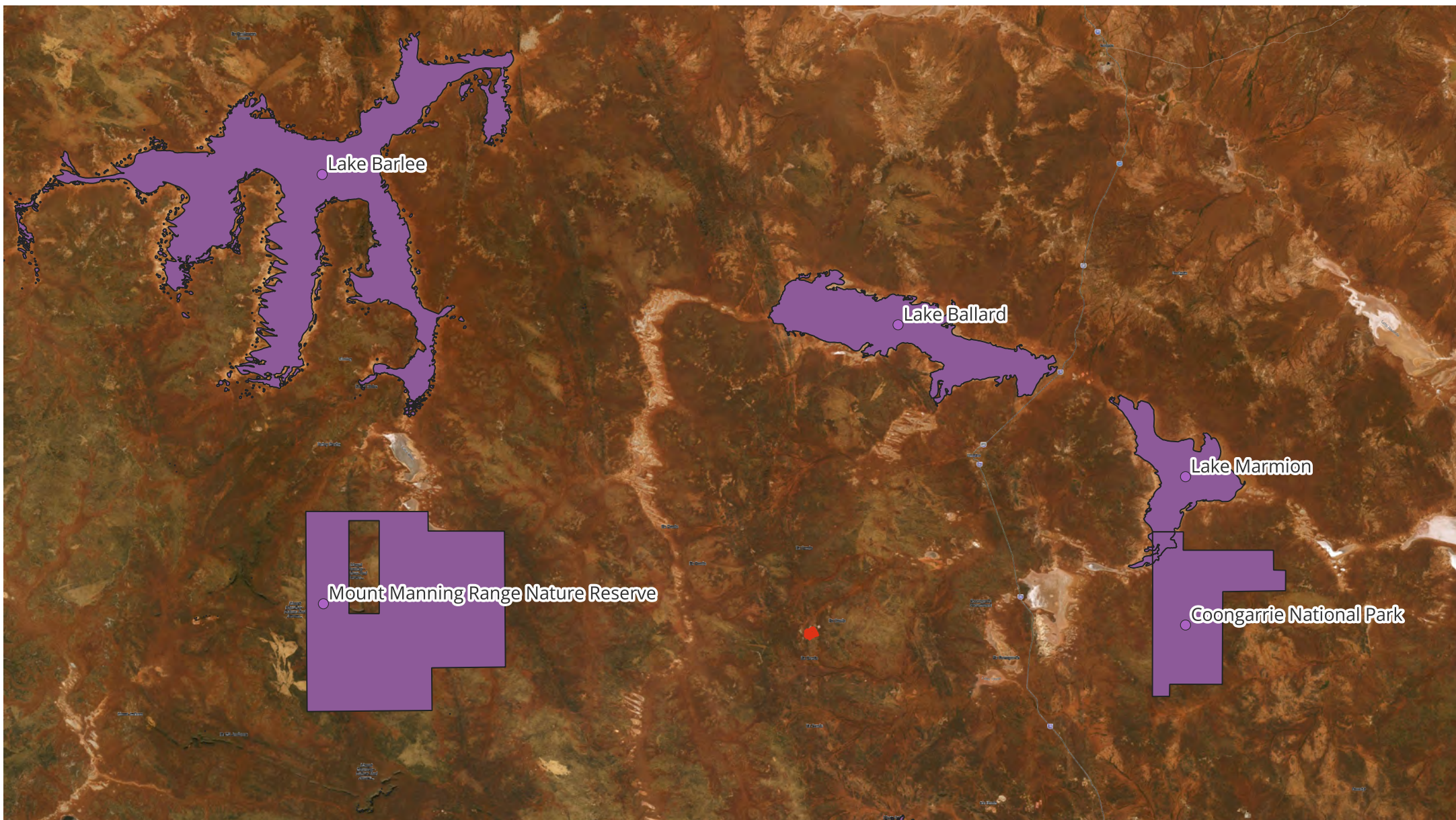


Figure X Environmentally Sensitive Areas

Davyhurst Gold Operations

0 25 50 km



Legend

- Survey area
- Environmentally Sensitive Area



4.0 RESULTS

4.1 FLORA RESULTS

4.1.1 FLORA DESKTOP ASSESSMENT

The desktop assessment identified 17 conservation significant flora species occurring within 50 km of the survey area. A break-down of the number of species within each conservation category is provided in Table 11.

Table 11 Number of species within each conservation category identified in the desktop assessment

Conservation status	Commonwealth listed species	State listed species
Critically Endangered		
Endangered	2	
Vulnerable	1 [^]	
Priority 1		2
Priority 2		2
Priority 3		9 ^{^^}
Priority 4		4

Note: [^]some species are also State listed

^{^^} some species are also Commonwealth listed

The potential occurrence of the conservation significant species within the survey area was determined as either 'High', 'Medium' or 'Low' likelihood to be present based on the criteria set out in Table 6. Two species were considered to have a high likelihood of occurrence within the survey area:

- *Eucalyptus crucis* subsp. *crucis* – Vulnerable (EPBC Act), Endangered (BC Act)
- *Ricinocarpos brevis* – Endangered (EPBC Act and BC Act).

A total of 8 species identified in the desktop assessment were considered to have a medium likelihood of occurrence within the survey area. Suitable habitat was present within the survey area, and these species have been recorded in the last 26 years; however, these species occurred between 10 km and 20 km from the survey area. The remaining 7 conservation significant species were considered to have a low likelihood of occurrence in the survey area. A full description of all conservation significant species identified in the desktop assessment is provided in Appendix A and the locations of conservation significant populations are mapped in Figure 8.



Figure 7 Desktop Flora

Davyhurst Gold Operations

0 10 20 km



Legend

— Survey area

Threatened and Priority Flora

● Priority 1

● Priority 2

● Priority 3

● Priority 4

● Threatened



4.1.2 FLORA FIELD ASSESSMENT RESULTS

The survey identified 92 flora species, including subspecies and varieties, from 27 families and 53 genera. Among these, 88 were locally native, while four were introduced species. Species richness varied across quadrats, ranging from 15 to 38 species. The families with the highest species representation were Chenopodiaceae (18 species), Fabaceae (11), and Scrophulariaceae (9 species each).

All 92 species were collected for verification and identification at the Western Australian Herbarium. The majority of specimens were successfully identified at the species level, except for two specimens, which lacked sufficient flowering or fruiting material for complete identification.

All recorded species occur within the Coolgardie or Murchison bioregions, with no species found outside their known population range.

A summary of the recorded flora can be found in Table 12, with the full species list presented in Appendix B.

Table 12 Summary of recorded flora

Overview	
No. Families	27
No. Genera	53
No. Species (incl. subspecies & varieties)	92
No. Native Species (incl. subspecies & varieties)	88
No. Introduced Species	4
Threatened Flora	0
Priority Flora	0
Species of Interest	1 – <i>Santalum spicatum</i> – listed as Vulnerable on the IUCN Red List
Speciose Families	
Chenopodiaceae	18
Fabaceae	11
Scrophulariaceae	9
Asteraceae	9
Myrtaceae	8
Speciose Genera	
Eremophila	9
Acacia	8
Eucalyptus	7
Maireana	7

4.1.3 CONSERVATION SIGNIFICANT FLORA

A targeted survey was undertaken for the 17 species identified in the desktop assessment. Species determined to have a high or medium likelihood of occurrence within the survey area were the focus of the targeted survey.

No flora species recorded within the survey area were classified as Threatened under the BC Act or EPBC Act. Additionally, no Priority flora species were identified.

The survey identified one conservation significant flora species present within the survey area: *Santalum spicatum* (Vulnerable). *Santalum spicatum* (Sandalwood) is listed as Vulnerable on the IUCN Red List, however it is not listed under the BC Act. It is commercially harvested for its fragrant oils and has been heavily cleared particularly within the Wheatbelt region which has fragmented populations. It is a slow growing, long lived, low, scraggly tree which grows to 5m (Plate 1), with grey leaves and green/red flowers occurring from February to June. It typically grows on red sandy soils and among rocks. It was recorded from five locations with six plants recorded.



Plate 1 *Santalum spicatum* (Sandalwood) recorded within the survey area

4.1.4 WEEDS

A total of four introduced (weed) species were recorded within the survey area, which represents 5% of the total recorded species, these included:

- *Brassica tournefortii* (Mediterranean Turnip, Brassicaceae)
- *Carrichtera annua* (Ward's Weed, Brassicaceae)
- *Centaurea melitensis* (Maltese Cockspur, Asteraceae)
- *Cuscuta planiflora* (Small-seeded Dodder, Convolvulaceae).

None of these species are classified as a Weed of National Significance (WoNS), or a Declared Pests under the *Biosecurity and Agricultural Management Act 2007* (BAM Act).

4.2 VEGETATION RESULTS

4.2.1 VEGETATION DESKTOP ASSESSMENT

The desktop identified no conservation significant ecological communities and associated buffers occurring within 50km of the survey area.

4.2.2 VEGETATION TYPES

Three vegetation types were identified and mapped within the survey area based on vegetation structure and statistical analysis through multivariate cluster analysis of the nine quadrats. None of the vegetation types were restricted in size within the survey area and at least three quadrats were able to be established within each vegetation type.

The vegetation types occurring within the survey area are summarised in Table 13 and the vegetation types are mapped in Figure 9. Statistical analysis of the nine quadrats is provided in Appendix C, and quadrat data is provided in Appendix D.

Table 13 Vegetation associations within the survey area

Vegetation type	Broad floristic formation	Vegetation description	Landform	Representative photo	Quadrats	Area (ha)	% within survey area
VT1 – ElIEsAs	Eucalypt woodland	<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> , <i>Eucalyptus salubris</i> and <i>Eucalyptus salmonophloia</i> low woodland over <i>Eremophila ionantha</i> and <i>Eremophila scoparia</i> mid sparse shrubland over <i>Atriplex semibaccata</i> , <i>Enchylaena tomentosa</i> and <i>Maireana tomentosa</i> open chenopod shrubland	Plain		GEQ03, GEQ05, GEQ08	92.65	30
VT2 – EgAaPo	Eucalypt woodland	<i>Eucalyptus griffithsii</i> , <i>Eucalyptus oleosa</i> and <i>Acacia aneura</i> low open woodland over <i>Acacia acuminata</i> , <i>Acacia tetragonophylla</i> and <i>Dodonaea lobulata</i> mid to tall open shrubland over <i>Olearia muelleri</i> and <i>Ptilotus obovatus</i> low sparse shrubland	Low-mid slope		GEQ02, GEQ04, GEQ06	46.97	15

Vegetation type	Broad floristic formation	Vegetation description	Landform	Representative photo	Quadrats	Area (ha)	% within survey area
VT3 – AaaEoaPo	Eucalypt woodland	<i>Eucalyptus clelandii</i> , <i>Eucalyptus transcontinentalis</i> and <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> low open woodland over <i>Acacia tetragonophylla</i> , <i>Alyxia buxifolia</i> and <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> mid to tall open shrubland over <i>Eremophila pustulata</i> , <i>Acacia erinacea</i> and <i>Ptilotus obovatus</i> low sparse shrubland	Rocky outcrop/hills with drainage		GEQ01, GEQ07, GEQ09	89.31	29
Disturbed areas		Tracks, mining disturbance, and infrastructure				76.33	25

4.2.3 CONSERVATION SIGNIFICANT ECOLOGICAL COMMUNITIES

No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) occur within the survey area. None of the vegetation types are representative of any TECs and PEC.

4.2.4 VEGETATION CONDITION

The vegetation condition within the survey area varied from Completely Degraded to Very Good, with no areas classified as Excellent or Pristine. This is largely due to a high level of disturbance from old mining activity throughout the survey area.

A summary of the vegetation condition within the survey area is presented in Table 14 and mapped in Figure 10.

Table 14 Vegetation condition categories within the survey area

Condition scale	Area (ha)	Percentage (%)
Very Good	50.28	16
Good	97.82	32
Poor	56.88	19
Degraded	19.80	6
Completely Degraded	80.49	26
Total	305.27	100

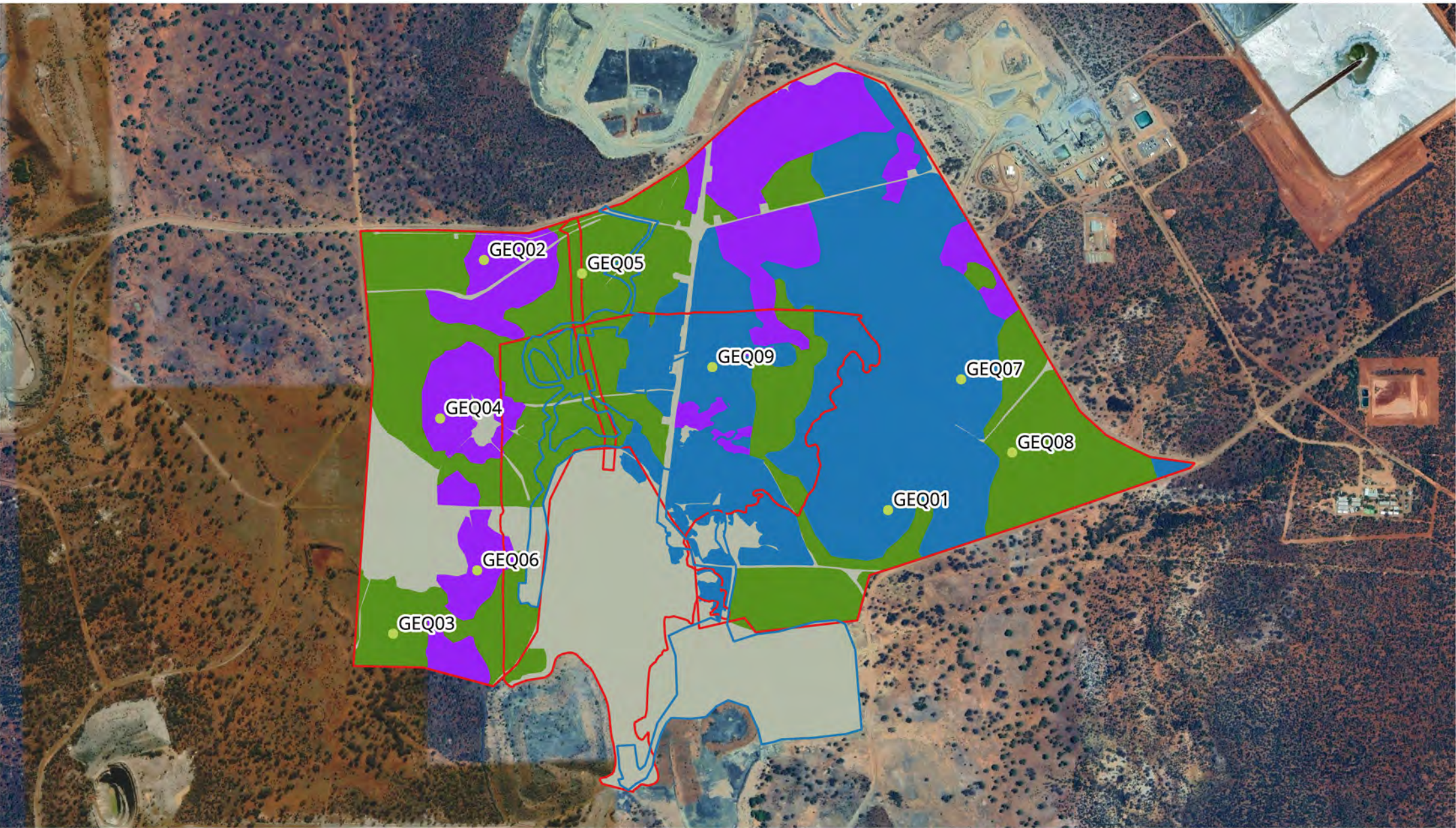
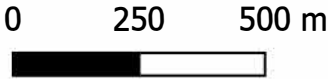


Figure 9 Vegetation types

Golden Eagle Project



GDA2020 - MGA Zone 51



Legend

- Survey area
- Golden Eagle TSF
- Quadrat
- Vegetation types: VT3 - AaaEoaPo
- VT1 - EIIeSAs
- VT2 - EgAaPo
- Disturbed area

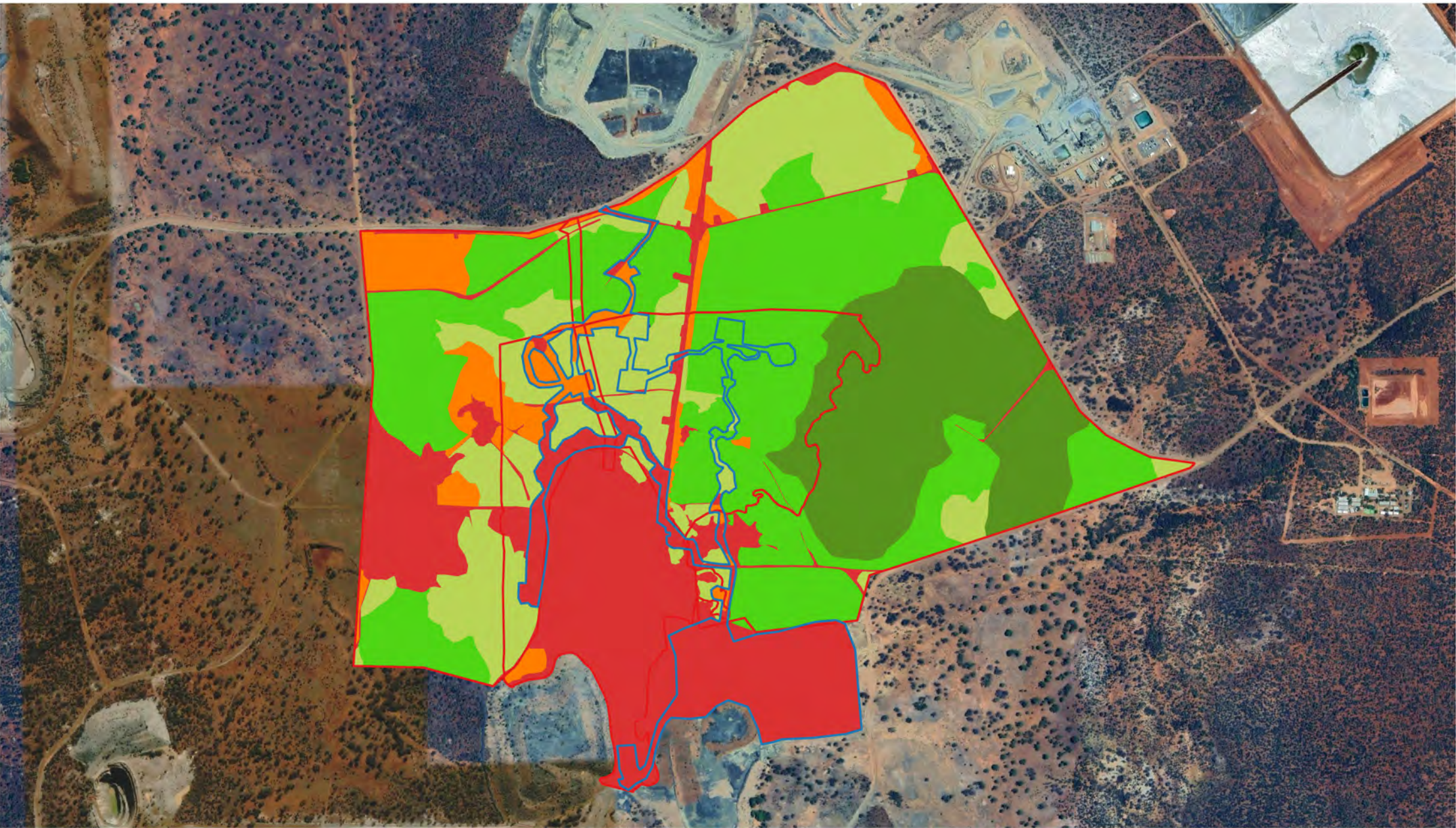
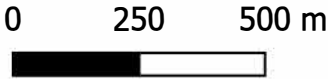


Figure 10 Condition

Golden Eagle Project



GDA2020 - MGA Zone 51

Legend

— Survey area	Condition:	■ Poor
— Golden Eagle TSF	■ Very Good	■ Degraded
	■ Good	■ Completely Degraded

5.0 DISCUSSION

5.1 FLORA

The flora survey recorded a moderate to high level of species richness within the survey area, with 92 taxa identified across 27 families and 53 genera. The predominance of locally native flora (88 species; 96% of all recorded taxa) indicates that, despite historical disturbance associated with mining activities, substantial areas of native vegetation remain intact and continue to support characteristic flora assemblages of the Coolgardie and southern Murchison bioregions. The absence of flora species occurring outside their known range further suggests that the flora assemblages recorded are regionally typical and representative of the surrounding landscape.

Species richness across quadrats ranged from 15 to 38 species, reflecting variation in landform, soil characteristics, and disturbance history throughout the survey area. The dominance of Chenopodiaceae, Fabaceae, Scrophulariaceae, Asteraceae and Myrtaceae is consistent with vegetation communities commonly associated with semi-arid woodland and chenopod shrubland systems of the eastern Goldfields region. Genera such as *Eremophila*, *Acacia*, *Eucalyptus* and *Maireana* were particularly well represented and are characteristic of the woodland and shrubland vegetation complexes occurring on plains, slopes and rocky rises throughout the region.

The desktop assessment identified 17 conservation significant flora taxa within 50 km of the survey area, including species listed under both the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Biodiversity Conservation Act 2016* (BC Act). Two species, *Eucalyptus crucis* subsp. *crucis* and *Ricinocarpos brevis*, were assessed as having a high likelihood of occurrence due to the presence of potentially suitable habitat within the survey area. However, targeted field surveys did not record either species, nor were any Threatened or Priority flora species identified during the field assessment.

The absence of Threatened and Priority flora may reflect several factors, including localised habitat preferences of target species, historical disturbance associated with mining activity, and the patchy distribution typical of many arid and semi-arid flora taxa. Nevertheless, the targeted survey effort, combined with seasonal conditions sufficient for identification of most taxa, provides a reasonable level of confidence that significant populations of listed flora are unlikely to occur within the survey area.

One conservation significant species, *Santalum spicatum* (Sandalwood), was recorded at five locations within the survey area, comprising six individual plants. Although not currently listed under the BC Act or EPBC Act, the species is recognised as Vulnerable on the IUCN Red List due to historical overharvesting, land clearing, grazing pressure, and fragmentation of populations across its range. The occurrence of *S. spicatum* within the survey area is regionally significant given ongoing declines in natural populations throughout parts of the Wheatbelt and Goldfields. Recorded individuals were sparse and widely distributed, which is consistent with the species' naturally scattered occurrence in semi-arid woodland systems. Any future ground-disturbing activities within the survey area should consider avoidance or management measures for recorded individuals where practicable.

Introduced flora diversity within the survey area was low, with only four weed species recorded, representing approximately 4% of the total flora assemblage. None of the recorded weeds are listed as a Weed of National Significance or Declared Pests. Weed occurrences appeared to be associated primarily with previously disturbed areas, including tracks, historical mining disturbance, and the old Davyhurst townsite. The relatively low abundance and diversity of introduced species suggest that, outside disturbed zones, native vegetation retains a moderate degree of ecological integrity. However, ongoing disturbance may facilitate further weed establishment, particularly in degraded areas where soil profiles and native vegetation structure have been altered.

5.2 VEGETATION

Three distinct vegetation types were identified within the survey area through soil and landform characteristics, floristic structure and multivariate statistical analysis. The vegetation types represent broadly distributed eucalypt woodland communities associated with plains, low slopes, rocky outcrops and drainage features typical of the eastern Goldfields landscape. None of the vegetation types were considered restricted locally or regionally, and all were represented by a minimum of three quadrats, providing confidence in the vegetation classification.

Vegetation Type 1 (VT1) comprised mixed *Eucalyptus loxophleba* subsp. *lissophloia*, *Eucalyptus salubris* and *Eucalyptus salmonophloia* woodland over chenopod shrubland on plains. This vegetation type occupied approximately 30% of the survey area and represents a common woodland association within semi-arid landscapes of the Coolgardie bioregion. The chenopod-dominated understorey reflects heavier soil profiles and mildly saline or calcareous conditions typical of plains environments.

Vegetation Type 2 (VT2) occurred on low to mid slopes and was characterised by *Eucalyptus griffithsii*, *Eucalyptus oleosa* and *Acacia aneura* woodland over mixed acacia shrubland. This vegetation type displayed greater structural complexity in the mid-storey and likely reflects transitional landform and soil conditions between plains and rocky uplands. The relatively lower proportional extent of this vegetation type within the survey area is likely related to the limited occurrence of suitable slope habitats.

Vegetation Type 3 (VT3) was associated with rocky outcrops, hills which are incised by drainage areas and supported *Eucalyptus clelandii*, *Eucalyptus transcontinentalis* and *Allocasuarina acutivalvis* woodland over diverse shrub strata. Rocky habitats generally supported higher structural diversity and provided habitat heterogeneity within the broader landscape. These areas may provide local refugia for fauna and flora species due to increased topographic complexity and localised moisture retention.

No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were identified within the survey area, either through desktop assessment or field verification. Furthermore, none of the mapped vegetation types displayed floristic or structural affinities with known conservation significant ecological communities. The vegetation communities recorded are considered widespread and well represented within the surrounding region.

Vegetation condition across the survey area ranged from Very Good to Completely Degraded, with no areas assessed as Excellent or Pristine. Historical mining activities, tracks and associated infrastructure were the primary drivers of vegetation degradation throughout the survey area. Areas classified as Completely Degraded and Degraded collectively accounted for approximately 32% of the survey area and were generally associated with cleared or heavily disturbed land where native vegetation structure had been substantially altered or removed.

Within the Golden Eagle TSF footprint, condition was mainly Degraded or Completely Degraded, with some sections classified as Good mainly in the northeastern section of the footprint, no areas within the TSF footprint were classified as Very Good.

Despite this disturbance history, approximately 48% of the survey area was assessed as being in Good or Very Good condition, indicating that large portions of the survey area retain relatively intact native vegetation structure and composition. Vegetation in better condition generally occurred away from historical disturbance corridors and within less accessible rocky or upland areas (mainly VT3).

The Golden Eagle TSF footprint is considered to have lower ecological value relative to the broader survey area, largely due to the presence of existing disturbance, including tracks and historically mining areas. Vegetation condition within the footprint ranged from Completely Degraded to Good. No individuals of *Santalum spicatum* were recorded within the proposed TSF footprint.

Overall, the survey area supports vegetation and flora assemblages that are typical of the Coolgardie and southern Murchison bioregions and does not contain significant constraints associated with Threatened flora or ecological communities. However, the presence of scattered *Santalum spicatum* individuals and areas of vegetation in Very Good condition indicate that careful management of disturbance footprints and rehabilitation practices would assist in maintaining local ecological value.

REFERENCES

- Beard, J. S., 1976. Vegetation Survey of Western Australia. The Vegetation of the Swan Area, Western Australia. 1:250,000 series. Vegmap Publications, Perth
- Bastin G and the ACRIS Management Committee, Rangelands 2008 — Taking the Pulse, published on behalf of the ACRIS Management Committee by the National Land & Water Resources Audit, Canberra.
- Bureau of Meteorology, 2026. Kalgoorlie-Boulder Airport Weather Station. Website accessed www.bom.gov.au/
- Commonwealth of Australia, 2003. *National Vegetation Information System: Australian Vegetation Attribute Manual Version 6.0*. Prepared by the Executive Steering Committee for Australian Vegetation Information. Published by the Department of Environment and Heritage, Canberra.
- Cowan, R. S. 1998. Flora of Australia: Volume 12 Mimosaceae (excl. Acacia) Caesalpiniaceae. Melbourne: CSIRO Australia.
- DBCA, 2025a. *Threatened and Priority Flora List*. DBCA, Kensington.
- DBCA, 2025b. Western Australian Herbarium Specimen Database. DBCA, Kensington.
- DBCA, 2025c. Threatened and Priority Ecological Communities Database. DBCA, Kensington.
- DCCEEW, 2025. EPBC Protected Matters Search Tool, Canberra.
- DPIRD, 2019a. Soil Landscape Mapping - Best Available (DPIRD-027) dataset.
- DPIRD, 2019b. DBCA State-wide Vegetation Statistics
- DPIRD, 2018. 1:500 000 State interpreted bedrock geology (DMIRS-016) dataset.
- EPA, 2016a. *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*. EPA, Western Australia.
- EPA, 2016b. *Environmental Factor Guideline: Flora and Vegetation*. EPA, Western Australia.
- Grant et al., 2002. *Coolgardie 1 (COO1 – Mardabilla subregion)*. A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002.
- Keighery, B.J., 1994. *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc.), Nedlands, Western Australia
- Shepherd, et. al., 2002. Native Vegetation in Western Australia, extent Type and Status, Technical Report 249, Department of Agriculture WA.
- Trudgen, M.E. (1988). A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

APPENDIX A DESKTOP ASSESSMENT RESULTS

Results of the desktop assessment are presented below.

Table A1 Conservation significant flora species identified in the desktop assessment.

Species	Conservation status		Description	Flowering time	Distance from survey area	Habitat	Year	Likelihood
	CWTH	WA						
<i>Acacia cylindrica</i>		Priority 3	Spreading shrub, 1.5-3(-4) m high. Flowers yellow.	August to October	48.1km	Yellow/brown sand, gravelly soils. Undulating plains, flats.	2013	low
<i>Calytrix hislopilii</i>		Priority 3	Squat gnarled sub-shrub, 0.1-1m high. Flowers yellow.	August to September	14.6km	Laterite ridges, breakaways, and granite.	2011	medium
<i>Eleocharis papillosa</i>	Vulnerable	Priority 3	Annual, herb. Flowers brown.	November	within 50km	Red clay over granite, open clay flats. Claypans.		low
<i>Eucalyptus crucis</i> subsp. <i>crucis</i>		Threatened	(Mallee), 2-8 m high, bark rough, 'minni-ritchi'. Flowers white.	October or December or January to March	7.2km	Sand, loam. Granite outcrops.	1929	high
<i>Eucalyptus educta</i>		Priority 2	(Straggling & spreading mallee), 3-5 m high, bark rough, 'minni-ritchi'. Flowers cream-yellow.	April	11.9km	Shallow soils. Granite rocks.		medium
<i>Eutaxia nanophylla</i>		Priority 3	Straggly, rounded shrub, to 0.35 m high. Flowers yellow and orange and red.	October to November	33.3km	Clayey sand, red clay, stoney clayey loam. Low-lying areas, damp flats,	1990	low

Species	Conservation status		Description	Flowering time	Distance from survey area	Habitat	Year	Likelihood
	CWTH	WA						
						slopes, undulating plains, low stony ridges.		
<i>Grevillea georgeana</i>		Priority 3	Erect to widely spreading shrub, 1-3 m high, up to 4 m wide. Flowers red/red and pink and cream.	January or March or September to November	12.3km	Stony loam/clay. Ironstone hilltops & slopes.	2011	medium
<i>Menkea draboides</i>		Priority 3	Prostrate, spreading annual, herb, to 0.6 m wide. Flowers white/cream.	August to September	21.9km	Red sand or clay, granite.	2011	Low
<i>Myriophyllum lapidicola</i>	Endangered	Threatened	Aquatic herb.		within 50km	Sandy clay. Waterholes on granite outcrops.		low
<i>Notisia intonsa</i>		Priority 3			36.1km		2023	medium
<i>Pterostylis virens</i>		Priority 3			18.7km		1999	low
<i>Ricinocarpus digynus</i>		Priority 1			36.9km		2023	medium
<i>Ricinocarpus brevis</i>	Endangered	Threatened	Shrub, to 1.8 m high. Flowers white.	June to July	in survey area	Rocky hillslopes, rock outcrops.		high
<i>Stackhousia muricata</i> subsp. Perennial (W.R. Barker 3641)		Priority 3	Annual or Perennial, 0.03-9.55m high. Flowers yellow-green-brown.	July to November	38.6km		2011	medium

Species	Conservation status		Description	Flowering time	Distance from survey area	Habitat	Year	Likelihood
	CWTH	WA						
<i>Thysanotus</i> sp. Yellowdine (A.S. George 6040)		Priority 2			49.6km		2014	medium
<i>Wurmbea murchisoniana</i>		Priority 4	Cormous, perennial, herb, 0.1- 0.26 m high, hermaphrodite. Flowers white.	July to September	18.7km	Clay, sandy clay, loam. Seasonally inundated clay hollows, rock pools.	1999	low
<i>Xanthoparmelia subbarbatica</i>		Priority 1			38.8km		2011	medium

APPENDIX B SPECIES LIST

Table B1 Species recorded within the survey area.

Family	Species	Form
Amaranthaceae	<i>Ptilotus aervoides</i>	Annual
	<i>Ptilotus exaltatus</i>	Annual
	<i>Ptilotus helipteroides</i>	Annual
	<i>Ptilotus obovatus</i>	Perennial
Apocynaceae	<i>Alyxia buxifolia</i>	Perennial
	<i>Leichhardtia australis</i>	Perennial
Araliaceae	<i>Trachymene ornata</i>	Annual
Asteraceae	<i>Calotis multicaulis</i>	Annual
	<i>Centaurea melitensis</i> *	Annual
	<i>Cephalopterum drummondii</i>	Annual
	<i>Erymophyllum ramosum</i>	Annual
	<i>Olearia muelleri</i>	Perennial
	<i>Olearia pimeleoides</i>	Perennial
	<i>Senecio pinnatifolius</i>	Annual or Perennial
	<i>Streptoglossa liatroides</i>	Perennial
	<i>Waitzia acuminata</i>	Annual
Brassicaceae	<i>Brassica tournefortii</i> *	Annual
	<i>Carrichtera annua</i> *	Annual
Casuarinaceae	<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	Perennial
Chenopodiaceae	<i>Atriplex codonocarpa</i>	Annual or Perennial
	<i>Atriplex holocarpa</i>	Annual or Perennial
	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	Perennial
	<i>Atriplex semibaccata</i>	Perennial
	<i>Chenopodium desertorum</i>	Perennial
	<i>Dissocarpus paradoxus</i>	Perennial
	<i>Enchylaena tomentosa</i>	Perennial
	<i>Maireana carnososa</i>	Perennial
	<i>Maireana georgei</i>	Perennial
	<i>Maireana sedifolia</i>	Perennial
	<i>Maireana tomentosa</i>	Perennial

Family	Species	Form
	<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	Perennial
	<i>Maireana trichoptera</i>	Perennial
	<i>Maireana triptera</i>	Perennial
	<i>Rhagodia eremaea</i>	Perennial
	<i>Sclerolaena cuneata</i>	Perennial
	<i>Sclerolaena densiflora</i>	Perennial
	<i>Sclerolaena fusiformis</i>	Perennial
Convolvulaceae	<i>Cuscuta planiflora</i> *	Annual
Euphorbiaceae	<i>Euphorbia porcata</i>	Perennial
Fabaceae	<i>Acacia acuminata</i>	Perennial
	<i>Acacia aneura</i>	Perennial
	<i>Acacia aptaneura</i>	Perennial
	<i>Acacia erinacea</i>	Perennial
	<i>Acacia fuscaneura</i>	Perennial
	<i>Acacia murrayana</i>	Perennial
	<i>Acacia tetragonophylla</i>	Perennial
	<i>Senna artemisioides</i> subsp. <i>×artemisioides</i>	Perennial
	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	Perennial
	<i>Senna cardiosperma</i>	Perennial
Geraniaceae	<i>Erodium cygnorum</i>	Annual or Perennial
Goodeniaceae	<i>Goodenia havilandii</i>	Annual
	<i>Scaevola spinescens</i>	Perennial
Lamiaceae	<i>Dicrastylis sessilifolia</i>	Perennial
Malvaceae	<i>Sida calyxhymenia</i>	Perennial
Myrtaceae	<i>Eucalyptus clelandii</i>	Perennial
	<i>Eucalyptus griffithsii</i>	Perennial
	<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i>	Perennial
	<i>Eucalyptus oleosa</i>	Perennial
	<i>Eucalyptus salmonophloia</i>	Perennial
	<i>Eucalyptus salubris</i> subsp. <i>salubris</i>	Perennial
	<i>Eucalyptus transcontinentalis</i>	Perennial

Family	Species	Form
	<i>Melaleuca hamata</i>	Perennial
Orchidaceae	<i>Microtis eremaea</i>	Perennial
Poaceae	<i>Aristida contorta</i>	Annual or Perennial
	<i>Austrostipa elegantissima</i>	Perennial
	<i>Bromus arenarius</i>	Annual
	<i>Enneapogon caerulescens</i>	Perennial
	<i>Eriachne pulchella</i>	Annual
	<i>Monachather paradoxus</i>	Perennial
Polygalaceae	<i>Comesperma integerrimum</i>	Perennial
Proteaceae	<i>Grevillea acuaria</i>	Perennial
Santalaceae	<i>Exocarpos aphyllus</i>	Perennial
Sapindaceae	<i>Dodonaea lobulata</i>	Perennial
Scrophulariaceae	<i>Eremophila decipiens</i> subsp. <i>decipiens</i>	Perennial
	<i>Eremophila eriocalyx</i>	Perennial
	<i>Eremophila glabra</i> subsp. <i>glabra</i>	Perennial
	<i>Eremophila interstans</i>	Perennial
	<i>Eremophila ionantha</i>	Perennial
	<i>Eremophila latrobei</i>	Perennial
	<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	Perennial
	<i>Eremophila pustulata</i>	Perennial
	<i>Eremophila scoparia</i>	Perennial
Solanaceae	<i>Solanum lasiophyllum</i>	Perennial
Zygophyllaceae	<i>Roepera eremaea</i>	Perennial
Unidentified	Indet sp. 1	Perennial
	Indet sp. 2	Annual

* Denotes a weed species

APPENDIX C STATISTICAL ANALYSIS

Statistical analysis results including the distance measure (Table C1) and dendrogram (Figure C1) is provided below.

Table C1 Distance measure and similarity percentage between quadrats and determined vegetation types

Quadrat	Closest sites	Distance measure	% Similarity	Determined vegetation type
GEQ01	GEQ07	0.5135	49%	VT3 – AaaEoaPo
	GEQ09	0.5238	48%	
GEQ02	GEQ04	0.4348	57%	VT2 – EgAaPo
	GEQ09	0.5472	45%	
GEQ03	GEQ09	0.561	44%	VT1 – EllEsAs
	GEQ05	0.5789	42%	
GEQ04	GEQ02	0.4348	57%	VT2 – EgAaPo
	GEQ07	0.5455	45%	
GEQ05	GEQ08	0.4211	58%	VT1 – EllEsAs
	GEQ09	0.5472	45%	
GEQ06	GEQ02	0.551	45%	VT2 – EgAaPo
	GEQ09	0.6154	38%	
GEQ07	GEQ09	0.2549	75%	VT3 – AaaEoaPo
	GEQ01	0.5135	49%	
GEQ08	GEQ05	0.4211	58%	VT1 – EllEsAs
	GEQ09	0.6585	34%	
GEQ09	GEQ07	0.2549	75%	VT3 – AaaEoaPo
	GEQ01	0.5238	48%	

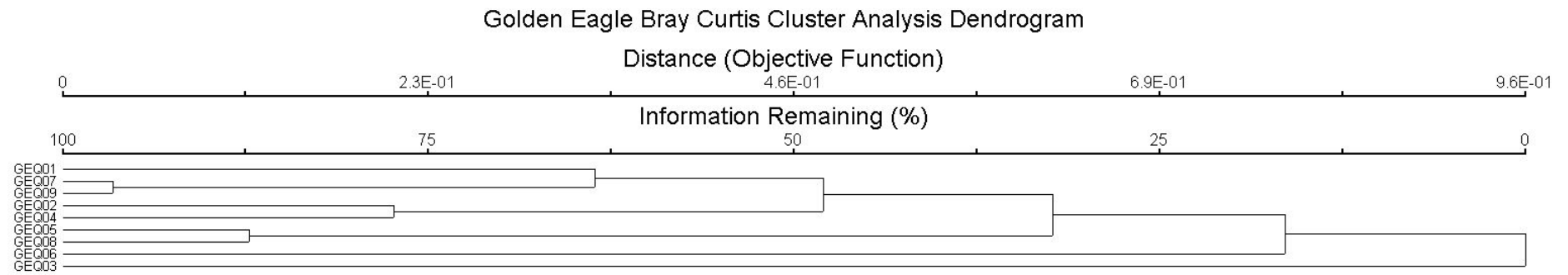


Figure C-1 **Dendrogram**

APPENDIX D QUADRAT DATA

Site: GEQ01

Date	02/10/2025	Waypoint	GEQ01NW
Zone	51J		
Easting	274785	Northing	6673797
Landform	Rocky hill, outcrop	Slope and aspect	Gentle-moderate, southwest
Rock type	Granite, basalt rocks, outcrop, pebbles	Rock cover	>70%
Bare ground cover	5-10%	Leaf litter cover	5-10%
Soil type	Sandy loam	Soil colour	Brown
Vegetation condition	Very Good		
Disturbance		Fire history	>10 years
Vegetation description	<i>Eucalyptus clelandii</i> and <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> low open woodland over <i>Acacia tetragonophylla</i> , <i>Alyxia buxifolia</i> and <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> mid to tall sparse shrubland over <i>Eremophila pustulata</i> and low open shrubland		

Photo



Species	Height (m)	Cover (%)
<i>Acacia erinacea</i>	0.3	0.1
<i>Acacia tetragonophylla</i>	1.2	0.5
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	3	0.5
<i>Alyxia buxifolia</i>	0.7	Associated
<i>Atriplex semibaccata</i>	0.1	0.1
<i>Dodonaea lobulata</i>	0.4	0.1
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	2.5	1
<i>Eremophila pustulata</i>	0.8	15
<i>Eremophila pustulata</i>	0.8	2
<i>Eucalyptus clelandii</i>	6	3
<i>Eucalyptus clelandii</i>	5	5
<i>Grevillea acuaria</i>	0.3	0.1
<i>Olearia muelleri</i>	0.3	0.5
<i>Ptilotus obovatus</i>	0.2	0.1
<i>Sclerolaena densiflora</i>	0.1	0.1
<i>Sclerolaena fusiformis</i>	0.05	0.1

* Denotes a weed species

Site: GEQ02

Date	02/10/2025	Waypoint	GEQ02NW
Zone	51J		
Easting	273565	Northing	6674551
Landform	Lower slope	Slope and aspect	Gentle, west-northwest
Rock type	Ironstone and quartz pebbles	Rock cover	50-70%
Bare ground cover	<5%	Leaf litter cover	30-50%
Soil type	Loamy sand	Soil colour	Brown orange
Vegetation condition	Very Good		
Disturbance	Some weeds, historic prospecting	Fire history	>10 years
Vegetation description	<i>Eucalyptus griffithsii</i> low open woodland over <i>Acacia acuminata</i> , <i>Acacia tetragonophylla</i> and <i>Dodonaea lobulata</i> mid to tall sparse shrubland over <i>Olearia muelleri</i> and <i>Ptilotus obovatus</i> low sparse shrubland		

Photo

Species	Stratum	Cover (%)
<i>Acacia acuminata</i>	2.2	5
<i>Acacia acuminata</i>	4	3
<i>Acacia fuscaneura</i>	0.8	0.1
<i>Acacia tetragonophylla</i>	1.5	0.5
<i>Aristida contorta</i>	0.2	0.1
<i>Austrostipa elegantissima</i>	0.4	0.1
<i>Dodonaea lobulata</i>	0.8	1
<i>Eremophila eriocalyx</i>	0.8	0.1
<i>Eremophila interstans</i>	0.7	0.1
<i>Eremophila latrobei</i>	1	0.1
<i>Eremophila scoparia</i>	1.2	0.1
<i>Eucalyptus griffithsii</i>	6	5
<i>Goodenia havilandii</i>	0.05	0.1
<i>Leichhardtia australis</i>	0.4	0.1
<i>Monachather paradoxus</i>	0.2	0.1
<i>Olearia muelleri</i>	0.3	2
<i>Ptilotus aervoides</i>	0.05	0.1
<i>Ptilotus obovatus</i>	0.3	2
<i>Roepera eremaea</i>	0.1	0.1
<i>Scaevola spinescens</i>	0.7	0.1
<i>Sclerolaena densiflora</i>	0.1	0.1
<i>Senna artemisioides</i> subsp. <i>filifolia</i>	0.7	0.1
<i>Sida calyxhymenia</i>	0.1	0.1
<i>Solanum lasiophyllum</i>	0.1	0.1
<i>Solanum lasiophyllum</i>	0.2	0.1
<i>Trachymene ornata</i>	0.05	0.1
<i>Waitzia acuminata</i>	0.05	0.1

* Denotes a weed species

Site: GEQ03

Date	02/10/2025	Waypoint	GEQ03NW
Zone	51J		
Easting	273290	Northing	6673425
Landform	Plain	Slope and aspect	NA
Rock type	Ironstone and quartz gravel, pebbles, and rocks	Rock cover	10-30%
Bare ground cover	<5%	Leaf litter cover	50-70%
Soil type	Loamy sand	Soil colour	Brown orange
Vegetation condition	Good- Very Good		
Disturbance	Cattle, rubbish, donkeys	Fire history	>10 years
Vegetation description	<i>Eucalyptus salubris</i> subsp. <i>salubris</i> low woodland over <i>Eremophila ionantha</i> low sparse shrubland over <i>Sclerolaena fusiformis</i> sparse chenopod shrubland		

Photo

Species	Stratum	Cover (%)
<i>Aristida contorta</i>	0.1	0.1
<i>Dissocarpus paradoxus</i>	0.1	0.1
<i>Eremophila ionantha</i>	0.8	2
<i>Eremophila ionantha</i>	0.8	0.5
<i>Eucalyptus salubris</i> subsp. <i>salubris</i>	4	40
<i>Maireana tomentosa</i>	0.1	0.1
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	0.2	0.1
<i>Maireana trichoptera</i>	0.2	0.1
<i>Maireana triptera</i>	0.3	0.1
<i>Ptilotus aervoides</i>	0.05	0.1
<i>Rhagodia eremaea</i>	0.3	0.1
<i>Roepera eremaea</i>	0.05	0.1
<i>Sclerolaena densiflora</i>	0.2	0.1
<i>Sclerolaena fusiformis</i>	0.1	2

* Denotes a weed species

Site: GEQ04

Date	02/10/2025	Waypoint	GEQ04NW
Zone	51J		
Easting	273432	Northing	6674073
Landform	Lower slope	Slope and aspect	Gentle, West
Rock type	Ironstone gravel	Rock cover	30-50%
Bare ground cover	<5%	Leaf litter cover	50-70%
Soil type	Sandy loam	Soil colour	Orange
Vegetation condition	Very Good		
Disturbance	Old rubbish	Fire history	>10 years
Vegetation description	<i>Eucalyptus oleosa</i> low woodland over <i>Acacia acuminata</i> , <i>Acacia tetragonophylla</i> and <i>Dodonaea lobulata</i> mid to tall open shrubland over <i>Ptilotus obovatus</i> and <i>Senna artemisioides</i> subsp. <i>filifolia</i> low sparse shrubland		

Photo

Species	Stratum	Cover (%)
<i>Acacia acuminata</i>	2.2	5
<i>Acacia aneura</i>	3.5	0.5
<i>Acacia tetragonophylla</i>	1.2	2
<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	0.8	0.1
<i>Austrostipa elegantissima</i>	0.4	0.1
<i>Dodonaea lobulata</i>	0.8	5
<i>Eremophila decipiens</i> subsp. <i>decipiens</i>	1.5	0.1
<i>Eremophila interstans</i>	0.5	0.1
<i>Eremophila ionantha</i>	0.5	0.1
<i>Eremophila latrobei</i>	1.2	0.1
<i>Eucalyptus oleosa</i>	8	30
<i>Leichhardtia australis</i>	Vine	0.1
<i>Maireana triptera</i>	0.2	0.1
<i>Olearia muelleri</i>	0.3	0.1
<i>Ptilotus obovatus</i>	0.3	2
<i>Rhagodia eremaea</i>	0.4	0.1
<i>Scaevola spinescens</i>	0.4	0.1
<i>Sclerolaena fusiformis</i>	0.1	0.1
<i>Senna artemisioides</i> subsp. <i>filifolia</i>	1	1
<i>Sida calyxhymentia</i>	0.1	0.1
<i>Solanum lasiophyllum</i>	0.2	0.1

* Denotes a weed species

Site: GEQ05

Date	03/10/2025	Waypoint	GEQ05NW
Zone	51J		
Easting	273861	Northing	6674510
Landform	Plain	Slope and aspect	NA
Rock type	Granite, quartz, ironstone gravel and pebbles	Rock cover	30-50%
Bare ground cover	5-10%	Leaf litter cover	10-30%
Soil type	Sandy loamy clay	Soil colour	Brown
Vegetation condition	Good- Very Good		
Disturbance	Tracks, weeds	Fire history	>10 years
Vegetation description	<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> low woodland over <i>Eremophila scoparia</i> mid sparse shrubland over <i>Atriplex semibaccata</i> , <i>Enchylaena tomentosa</i> and <i>Maireana tomentosa</i> open chenopod shrubland		

Photo

Species	Stratum	Cover (%)
<i>Aristida contorta</i>	0.1	0.1
<i>Atriplex codonocarpa</i>	0.5	0.1
<i>Atriplex semibaccata</i>	0.3	15
<i>Brassica tournefortii</i> *	0.2	0.1
<i>Carrichtera annua</i> *	0.1	0.5
<i>Chenopodium desertorum</i>	0.2	0.1
<i>Dissocarpus paradoxus</i>	0.1	1
<i>Enchylaena tomentosa</i>	0.3	0.1
<i>Enchylaena tomentosa</i>	0.3	1
<i>Eremophila scoparia</i>	1.2	0.5
<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i>	7	40
<i>Eucalyptus salmonophloia</i>	10	Associated
Indet sp. 2	0.2	0.1
<i>Lepidium platypetalum</i>	0.05	0.1
<i>Maireana tomentosa</i>	0.05	0.1
<i>Maireana tomentosa</i>	0.2	0.5
<i>Maireana tomentosa</i>	0.1	0.1
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	0.1	0.1
<i>Maireana triptera</i>	0.3	Associated
<i>Maireana triptera</i>	0.3	0.1
<i>Monachather paradoxus</i>	0.1	0.1
<i>Ptilotus aervoides</i>	0.05	0.1
<i>Ptilotus aervoides</i>	0.05	0.1
<i>Ptilotus exaltatus</i>	0.2	0.1
<i>Ptilotus helipteroides</i>	0.2	0.1
<i>Ptilotus obovatus</i>	0.2	0.1
<i>Rhagodia eremaea</i>	0.3	0.1
<i>Roepera eremaea</i>	0.1	0.1
<i>Sclerolaena cuneata</i>	0.2	0.1
<i>Solanum lasiophyllum</i>	0.2	0.1

* Denotes a weed species

Site: GEQ06

Date	03/10/2025	Waypoint	GEQ06NW
Zone	51J		
Easting	273545	Northing	6673616
Landform	Mid slope	Slope and aspect	Gentle, southwest
Rock type	Ironstone and quartz gravel and rocks	Rock cover	>70%
Bare ground cover	<5%	Leaf litter cover	10-30%
Soil type	Loamy sand	Soil colour	Brown
Vegetation condition	Poor		
Disturbance	Old mine activity, tracks, donkeys, rabbits	Fire history	>10 years
Vegetation description	<i>Eucalyptus griffithsii</i> low open woodland over <i>Acacia acuminata</i> and <i>Dodonaea lobulata</i> mid to tall sparse shrubland over <i>Maireana carnososa</i> and <i>Sclerolaena fusiformis</i> sparse chenopod shrubland		

Photo

Species	Stratum	Cover (%)
<i>Acacia acuminata</i>	3	Associated
<i>Acacia burkittii</i>	2.5	7
<i>Aristida contorta</i>	0.05	1
<i>Bromus arenarius</i>	0.2	<1
<i>Dodonaea lobulata</i>	0.05	<1
<i>Enchylaena tomentosa</i>	0.05	<1
<i>Enneapogon caerulescens</i>	0.05	1
<i>Eremophila latrobei</i>	0.05	<1
<i>Erodium cygnorum</i>	0.05	<1
<i>Erymophyllum ramosum</i>	0.05	<1
<i>Eucalyptus griffithsii</i>	0.05	<1
<i>Euphorbia porcata</i>	0.6	<1
<i>Goodenia havilandii</i>	0.05	1
<i>Maireana carnosae</i>	0.05	<1
<i>Maireana georgei</i>	0.2	<1
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	0.2	<1
<i>Maireana triptera</i>	0.1	<1
<i>Olearia pimeleoides</i>	0.05	<1
<i>Ptilotus aervoides</i>	0.05	<1
<i>Ptilotus obovatus</i>	0.3	7
<i>Roepera eremaea</i>	0.1	<1
<i>Sclerolaena densiflora</i>	0.05	<1
<i>Sclerolaena fusiformis</i>	0.05	<1
<i>Solanum lasiophyllum</i>	0.2	<1

* Denotes a weed species

Site: GEQ07

Date	03/10/2025	Waypoint	GEQ07NW
Zone	51J		
Easting	275005	Northing	6674191
Landform	Rocky slope	Slope and aspect	Moderate, east
Rock type	Granite, basalt outcrop, rocks, pebbles	Rock cover	>70%
Bare ground cover	<5%	Leaf litter cover	5-10%
Soil type	Sandy loam	Soil colour	Light brown
Vegetation condition	Very Good		
Disturbance	Old tracks	Fire history	>10 years
Vegetation description	<i>Eucalyptus transcontinentalis</i> and <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> low woodland over <i>Acacia tetragonophylla</i> , <i>Eremophila interstans</i> and <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> mid to talls sparse shrubland over <i>Acacia erinacea</i> , <i>Ptilotus obovatus</i> and <i>Scaevola spinescens</i> low sparse shrubland		

Photo

Species	Stratum	Cover (%)
<i>Acacia aptaneura</i>	1.8	Associated
<i>Acacia erinacea</i>	0.8	1
<i>Acacia tetragonophylla</i>	2.2	1
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	5	20
<i>Atriplex codonocarpa</i>	1.2	0.5
<i>Austrostipa elegantissima</i>	0.7	0.1
<i>Dodonaea lobulata</i>	0.5	0.1
<i>Enchylaena tomentosa</i>	0.1	0.1
<i>Eremophila interstans</i>	1.2	1
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	1.5	1
<i>Eucalyptus transcontinentalis</i>	5	Associated
<i>Exocarpos aphyllus</i>	2.2	Associated
Indet sp. 1	0.05	Associated
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	0.1	0.1
<i>Maireana triptera</i>	0.2	0.1
<i>Olearia muelleri</i>	0.3	0.1
<i>Ptilotus obovatus</i>	0.2	1
<i>Rhagodia eremaea</i>	0.2	0.1
<i>Roepera eremaea</i>	0.1	0.1
<i>Santalum spicatum</i>	2	Associated
<i>Scaevola spinescens</i>	0.4	0.5
<i>Sclerolaena densiflora</i>	0.1	0.1
<i>Sclerolaena fusiformis</i>	0.1	0.1

* Denotes a weed species

Site: GQ08

Date	03/10/2025	Waypoint	GEQ08NW
Zone	51J		
Easting	275160	Northing	6673970
Landform	Plain	Slope and aspect	NA
Rock type	Ironstone and quartz rocks, pebbles, and gravel	Rock cover	10-20%
Bare ground cover	10-20%	Leaf litter cover	>70%
Soil type	Sandy loamy clay	Soil colour	Brown
Vegetation condition	Good-Very Good		
Disturbance	Old tracks	Fire history	>10 years
Vegetation description	<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> and <i>Eucalyptus transcontinentalis</i> low woodland over <i>Eremophila scoparia</i> mid sparse shrubland over <i>Atriplex semibaccata</i> sparse chenopod shrubland		

Photo

Species	Stratum	Cover (%)
<i>Atriplex semibaccata</i>	0.3	5
<i>Carrichtera annua</i> *	0.2	Associated
<i>Chenopodium desertorum</i>	0.3	0.1
<i>Dissocarpus paradoxus</i>	0.1	0.1
<i>Eremophila scoparia</i>	1.7	2
<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i>	7	20
<i>Eucalyptus transcontinentalis</i>	6	10
<i>Maireana tomentosa</i>	0.1	0.1
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	0.1	0.1
<i>Maireana triptera</i>	0.3	0.1
<i>Ptilotus exaltatus</i>	0.2	Associated
<i>Ptilotus obovatus</i>	0.3	0.1

* Denotes a weed species

Site: GEQ09

Date	03/10/2025	Waypoint	GEQ09NW
Zone	51J		
Easting	274254	Northing	6674228
Landform	Outcrop/hills with drainage	Slope and aspect	Gentle, southeast
Rock type	Quartz, basalt, granite rocks, pebbles, and gravel	Rock cover	>70%
Bare ground cover	5-10%	Leaf litter cover	5-10%
Soil type	Sandy loam	Soil colour	Brown
Vegetation condition	Very Good		
Disturbance		Fire history	>10 years
Vegetation description	<i>Eucalyptus clelandii</i> and <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> low woodland over <i>Acacia tetragonophylla</i> , <i>Eremophila interstans</i> and <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> mid sparse shrubland over <i>Olearia muelleri</i> and <i>Ptilotus obovatus</i> low sparse shrubland		

Photo

Species	Stratum	Cover (%)
<i>Acacia aptaneura</i>	1.5	Associated
<i>Acacia erinacea</i>	0.2	0.1
<i>Acacia tetragonophylla</i>	1.5	Associated
<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	0.3	0.1
<i>Aristida contorta</i>	0.1	0.1
<i>Atriplex codonocarpa</i>	0.2	0.1
<i>Austrostipa elegantissima</i>	0.2	0.1
<i>Dissocarpus paradoxus</i>	0.1	0.1
<i>Dodonaea lobulata</i>	0.8	Associated
<i>Enchylaena tomentosa</i>	0.2	0.1
<i>Eremophila glabra</i> subsp. <i>glabra</i>	0.7	0.1
<i>Eremophila interstans</i>	0.7	0.2
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	1.5	0.5
<i>Eremophila scoparia</i>	1	1
<i>Eucalyptus clelandii</i>	6	20
<i>Maireana tomentosa</i>	0.1	0.1
<i>Maireana tomentosa</i> subsp. <i>tomentosa</i>	0.1	0.1
<i>Maireana triptera</i>	0.2	0.5
<i>Melaleuca hamata</i>	0.7	0.5
<i>Olearia muelleri</i>	0.2	0.5
<i>Ptilotus aervoides</i>	0.05	0.1
<i>Ptilotus exaltatus</i>	0.2	0.1
<i>Ptilotus obovatus</i>	0.2	0.1
<i>Roepera eremaea</i>	0.05	0.1
<i>Santalum spicatum</i>	1.8	Associated
<i>Scaevola spinescens</i>	0.3	0.1
<i>Sclerolaena densiflora</i>	0.1	0.1
<i>Sclerolaena fusiformis</i>	0.05	1

* Denotes a weed species

Appendix C: Fauna Survey Report (Western Ecological 2025)



Basic Fauna and Targeted Fauna Survey – Golden Eagle

Draft Report

Davyhurst Gold Operations

Prepared for Ora Banda Mining

October 2025

Limitations

Scope of services

This report ("the report") has been prepared by Western Ecological Pty Ltd (WE) in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and WE. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, WE have relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, WE have not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WE have also not attempted to determine whether any material matter has been omitted from the data. WE will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented, or otherwise not fully disclosed to WE. The making of any assumption does not imply that WE have made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. WE disclaim responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law of Western Australia as at the date of this report.

Report Version	Revision No.	Purpose	Author / Reviewer	Submitted to Client	
				Form	Date
Report	1	For client review	Western Ecological / OBM	Electronic	14/10/2025

Executive Summary

Western Ecological understands that Ora Banda Mining are reviewing opportunities to gain approval to develop an above ground storage cell around the current Golden Eagle InPit tails facility at the Davyhurst Gold Project, located approximately 110 km to the north-west of Kalgoorlie, in Western Australia.

As part of this proposed activity, Ora Banda Mining require a flora and fauna survey to be undertaken in order to support a Native Vegetation Clearing Permit application. Ora Banda Mining therefore commissioned Western Ecological to undertake a basic fauna survey and targeted Malleefowl (*Leipoa ocellata*), Arid Bronze Azure Butterfly (*Ogyris subterrestris petrina*) and Inland Hairstreak Butterfly (*Jalmenus aridus*) survey at the Davyhurst Gold Project.

The survey area is approximately 256 ha – noting that in general, the vegetation has been significantly impacted by previous mining activities that began over a hundred years ago, in association with the old township of Davyhurst.

The outcome of the survey undertaken by Western Ecological and the information supplied in this report will be used to inform the environmental assessment and approvals process.

The desktop assessment involved searches of the Department of Biodiversity, Conservation and Attractions Threatened Fauna Database and the *Environment Protection and Biodiversity Conservation Act 1999* Protected Matters Search Tool. Results of the databases searches returned the following:

- DBCA – 126 records in total:
 - 15 threatened vertebrate fauna species, comprised of one reptile species, 11 bird species and three mammal species.
 - 2 invertebrate fauna species, comprised of two butterfly species
- EPBC PMST – 10 threatened species (1 reptile species, 16 bird species and one mammal species).

A field survey was undertaken from 9th – 11th August 2025. A total of 22 habitat assessments were undertaken and three fauna habitat types were recorded. These three habitats were Mixed Eucalyptus Woodland, Open Eucalyptus Woodland and Degraded/Cleared areas. The most widespread habitat was Mixed Eucalyptus Woodland, comprising 45% of the survey area.

A total of 29 fauna species were recorded in the survey area, all of which are considered relatively common and widespread. No threatened fauna species were recorded during the field survey.

The target threatened vertebrate fauna species to consider during the survey was the Malleefowl. Limited potential breeding habitat was present in the survey area. Some areas in the Mixed Eucalyptus Woodland had dense enough vegetation to provide suitable breeding habitat, however much of the substrate was too rocky for mound building. Potential foraging habitat was present in both the Mixed and Open Eucalyptus Woodland habitats. During the survey, no Malleefowl, their mounds or tracks were recorded.

The target threatened invertebrate fauna species to consider during the survey were the Arid Bronze Azure Butterfly and Inland Hairstreak Butterfly. Potential habitat was present for the Arid Bronze Azure Butterfly in the Open Eucalyptus Woodland, however no Sugar Ants (associated with the species), were recorded. Potential habitat was present for the Inland Hairstreak Butterfly in the Mixed Eucalyptus Woodland, however no Inland Hairstreak Butterfly were observed during the field survey.



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1. Introduction

1.1 Background

Western Ecological (WE) understands that Ora Banda Mining Limited (OBM) are reviewing opportunities to gain approval to develop an above ground storage cell around the current Golden Eagle InPit tails facility at the Davyhurst Gold Project (DGP), located approximately 110 km to the north-west of Kalgoorlie.

As part of this proposed activity OBM require a flora and fauna survey to be undertaken in order to support a Native Vegetation Clearing Permit (NVCP) application. Therefore, OBM commissioned WE to undertake a basic fauna survey and targeted Malleefowl (*Leipoa ocellata*), Arid Bronze Azure Butterfly (ABAB) (*Ogyris subterrestris petrina*) and Inland Hairstreak Butterfly (IHB) (*Jalmenus aridus*) survey at DGP.

The survey area is approximately 256 ha – noting that in general, the vegetation has been significantly impacted by previous mining activities that began over a hundred years ago, in association with the old township of Davyhurst.

1.2 Scope

The scope to be undertaken was as follows:

- Basic fauna survey
- Targeted threatened species surveys for the Malleefowl, ABAB and IHB
- Document the above in a technical fauna report.

1.3 Objective

The objective of the fauna survey was to define the fauna values in the survey area, with particular reference to Malleefowl ABAB and IHB, to support future project planning, and inform the NVCP application.



Figure 1: Project Location



GDA2020 / MGA zone 51

Legend

 Survey Area



WESTERN
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1.4 Legislative Context

Fauna in Western Australia (WA) is protected formally and informally by various legislative and non-legislative measures, which are as follows:

- Legislative Protection:
 - *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
 - *Western Australian Biodiversity Conservation Act 2016* (BC Act).
- Non-legislative measures:
 - WA Department of Biodiversity, Conservation and Attractions (DBCA) Priority lists
 - Recognition of locally significant populations by DBCA.

A short description of each is given below. Other definitions, including species conservation categories, are provided in Appendix 1.

EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect matters of national environmental significance, which are detailed in Appendix 1. Under the EPBC Act, the Commonwealth Department of Department of Climate Change, Energy, the Environment and Water (DCCEEW) lists protected species and Threatened Ecological Communities (TECs) by criteria set out in the Act. Species are conservation significant if they are listed as Threatened (i.e., Critically Endangered, Endangered and Vulnerable) or Migratory.

Bird species protected as Migratory under the EPBC Act include those listed under international migratory bird agreements relating to the protection of birds, which migrate between Australia and other countries, for which Australia has agreed. This includes the Japan-Australia Migratory Bird Agreement (JAMBA), the China-Australia Migratory Bird Agreement (CAMBA), the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA) and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).

Some marine fauna or terrestrial fauna that use marine habitats are listed as Marine under the EPBC Act. These species are only considered conservation significant when a proposed development occurs in a Commonwealth marine area (i.e., any Commonwealth Waters or Commonwealth Marine Protected Area). Outside of such areas, the EPBC Act does not consider these species to be matters of national environmental significance, so are not protected under the Act.

BC Act

The *Biodiversity Conservation Act 2016* (BC Act) replaced both the *Wildlife Conservation Act 1950* and the *Sandalwood Act 1929* and came into effect on 1 January 2019. The aim of the Act is to conserve and protect biodiversity and to promote the ecologically sustainable use of biodiversity components in the State and will bring more activities within the scope of biodiversity laws.

Taxa listed as Threatened in the category of critically endangered, endangered, or vulnerable under section 19 (1a, 1b, and 1c), or is a rediscovered species to be regarded as threatened species under section 26 (2) of the BC Act. Other categories include extinct or extinct in the wild and they are listed under section 23 (1) of the BC Act (Appendix 1).

If species meet one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection, they are covered under section 13 (1) of the BC Act and are called specially protected species. Species that are listed as threatened species (critically endangered, endangered, or vulnerable) or extinct species under the BC Act can't also be listed as Specially Protected species (see Appendix 1 for a more detailed description of each threat category).



Threatened Ecological Communities (TECs) are also covered under the BC Act and are placed into three categories of critically endangered, endangered, or vulnerable under section 27 (1a, 1b, and 1c) of the BC Act depending on their threat status.

DBCA Priority Species and Communities

DBCA lists species that are possibly threatened but that do not meet criteria for listing under the BC Act, or are otherwise data deficient, and adds them to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Consideration of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations (see Appendix 1 for more detail of the priority codes).

The DBCA also has a list of Priority Ecological Communities (PECs) that have scant information available to be considered a TEC, or which are rare but not currently threatened. Ecological communities that do not meet survey criteria or that are not sufficiently defined are added to the PEC list under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community, and evaluation of conservation status, so that consideration can be given to their declaration as a TEC. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for near threatened, or that have been recently removed from the threatened list, are placed in priority 4. These ecological communities require regular monitoring. Conservation dependent ecological communities are placed in priority 5.

Informal Recognition of Threatened Fauna

Certain populations or communities of fauna may be of local significance or interest because of their patterns of distribution and abundance. For example, fauna may be locally significant because they are range extensions to the previously known distribution or are newly discovered species (and have the potential to be of conservation significance). In addition, many species are in decline as a result of threatening processes (land clearing, grazing, and changed fire regimes) and relict populations of such species assume local importance for DBCA. It is not uncommon for DBCA to make comment on these species of interest.

2. Existing Environment

2.1 Bioregions

The Biogeographic Regionalisation of Australia (IBRA7) 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 (DCCEEW 2025a). The survey area sits across the boundaries of the Coolgardie 3 (Eastern Goldfields [COO3] subregion) and Murchison (East Murchison [MUR1] subregion) bioregions (Figure 2).

2.1.1 Coolgardie 3 (Eastern Goldfields [COO3])

The Coolgardie climate is arid to semi-arid with 200-300 mm of rainfall, sometimes in summer but usually in winter. The relief is limited and consists of 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 (Cowan 2001a). The underlying geology is of gneisses and granites eroded into a flat plane covered with tertiary soils and with scattered exposures of bedrock. Calcareous earths are the dominant soil group and cover much of the plains and greenstone areas.

The vegetation consists of Mallees, Acacia thickets and shrub heaths on sandplains. Diverse Eucalyptus woodlands occur around salt lakes, on ranges, and in valleys. Woodlands and Dodonaea shrubland occur on basic granulites of the Fraser Range. The area is rich in endemic Acacias. Land use consists primarily of Crown reserves, grazing, conservation and mining (Cowan 2001a).

2.1.2 Murchison (East Murchison [MUR1])

The Murchison bioregion has low hills and mesas separated by flat colluvium and alluvial plains. Vegetation is predominantly low mulga woodlands. The northern parts of the 'Southern Cross' and 'Eastern Goldfields' Terrains of the Yilgarn Craton are characterised by its internal drainage, and extensive areas of elevated red desert sandplains with minimal dune development. Salt lake systems are associated with the occluded Paleodrainage system. Broad plains of red-brown soils and breakaway complexes as well as red sandplains are characteristic (Cowan 2001b).

Vegetation is dominated by Mulga Woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands.

Tenure in the bioregions is pastoral (sheep and cattle grazing) and mining. The Murchison bioregion has an arid climate with predominantly winter rainfall. Spatially averaged median (1890–2005) rainfall is 201 mm. Despite these average rainfall amounts, the region suffered severe drought in the 2000's (Commonwealth of Australia 2008). More recent rainfall can be seen in Figure 3 (BoM 2025).

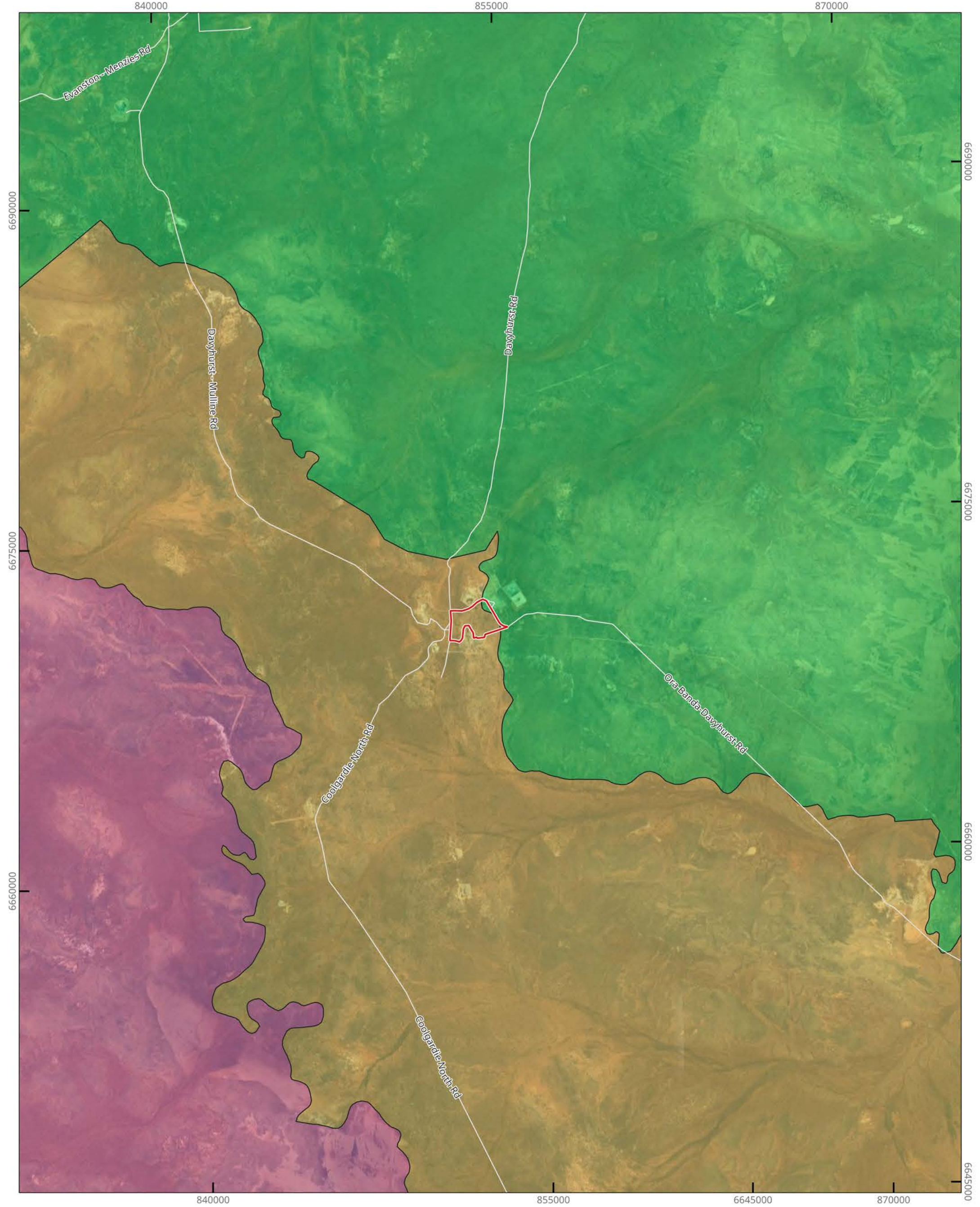


Figure 2: IBRA Regions

0 1 2 3 km
GDA2020 / MGA zone 51

Legend

- Survey Area
- Coolgardie - Eastern Goldfield
- Coolgardie - Southern Cross
- Murchison - Eastern Murchison

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2.2 Climate

The nearest Bureau of Meteorology (BoM) weather station, with up to date 2025 data is Kalgoorlie-Boulder Airport (Station No. 012038) (BoM 2025). Long-term rainfall data was recorded from 1939 to 2025 and long-term temperatures were recorded from 1942 to 2025).

The annual long-term average (1939 – 2025) rainfall is 265 mm, with the lowest average monthly rainfall being 13.4 mm in September, while the highest average monthly rainfall is 31.8 mm in February (BoM 2025). The mean annual monthly maximum temperature recorded at the Kalgoorlie-Boulder Airport weather station (1942 – 2025) is 25.4°C and annual monthly minimum is 11.8°C. On average the warmest month of the year is January with a mean maximum temperature of 33.7°C. July is the coolest month with a mean maximum temperature of 16.9°C.

The mean maximum temperature for the 12 months prior to the survey (September 2024 - August 2025) was 27.3°C and the minimum was 13.3°C. These temperatures are relatively consistent with the long-term average. The total rainfall in the 12 months prior to the survey was 314.2 mm, which is 18.6% more than the annual long-term average total.

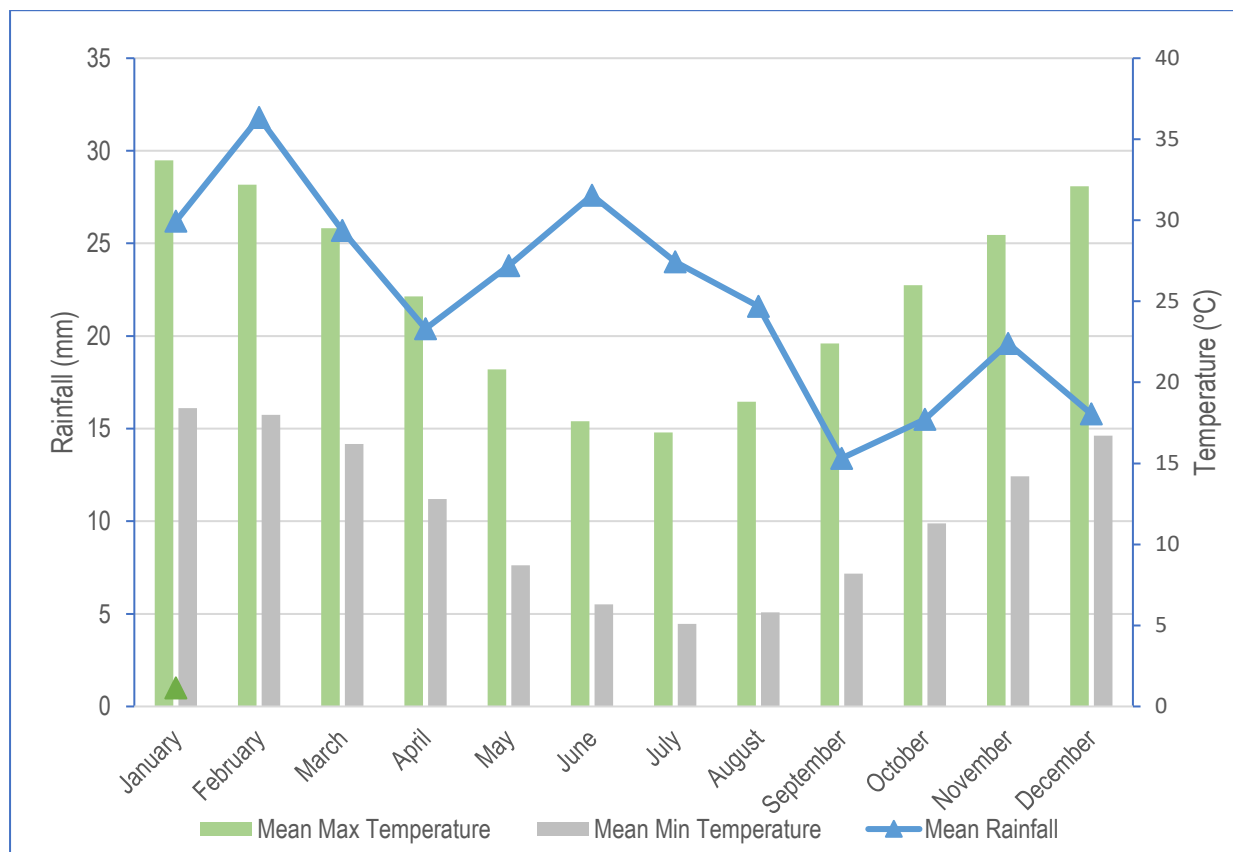


Figure 3. Climate Graph. Mean rainfall (1939 – 2025) and temperatures (1942 – 2025) data per month from Kalgoorlie-Boulder Airport Station (BoM 2025).

2.3 Previous Surveys

Few fauna surveys have been undertaken in the immediate vicinity of the survey area, and only one in the survey area itself (BIOSTAT 2020 – see below), however WE has undertaken numerous surveys in the broader area. The following table provides a number of examples of relevant surveys. Reports were reviewed for information relevant to this survey area and the threatened fauna species covered in this report.

Table 1: Previous fauna surveys undertaken in the vicinity of the survey area.

Reference	Survey Type	Date	Proximity to survey area	Methods	Broad Habitats Described	Threatened Fauna Recorded
Basic Fauna Survey, South Coolgardie Gold Project. Prepared for Focus Minerals Ltd. (Western Ecological 2024)	Basic fauna survey and targeted Malleefowl survey	Oct 2024	120 km to the south-east	- Habitat assessments - Opportunistic observations - Targeted assessment	- Mixed Eucalyptus Woodland - Salmon Gum Woodland - Acacia Shrubland - Drainage Area	None
Basic Fauna Survey, Patricia Jean Pit Project. Prepared for Focus Minerals Ltd. (Western Ecological 2024)	Basic fauna survey and targeted Malleefowl survey	Sept 2024	110 km to the south-east	- Habitat assessments - Opportunistic observations - Targeted assessment	- Mixed Eucalyptus Woodland - Rocky Ridge - Acacia Shrubland	Active Malleefowl mound
Comet Vale Sand Project: Basic Vertebrate Fauna Survey and Targeted Malleefowl Survey 2021 & 2023. (Western Wildlife 2024)	Basic fauna survey and targeted Malleefowl survey	Apr 2024	40 km to the east	- Habitat assessments - Opportunistic observations - Targeted assessment	- Mulga Woodland - Acacia Shrubland - Sand Dune - Eucalypt-Spinifex Sandplain - Salt Lake	None
Terrestrial fauna assessment for the Fimiston Gold Mine Operations. Prepared for Kalgoorlie Consolidated Mines. (Phoenix Environmental Sciences 2024)	Basic fauna and SRE survey	Feb 2024	115 km to the south-east	- Habitat assessments - Opportunistic observations - Targeted assessment - SRE trapping programme	- Open Woodland - Shrubland - Shrubland along drainage line - Rehabilitation	Inland Hairstreak Butterfly
Targeted Malleefowl Survey – Bonnievale project. Prepared for Focus Minerals Ltd. (Western Ecological 2023)	Targeted Malleefowl survey	July 2023	100 km to the south-east	Walked transects	- Salmon Gum Woodland - Acacia Shrubland - Casuarina Shrubland	None
Basic Fauna Survey – Bonnievale Pipeline Corridor. Prepared for Focus Minerals Ltd. (Western Ecological 2023)	Basic fauna survey	July 2023	100 km to the south-east	- Habitat assessments - Opportunistic observations	- Salmon Gum Woodland - Eucalyptus Woodland	None
Basic Fauna Survey, Coolgardie Gold Project - Kangaroo Hill Timber Reserve, Prepared for Focus Minerals Ltd.	Basic fauna survey	May 2023	120 km to the south-east	- Habitat assessments - Opportunistic observations - Targeted assessment	- Mallee Eucalyptus Woodland - Salmon Gum Woodland - Acacia Shrubland - Casuarina Shrubland	None

Reference	Survey Type	Date	Proximity to survey area	Methods	Broad Habitats Described	Threatened Fauna Recorded
(Western Ecological 2023)						
Spectrum Ecology and Spatial (2022) Binduli South Project Terrestrial Fauna and SRE Assessment	Basic fauna survey	2022	110 km to the south-east	- Habitat assessments - Opportunistic observations	- Mixed Eucalypt Woodland - Acacia Shrubland - Allocasuarina Shrubland - Chenopod Shrubland	None
Targeted Fauna Survey, Mount Mason Project. Prepared for Juno Minerals. (Western Ecological 2021)	Targeted fauna survey	July 2021	80 km to the north	- Habitat assessments - Opportunistic observations - Targeted assessments - Camera traps - SM4 units	- Low Scattered Shrubland - Muga Shrubland - Eucalypt Open woodland	Malleefowl (two individuals)
Coolgardie Gold Project, Basic Fauna Survey. Prepared for Focus Minerals Ltd. (Western Ecological 2021)	Basic Fauna Survey	Feb 2021	110 km to the south-east	- Habitat assessments - Opportunistic observations - Targeted assessment	- Mallee Eucalyptus Woodland - Salmon Gum Woodland - Acacia Shrubland - Drainage Line	None
Fauna Assessment (Davyhurst, Callion, Waihi, Siberia, Riverina Clearance Areas). Prepared for Ora Banda Mining. (BIOSTAT 2020)	Vegetation Clearing – Fauna Assessment	Mar 2020	Same location - Davyhurst	Habitat assessments	- Casuarina Woodland - Shrubland - Mallee Eucalyptus Woodland - Tall Eucalyptus Woodland	None
Bonnievale Level 1 Fauna Assessment (Kingfisher Environmental Consulting 2017)	Basic Fauna Survey	May 2017	100 km to the south-east	- Targeted assessment - Camera traps - Bat detectors	- Mallee Eucalyptus Woodland - Acacia Shrubland - Allocasuarina Shrubland	Malleefowl (individual and mounds)

3. Methods

3.1 Requirements for Fauna Surveys

The fauna survey was completed in accordance with the following requirements for the environmental surveying and reporting of fauna surveys in WA, where relevant and practical, and as documented in:

- National Recovery Plan for Malleefowl (*Leipoa ocellata*) (DCCEEW 2024)
- National Malleefowl Monitoring Manual (National Malleefowl Recovery Team 2020)
- EPA Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020)
- Guideline for the survey of Arid Bronze Azure Butterfly (ABAB) in Western Australia (DBCA 2020a)
- DBCA – Arid bronze azure butterfly (ABAB) survey in Western Australia additional information (2020b)
- Survey Guidelines for Australia's Threatened Mammals. EPBC Act survey guidelines 6.5 (2011) (DSEWPac)
- Survey Guidelines for Australia's Threatened Reptiles. EPBC Act survey guidelines 6.6 (2011) (DSEWPac)
- Survey Guidelines for Australia's Threatened Birds. EPBC Act survey guidelines 6.2 (2010) (DSEWPac)
- Survey Guidelines for Australia's Threatened Frogs. EPBC Act survey guidelines 6.3 (2010) (DSEWPac)
- Threatened Species Scientific Committee. Conservation Advice (CA), where provided for species listed under the EPBC Act (DCCEEW)
- DBCA standard fauna operating procedures (where relevant).

3.2 Desktop Assessment

Searches of the DBCA threatened fauna database (with a 60 km buffer applied) and EPBC Protected Matters Search Tool (EPBC PMST) (with a 50 km [maximum distance] buffer applied) were undertaken to identify fauna species of conservation significance potentially occurring in the survey area (DBCA 2025, DCCEEW 2025b) (Appendix 2). These searches were centred on the survey area boundary.

3.3 Field Survey

The field survey was undertaken from 9th – 11th September 2025, by two qualified Zoologists (Dr Ron Firth and Laura Stevens). As per the scope and proposal, the following survey methods were undertaken.

3.3.1 Habitat Assessment

Habitat assessments were undertaken to assess their potential to support threatened fauna species and the quality of habitat they provide to a wider suite of fauna. Fauna habitat assessments were undertaken to define and delineate the main broad fauna habitat types present. The habitat assessments were documented systematically for each habitat type on standardised field sheets. The habitat assessments consisted of the following:

- location of the broad habitat type within the survey area (GPS co-ordinate) and its relative percentage
- habitat condition was assessed at each assessment site as 'completely degraded' through to 'pristine', based on the scale given in Keighery (1994)
- landscape position
- dominant vegetation and structure (e.g., number of vegetation strata)
- hollow-bearing trees and dead stags (e.g., average size and abundance of hollows)
- description of any rock and rocky outcrops, logs (e.g., abundance and size), substrate (e.g., leaf litter)
- wetlands, creeks, rivers, dams and other water bodies
- description of any observed nests and roosts (if present)
- subterranean roosts (e.g., caves, disused mineshafts and/or adits)
- associated fauna species observed using the habitat
- disturbance (e.g., cattle grazing, fire)
- photo showing a typical example of the broad habitat type.

3.3.2 Bird Surveys

Systematic bird surveys were undertaken in all habitats in the survey area for 20 minutes in a 1-ha quadrat. They were undertaken during typical peak periods of activity when birds are calling and moving about, which is typically in the 3-4 hours of sunrise, particularly during warmer periods.

3.3.3 Opportunistic Searches

Fauna were recorded opportunistically during the survey. This involved looking through leaf litter (particularly under the Eucalyptus trees, where a layer of leaf litter had sometimes formed), overturning rocks and looking under decorticated bark (where present). Other recordings included visual sightings of active fauna such as reptiles and birds, signs of species presence such as burrows and scats of mammals and reptiles, and aural observations of amphibian and bird species. Observation (visual or heard) of species considered threatened were recorded by means of a hand-held GPS if present.

3.3.4 Threatened Species Surveys

Malleefowl Habitat Assessment

The Malleefowl, is listed as Vulnerable (Vu) under the EPBC Act and BC Act. The habitat assessment for the Malleefowl was undertaken in areas containing suitable habitat, which were assessed for evidence of Malleefowl activity, recorded as:

- Malleefowl tracks
- Malleefowl nesting mounds including status (inactive/ active) and activity according to the following criteria:
 - Nest in preparation – eggs not laid (evidence of litter trail)
 - Mound is in progress/ maintenance – eggs assumed to be laid
 - Evidence of chicks leaving nest – chicks fledging site / shell fragments
 - Decommissioned – spreading and returning of mound soil
- In addition, the following information was recorded:
 - Mound size/dimensions/profile (Table 2)
 - GPS co-ordinates
 - Surface crust of mound
 - Evidence of shell fragments, feathers, scats, rakings, scrapes, tracks, presence of lerps (Psyllids)
- Malleefowl individual sightings and assessment of age (chick/ adult)
- Opportunistic observations of Malleefowl evidence (tracks, mounds and or individual sightings) within the survey area.

The National Malleefowl Monitoring Manual (2020) was used to assist in assessing breeding activity at any potential Malleefowl mounds observed during the Malleefowl habitat assessment. The following profiles were considered when judging age and timeframe with regard to activity of mounds (Table 2):

Table 2: Malleefowl mound profiles and definitions.

Malleefowl Mound Profile	Mound Definition
	1. Typical crater with raised rim This is the typical shape of an inactive (dormant) mound.
	2. Mound fully dug out The crater slopes down steeply and at the base the sides drop vertically to form a box-like structure with sides usually 20-30cm deep. Often litter will have been raked into windrows and may have started to enter the mound.

Malleefowl Mound Profile	Mound Definition
	3. Mound with litter This is the next stage after Profile 2. Litter will have been raked into the mound by Malleefowl, and thick layers of litter are evident on the surface. There may or may not be some sand mixed with the litter at this stage.
	4. Mound mounded up (no crater) An active but unopened Malleefowl mound.
	5. Mound that has a sandy crater with peak in centre An active mound which is in the process of being closed by Malleefowl.
	6. Mound low and flat without peak or crater A very long unused mound

Arid Bronze Azure Butterfly Assessment

The ABAB has an obligate association with a Sugar Ant (host) *Camponotus terebrans* and the ABAB larvae live entirely within the ant's nest during their development. The larvae are cryptic and extremely difficult to detect and only two have ever been seen (CA 2015, DBCA 2020a). The most critical factor for habitat occupancy by the butterfly is the presence of large colonies of the host ant; only large colonies can support the ABAB because, being a parasitic species, it requires large numbers of hosts (CA 2015, DBCA 2020a).

Direct surveys to determine the presence of the ABAB undertaken without a host ant survey are not recommended (DBCA 2020a). This is because (i) other butterflies and diurnal moths may be confused with the ABAB in flight, so a voucher specimen would be needed to confirm identity; and (ii) ABABs sometimes disperse from their natal colony across unsuitable habitat in search of new host ant colonies – so their presence at a site where the host ant is absent may indicate an ABAB colony occurs somewhere nearby, but does not indicate ABAB breeding habitat.

The protocol has two components:

1. a survey to detect whether the host ant is present in large numbers,
2. if it is, then a survey to determine if the ABAB is present.

To determine if the host ant was present in the survey area, stands of smooth barked Eucalyptus were searched for. Within these stands, random samples of trees were examined and assessed for presence of the host Sugar Ant. This was done by diurnal surveying, which involved disturbing the soil around the base of the trees, to a depth of ~ 10 cm, to determine if an ant colony was present (Plate 1). Trees sampled included those beside tracks, where ants (and the ABAB) are typically more abundant.



Plate 1: Disturbing soil around the base of *E. salubris* (Gimlet), searching for Sugar Ant colonies.

An ABAB survey would then only required if a large colony of host ants were detected. This survey would then follow survey requirement methods as described in the ABAB Survey WA Additional Information (DBCA 2020b).

Inland Hairstreak Butterfly Assessment

The preferred habitat of the IHB is mature Senna (*Senna artemisioides filifolia*) and mixed flowering shrubs with open areas. Due to the paucity of baseline data on the species, it has been impossible to predict when and where they might occur. Consequently, there are no survey methods recommended by DBCA (Eastwood *et al.* 2023).

As such, searches for the IHB were undertaken in suitable habitat in the survey area. Searches involved looking for adult butterflies using standard transects where relevant.

3.3.5 Taxonomy

For species identified in the desktop assessment, where there is doubt to their true taxonomy (through subsequent name changes or taxonomic reviews), an effort was made to determine the current scientific name for each taxon. In some cases, old scientific names were presented where correct nomenclature could not be determined due to name changes. Some taxon names may be followed by 'sp.', meaning that the species name was not given in the data source, or the identification is in doubt. Where there are previously recorded taxa such as this that have the potential to be a threatened fauna species, they are discussed specifically in the results and discussion sections.

Taxonomy and nomenclature in this report follows the accepted listing of published terrestrial vertebrate species, primarily the West Australian (WA) Museum (2025). In addition, the following are also considered; the listing for amphibians and reptiles is consistent with Wilson & Swan (2023), Chapple *et al.* (2019), and (to a lesser extent) Cogger (2018); bird listings are consistent with Christidis & Boles (2008) and mammal listings are consistent with Baker & Gynther (2023) and to a lesser extent Woinarski *et al.* (2014).

4 Results

4.1 Survey Limitations

Survey constraints are often difficult to predict, as is the extent to which they influence survey effort. Survey limitations and constraints of the fauna survey are outlined below in Table 3.

Table 3: Limitations and constraints associated with the survey.

Potential Limitation or Constraint	Impact on Survey	Comment
Access	None	The survey area (256 ha) was accessible and traversed by vehicle and by foot.
Experience	None	The personnel who undertook the survey were practitioners suitably qualified in their respective fields with relevant experience as specified by the EPA Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020). The personnel were as follows: • Dr Ron Firth (Principal Ecologist) • Laura Stevens (Principal Zoologist).
Timing, weather, season	None	The survey was conducted as a basic fauna survey and targeted Malleefowl, ABAB and IHB assessments and therefore primarily about defining and describing habitats present. In general, timing, weather and season, therefore, are not deemed a prime consideration. The survey was undertaken from 9th – 11th September 2025. There were therefore no limitations to the survey due to timing, weather or season.
Scope	None	The survey consisted of a basic fauna survey and targeted Malleefowl, ABAB and IHB assessments. During the field survey, the entire survey area was assessed to define the habitats and fauna values in the survey area.
Completeness	None	A total of: • 256 ha was assessed during the basic fauna survey • 22 habitat assessment were undertaken • 29 fauna species were recorded in the survey area • No threatened fauna species were recorded in the survey area • Three broad fauna habitat types were described
Disturbance	Moderate	Disturbance from past mining and exploration activities, an old townsite, roads and tracks, and Cattle were evident throughout the survey area.

4.2 Database Results

Results of the databases searches can be seen in Appendix 2 and Figure 4. The following records were present in the database search results:

- DBCA – 126 records in total:
 - 15 threatened vertebrate fauna species, comprised of one reptile species, 11 bird species and three mammal species.
 - 2 invertebrate fauna species, comprised of two butterfly species
- EPBC PMST – 10 threatened species (1 reptile species, 16 bird species and one mammal species).



The DBCA threatened fauna database returned a total of 126 threatened fauna species within a 60 km radius of survey area. The most recent record is a Malleefowl record from April 2025. This record is from approximately 16 km to the south-east of the survey area from the Ora Banda – Davyhurst Road.

The closest record is also a Malleefowl record. This record is from March 2019 approximately 6.3 km to the north of the survey area on Davyhurst Road.

These records and other threatened species records (particularly the target species covered in this report), will be discussed in more detail in section 5.1.

Shorebirds and Waterbirds

A total of nine waterbird species were returned in the databases. These were a combination of waders/shorebirds, migratory and wetland birds from locations including Rowles Lagoon and Credo Station dam. These wetland avifauna such as wading birds, including Sandpipers and Plovers inhabit estuaries, mudflats, saltmarshes, sandflats and beaches, with shallow water edges, where they feed on invertebrates such as worms, molluscs, insects and crustaceans (Garnett *et al.* 2011, Garnett & Baker 2021). Suitable habitat for these waterbird species is not present in the survey area; therefore, they have been omitted from any further discussion.

Now Regionally Extinct

A number of species in the database searches were also known to be historical records of species now locally extinct, (or species with a single record), for example the Western Mouse (*Pseudomys occidentalis*), which is from 2000, classed as a WAM vouchered collection/specimen without any further detail. Or the Woma (*Aspidites ramsayi* [Southwest subpopulation]), which has a single record from 1966 classed as historical/dead. These species have therefore been omitted from further discussion.

Unsuitable Habitat

Some species present in the database searches simply won't be in the survey area because suitable habitat is not available e.g., the Blue-billed Duck (*Oxyura australis*) occurs on both fresh and saline wetlands, preferring deep, open, permanent waters near dense vegetation (Garnett & Baker 2021), which is not present in the survey area. In addition, many fauna are not distributed evenly across the landscape, are more abundant in some places than others, and consequently more detectable (Currie 2007). Furthermore, some small, common ground-dwelling reptile and mammal species tend to be habitat specific, and many bird species can occur as regular migrants, occasional visitors, or vagrants. Therefore, all these species have been excluded from any further discussion.

Database Errors and Anomalies

Occasionally there are errors and/or anomalies in the database searches that are sourced from the various government departments, for example, the Grey Wagtail (*Motacilla cinerea*), which is a rare visitor (Johnstone & Storr 1998) and the Grey Falcon (*Falco hypoleucos*), whose distribution is to the east of the survey area (Garnett & Baker 2021, Slater *et al.* 2017).

Or the Central Long-eared Bat (*Nyctophilus major tor*) which had a single record from 2007, approximately 37 km to the east of the survey area. Another example is the Chuditch (*Dasyurus geoffroyi*), which also had a single record. This record was from 2008, 38.7 km to the east of the survey area. These species have been omitted from any further discussion.

It is important to note, that the EPBC PMST is not entirely based on point records, but also on broader information, including bioclimatic distribution models, whereas the DBCA threatened fauna database is. Consequently, the results of the EPBC PMST are in some cases less accurate, particularly at a local scale (e.g., the Night Parrot [*Pezoporus occidentalis*]) and the Curlew Sandpiper [*Calidris ferruginea*]. As a result, the EPBC PMST can include species that do not occur in the survey area because, for example, there is no habitat available, or they are now known to be locally extinct. These species have therefore been omitted from any further discussion.

Conservation Significant Fauna

With the aforementioned shorebirds, waterbirds, locally/regionally extinct and database errors species removed, a total of four threatened fauna species retrieved from the database searches are considered as either Possible or Unlikely to occur. Of these four threatened fauna species, none were recorded during the assessment, one species is considered as Possibly occurring and three are considered Unlikely to occur (Table 4). Further to this the three species targeted during this survey are included

in the above four species because they formed a major component of the survey. All of these species will be discussed in section 5.1 below.

The Likelihood of each species is based on the following criteria, (whilst also considering the number and validity of DBCA records for each species):

- Recorded: Recorded during the field survey or site reconnaissance
- Likely: Suitable habitat is present in the survey area and the survey area is in the species' known distribution
- Possible: Limited or no suitable habitat is present in survey area but is nearby. The species has good dispersal abilities and is known from the general area
- Unlikely: No suitable habitat is present in survey area but is nearby, the species has poor dispersal abilities but is known from the general area; or suitable habitat is present, however the survey area is outside of the species' known distribution.

Table 4: Threatened fauna potentially occurring in the survey area.

CR = Critically Endangered under the EBPC Act, VU = Listed as Vulnerable under the EBPC Act/BC Act, OS = Other specially protected species under the BC Act., P = Listed as Priority by the DBCA.

Common name	Species name	Conservation Status (EPBC Act)	Conservation Status (WA BC Act)	Likelihood
Invertebrates				
Arid Bronze Azure Butterfly	<i>Ogyris subterrestris petrina</i>	CR	CR	Unlikely
Inland Hairstreak Butterfly	<i>Jalmenus aridus</i>		P2	Unlikely
Birds				
Malleefowl	<i>Leipoa ocellata</i>	Vu	Vu	Possibly
Peregrine Falcon	<i>Falco peregrinus</i>		OS	Unlikely

4.3 Field Assessment Results

A total of 29 fauna species were recorded in the survey area. All fauna species recorded are considered relatively common and widespread. Species recorded can be seen in Table 5.

4.3.1 Fauna Assemblage

Amphibians

There were a small number of areas in the survey area (from mining disturbance), that contained water during the survey. No amphibians were recorded during the survey however.

Reptiles

During the field survey, one reptile species was recorded. The Fence Skink (*Cryptoblepharus buehmanni*) was recorded numerous times, basking on piles of wood.

Birds

During the field survey, 25 bird species were recorded. All bird species recorded are considered relatively common and widespread in the region.

Mammals

During the field survey three mammal species were recorded. The Western Grey Kangaroo (*Macropus fuliginosus*) was the only native species recorded and this was indirectly by scats. The other mammal species recorded were the introduced European Rabbit (*Oryctolagus cuniculus*) and Cattle (*Bos taurus*).

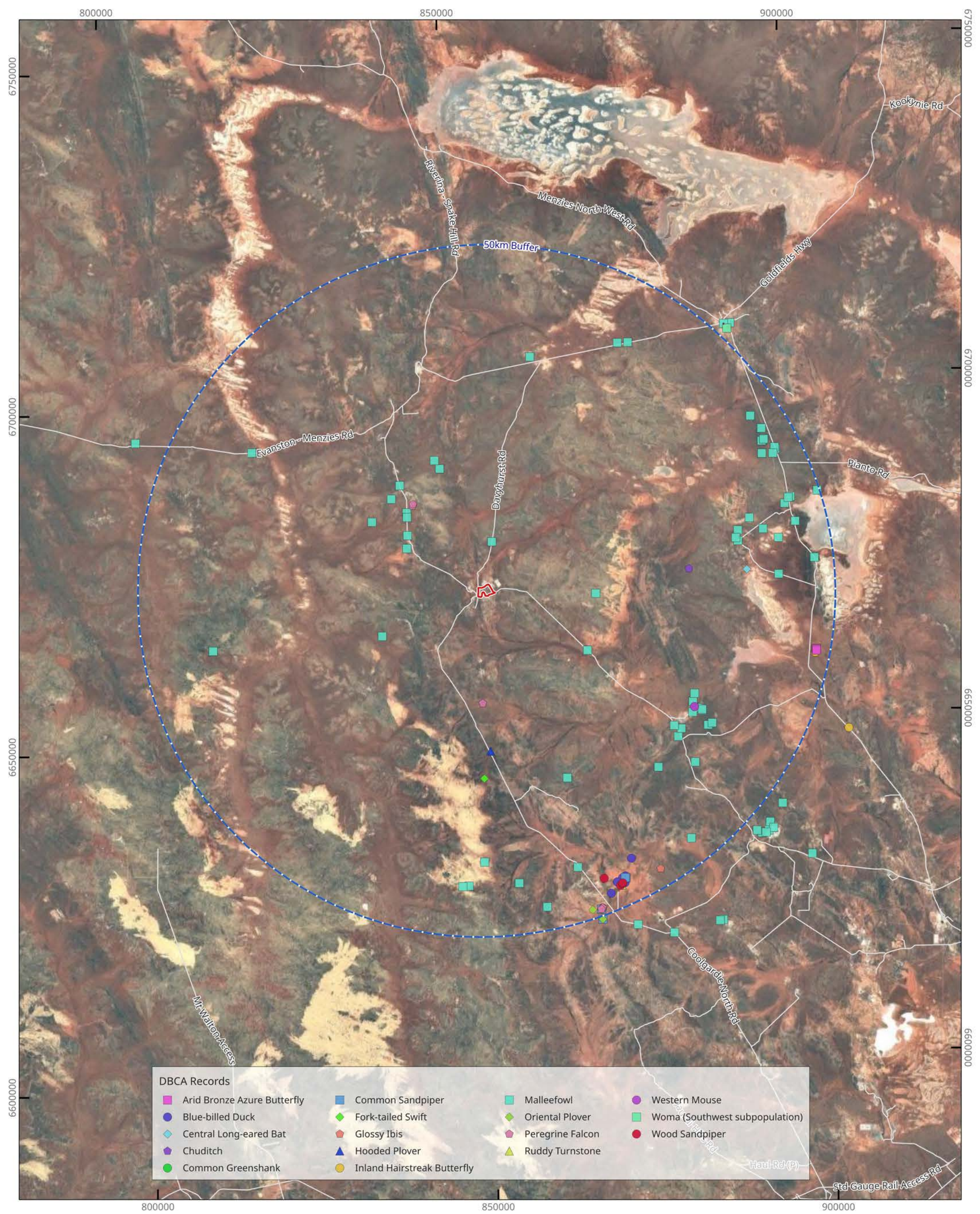


Figure 4: Threatened Fauna Records (DBCA)

Table 5: Species recorded in the survey area.

Common Name	Species Name	Common Name	Species Name
Australian Kestrel	<i>Falco cenchroides</i>	Grey Shrike-thrush	<i>Colluricincla harmonica</i>
Australian Magpie	<i>Gymnorhina tibicen</i>	Little Buttonquail	<i>Turnix velox</i>
Australian Raven	<i>Corvus coronoides</i>	Pink-eared Duck	<i>Malacorhynchus membranaceus</i>
Australian Ringneck	<i>Barnardius zonarius</i>	Red Wattlebird	<i>Anthochaera carunculata</i>
Brown Honeyeater	<i>Lichmera indistincta</i>	Silvereye	<i>Zosterops lateralis</i>
Cattle	<i>Bos taurus</i>	Singing Honeyeater	<i>Lichenostomus virescens</i>
Chestnut-rumped Thornbill	<i>Acanthiza uropygialis</i>	Splendid Fairywren	<i>Malurus splendens</i>
Crested Bellbird	<i>Oreoica gutturalis</i>	Striated Pardalote	<i>Pardalotus striatus</i>
Crested Pigeon	<i>Ocyphaps lophotes</i>	Tawny Frogmouth	<i>Podargus strigoides</i>
Domestic Dog	<i>Canis familiaris</i>	Weebill	<i>Smicromis brevirostris</i>
Dusky Woodswallow	<i>Artamus cyanopterus</i>	Western Yellow Robin	<i>Eopsaltria griseogularis</i>
European Rabbit	<i>Oryctolagus cuniculus</i>	White-eared Honeyeater	<i>Nesoptilotis leucotis</i>
Fence Skink	<i>Cryptoblepharus buehnanii</i>	Yellow-throated Miner	<i>Manorina flavigula</i>
Grey Currawong	<i>Strepera versicolor</i>	Zebra Finch	<i>Taeniopygia guttata</i>
Grey Fantail	<i>Rhipidura albiscapa</i>		

4.4 Fauna Habitat

A total of 22 habitat assessments were undertaken during the field survey, the details of which can be seen in Table 6 and Figure 5. An example of each fauna habitat type is provided in Appendix 3. A total of three broad fauna habitat types were described in the survey area and are as follows:

- Mixed Eucalyptus Woodland
- Open Eucalyptus Woodland
- Degraded/Cleared (these areas offered little value to fauna species).

These three broads habitat types are considered widespread across the local area and more broadly throughout the region.

Table 6: Habitat Assessment Locations

Habitat Assessment	Northing (GDA94)	Easting (GDA94)	Fauna Habitat Type
1	6674152	274917	Mixed Eucalyptus Woodland
2	6674654	274135	Open Eucalyptus Woodland
3	6674306	273733	Open Eucalyptus Woodland
4	6674104	273525	Degraded/Cleared
5	6674492	273604	Mixed Eucalyptus Woodland
6	6674462	273284	Open Eucalyptus Woodland
7	6673713	273249	Degraded/Cleared
8	6673445	273359	Open Eucalyptus Woodland
9	6674711	274700	Mixed Eucalyptus Woodland
10	6674435	274812	Mixed Eucalyptus Woodland
11	6674592	274488	Mixed Eucalyptus Woodland
12	6674319	273971	Open Eucalyptus Woodland
13	6673690	274450	Mixed Eucalyptus Woodland
14	6673839	274472	Mixed Eucalyptus Woodland
15	6674156	274370	Mixed Eucalyptus Woodland

Habitat Assessment	Northing (GDA94)	Easting (GDA94)	Fauna Habitat Type
16	6674338	274456	Mixed Eucalyptus Woodland
17	6674371	274735	Mixed Eucalyptus Woodland
18	6674197	274809	Mixed Eucalyptus Woodland
19	6673896	274729	Mixed Eucalyptus Woodland
20	6673839	275198	Open Eucalyptus Woodland
21	6673308	273567	Open Eucalyptus Woodland
22	6673901	273670	Degraded/Cleared

Fauna habitat type and extent can be seen in Table 7 and Figure 5. Examples of the fauna habitat can be seen in Plates 2 – 4.

Table 7: Fauna habitat type, and extent in the survey area.

Fauna Habitat	Extent (ha)	% of survey area
Mixed Eucalyptus Woodland	115.5	45
Open Eucalyptus Woodland	87.6	34
Degraded/Cleared	53.2	21
Total	256.3	100



Plate 2: Mixed Eucalyptus Woodland.

Mixed Eucalyptus Woodland consisted of mixed mallee Eucalyptus trees, including *E. graffithsii* (Griffiths Grey Gum), *E. oleosa* (Red Mallee) and *E. ewartiana* (Ewart's Mallee) over mixed Acacia, Casuarina, Eremophila and Senna on stony hills.



Plate 3: Open Eucalyptus Woodland

Open Eucalyptus Woodland consisted of mixed Eucalyptus trees, including *E. salmonophloia* (Salmon Gum), *E. salubris* (Gimlet) and *E. lesouefii* (Goldfields Blackbutt) over scattered *Ptilotus* on sandy-loam flats.



Plate 4: Degraded/Cleared

Degraded/Cleared areas lacked vegetation strata. These areas were heavily disturbed from past mining and exploration activities, an old townsite, roads and tracks.



Figure 5: Fauna Habitat and Fauna Assessment Locations

0
200
400 m

GDA2020 / MGA zone 51

Legend

Survey Area

Habitat Assessment

Survey Track

Fauna Habitat

Degraded/Cleared

Mixed Eucalyptus Woodland

Open Eucalyptus Woodland

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4.5 Threatened Species Survey Results

Malleefowl Habitat Assessment

The survey area was traversed by foot and by vehicle to assess the suitability for Malleefowl and potentially limited habitat for the species was recorded. Open Eucalyptus Woodland is considered to be too sparse to provide adequate shelter or cover for mound construction. Open Eucalyptus Woodland was also low and flat and in a number of locations, evidence of standing water was present, this also contributed to this habitat being considered unsuitable for Malleefowl to build mounds due to the risk of flooding, albeit episodically.

The Mixed Eucalyptus Woodland in general was also too sparse, however there were some areas with thicker vegetation. In these areas, mounds and signs of Malleefowl were searched for, however no mounds were recorded and no sightings of Malleefowl or their tracks were observed. In addition, this habitat was generally on stony hills and so mound construction would be difficult in much of this substrate. A lack of leaf litter was also evident throughout the survey area, which results in a lack of suitable mound-building material.

While it is considered that the majority of the survey area is unsuitable for Malleefowl to build mounds, both the Open Eucalyptus Woodland and Mixed Eucalyptus Woodland provide potential foraging habitat for the species.

Arid Bronze Azure Butterfly Habitat Assessment

The survey area was traversed by foot and by vehicle to assess the potential suitability for ABAB and suitable habitat in the way of smooth barked Eucalypts on sandy-loam soils was present. The Open Eucalyptus Woodland habitat, which was comprised of *E. salmonophloia* and *E. salubris* (both smooth-barked Eucalypt species), provided potential habitat for Sugar Ant colonies. In addition, these areas were often near roads/tracks, where ants (and the ABAB) are typically more abundant (DBCA 2020a).

The Sugar Ant was not recorded during the field survey.

Inland Hairstreak Butterfly Habitat Assessment

The survey area was traversed by foot and by vehicle to assess the potential suitability of habitat for the IHB. Suitable habitat was present in the survey area in the way of Mixed Eucalyptus Woodland habitat. This habitat contained mature Senna shrubs, with mixed flowering shrubs including Eremophila and tall scattered shrubs such as Casuarina, which are some of the known species preferred by the Butterfly. In addition, this habitat contained open areas of well drained exposed ground adjoining the hostplants, which are required for thermoregulation and mate location (Eastwood *et al.* 2023).

The IHB was not recorded during the field survey.

5 Discussion

5.1 Fauna of Conservation Significance

A total of four threatened fauna species retrieved from the database searches are considered as either Possible (one species) or Unlikely (three species) to occur in the survey area. These four species and their likelihood to occur in the survey area are discussed below.

5.1.1 Species considered Possible in the survey area

Malleefowl

In the past century, the range of the Malleefowl has contracted, particularly in arid areas and at the periphery of its former range (Benshemesh 2007). In Australia, clearing for agriculture has eliminated and fragmented much of the Malleefowl habitat, resulting in localised extinctions and fragmented populations (Garnett *et al.* 2011). In WA since 1981, the range of the Malleefowl has been estimated to have contracted by between 28 and 30% (Benshemesh 2007, Parsons *et al.* 2008).

Historically, the species was originally common and widespread in semiarid zones, mainly in scrubs of mallee and other low eucalypts on sandy and lateritic soils; also, acacia scrubs on heavy red soils, especially north and east of the mulga-eucalypt line. The Malleefowl is now generally rare to uncommon and patchily distributed due to habitat loss.

Studies have shown that a wide range of food shrubs, rather than an abundance of any one species is probably important for birds during for example droughts (Harlen & Priddel 1996). This is supported by other studies showing that Malleefowl are more abundant in areas where shrubs are more diverse (Woinarski 1989). As shown in section 2.2, there was higher than average rainfall for the twelve months before the survey, however the survey area does appear to have a limited degree of shrub diversity.

Malleefowl have a relatively large home range that can be up to 4 km² in low rainfall areas (Booth 1987). Predation by the introduced fox is also thought to be limiting the abundance of Malleefowl and in many areas and may be a major cause of decline (Benshemesh 2007). No Foxes or Cats, their tracks or scats were recorded during the survey, however Dog tracks were recorded. Foxes and Cats are elusive and can be difficult to observe (more so than Dogs) and there is no reason all three species couldn't predate Malleefowl in the survey area.

Malleefowl prefer habitat with a dense canopy and an open ground layer in which they can construct their mounds (Benshemesh 2007). Benshemesh (1992) also found that dense canopy cover was the most important feature associated with high breeding densities at sites in Victoria. Fire history is also important with Malleefowl birds preferring old growth (i.e., long unburnt) mallee. Fire has a major influence on the structure and floristic composition of habitats that Malleefowl occupy. The Open Eucalyptus Woodland habitat lacked a dense canopy and no evidence of Malleefowl was recorded in this fauna habitat type. The Mixed Eucalyptus Woodland contained areas with denser shrub canopy and this is the habitat in which Malleefowl mounds were searched for. A lack of leaf litter throughout this habitat however, resulted in a lack of available material for mound construction.

The DBCA threatened fauna database returned 81 records of the Malleefowl in the vicinity of the survey area, between 1964 and 2025 (Appendix 2). Approximately three-quarters of these 81 records are more than 20 km from the survey area. The most recent record (2025) is from the Ora Banda – Davyhurst Road, approximately 16 km to the south-east of the survey area. The closest record of the Malleefowl is 6.3 km from the survey area. This sighting is from 2019 and classed as a very certain day sighting on Davyhurst Road (Figure 4).

During the Malleefowl assessment, no Malleefowl, mounds or tracks were recorded. A total of 87.6 ha of Open Eucalyptus Woodland is present in the survey area, which has limited vegetation structure, thus providing little shelter for Malleefowl, and more importantly their mounds. A total of 115.5 ha of Mixed Eucalyptus Woodland is present in the survey area, which in some areas does contain vegetation dense enough to provide enough shelter for potential mound construction. Malleefowl may forage in both of these habitats, however. There is a total of 53.2 ha of Degraded/Cleared habitat, consisting of disturbed, degraded and cleared areas from previous mining activities (these areas provide no shelter or vegetation for Malleefowl to build mounds or forage in).

Evidence of standing water was present in a limited number of places in the survey area (in the Open Eucalyptus Woodland habitat) and so Malleefowl are unlikely to build mounds in these drainage areas due to the possibility of flooding.

It is important to note that the entire survey area is highly disturbed, with mining and pastoral activities having been carried out in the area for more than 100 years.

In general, there are a limited nearby database records, a lack of suitable habitat for mound construction in 55% of the survey area. There is however, more than 200 ha (80% of the survey area) (Figure 5) of potential foraging habitat (Mixed Eucalyptus Woodland and Open Eucalyptus Woodland habitats), and so the Malleefowl is considered as Possibly occurring in the survey area.

5.1.2 Species considered Unlikely to occur in the survey area

Arid Bronze Azure Butterfly

The ABAB is (publicly) known from only two existing subpopulations in WA. One subpopulation occurs at Barbalin Nature Reserve (BNR), which is more than 260 km to the west of the survey area, and the other subpopulations at an (unstated) second site is ~100 km south of BNR (DBCA 2020a), therefore approximately 160 km to the west of the survey area. There was a population at Lake Douglas, 12 km southwest of Kalgoorlie, however, this population is reported to have become extinct in about 1993 as no ABAB have been recorded there since then (CA 2015, DBCA 2020a).

In early 2022, The Western Australian Biodiversity Science Institute (WABSI) facilitated a workshop highlighting a lack of information available on the ABAB and in an effort lift the level of understanding of this species. The workshop revealed that currently four locations of the species are known:

1. The Barbalin Nature Reserve (BNR)
2. A site about 100 km from the BNR
3. Two subpopulations within 75 km of Kalgoorlie

Details of sites 2 & 3 were not revealed in the WABSI workshop document (WABSI 2022). The closest distance between the subpopulations is approximately 50 km and the furthest approximately 300 km (WABSI 2022).

The ABAB is known to have complex dependencies on other co-occurring species and specific habitat requirements. Again, the ABAB has an obligate association with a Sugar Ant (host) and the ABAB larvae live entirely within the ant's nest during their development. The larvae are cryptic and extremely difficult to detect and only two have ever been seen (CA 2015, DBCA 2020a). The most critical factor for habitat occupancy by the butterfly is the presence of large colonies of the host ant; only large colonies can support the ABAB because, being a parasitic species, it requires large numbers of hosts (CA 2015, DBCA 2020a).

At the ABABs two (publicly) known sites (points 1 and 2 above), the vegetation is mature mixed Gimlet and Salmon Gum woodlands on red-brown loam soils, with an open understorey (DBCA 2020a). In addition to Gimlet and Salmon Gum, other smooth-barked Eucalypts at these sites which have basal ant colonies include Wandoo (*E. wandoo*), smooth-barked York Gum (*E. loxophleba lissophloia*) and Ribbon-barked Mallee (*E. sheathiana*). The habitat at the extinct Lake Douglas site differs from the other sites but is also dominated by mature smooth-barked Eucalypt woodland, particularly Victoria Desert mallee (*E. concinna*) (DBCA 2020a).

Given the ABABs obligate association with the Sugar Ant, the potential distribution of the ant may also reflect the distribution of the ABAB. The potential distribution of the Sugar Ant has been mapped and is illustrated in the DBCA Guidelines for the survey of (ABAB) (DBCA 2020a). This potential distribution encompasses a very large area of WA where rainfall is less than 325 mm and south of 26° S, and where vegetation has been mapped as woodland and where the vegetation description includes Eucalypt ((DBCA 2020a).

This potential range of ABAB could theoretically extend across the range of smooth barked eucalypt woodland habitat, which is vast, however the range of ABAB is of course, constrained by habitat that is suitable for their host ant. ABAB ants are not known to be found throughout the whole range of smooth barked eucalypt distributions. The northern extent of the distribution (of host ant populations) is likely limited by rainfall, and climatic factors could also be responsible for the southern limit of the distribution. Rainfall patterns, soil types, drainage, temperature regimes, understorey cover, surrounding plant species, and the presence of open flight paths adjacent to nest trees all play a role in determining habitat suitability (WABSI 2022).

There were a total of five records of the ABAB in the DBCA threatened fauna database (Figure 4). Four of these records were from 2021 and one was from 2022, all of which were classed as certain/very certain and were from a fauna survey (Appendix 2). These records are from an area approximately 70 km north of Kalgoorlie called Canegrass and are considered likely to be the records mentioned in the WABSI workshop (WABSI 2022).

Suitable habitat in the way of smooth barked Eucalypts on sandy-loam soils was present in the survey area. The Open Eucalyptus Woodland habitat, which was comprised of *E. salmonophloia* and *E. salubris* (both smooth-barked Eucalypt species), provided potential habitat for Sugar Ant colonies. In addition, the long-term annual rainfall is 265 mm and for the 12 months prior to the survey, 314 mm, both of which are under the annual rainfall levels of less than 325 mm and south of the 26° S, as per the DBCA Guidelines (DBCA2020a).

While the above detail indicates suitable habitat and climate conditions for the ARAB (or more specifically the Sugar Ant), this is the case for vast areas of the south-west of WA and only four locations have reliable records of the species. As such the ARAB is considered as Unlikely to occur in the survey area.

Inland Hairstreak Butterfly

The Inland Hairstreak Butterfly is endemic to WA. It was previously recorded only from its type locality near Lake Douglas, 12 km SW of Kalgoorlie. A fauna survey undertaken near Kalgoorlie however, uncovered a new breeding site. The discovery prompted a renewed interest from Lepidopterists (and Regulators), to determine if there were additional breeding sites nearby. The IHB is now recorded from 10 locations within an area of approximately 5,000 km² (121 km N–S by 42 km E–W), in the broad vicinity of Kalgoorlie (Eastwood *et al.* 2023).

The preferred habitat of the IHB is summarised as open woodland with mature *Senna artemisioides filifolia* as well as mixed flowering shrubs with open areas of well drained exposed ground adjoining the hostplants. The ant *F. kirbii* must be present (Eastwood *et al.* 2023).

The IHB is difficult to survey because adults are present for only a few weeks each year. Most specimen records are in October, but a few are recorded in November and one in April. As with all *Jalmenus* species that have obligate associations with their attendant ants, the IHB has a mutualistic association with the ant *Froggattella kirbii*. When the IHB larvae feed on the flowers and phyllodes of their hostplant the ants are in constant attendance. The larvae of IHB produce sweet secretions in the form of amino acids and sugars, from which the ants feed via trophallaxis. In return, the presence of the ants protects the butterfly larvae from parasitoids and predators (Eastwood *et al.* 2023).

There are three records of this species within 60 km of the study area in DBCA's Threatened and Priority Fauna Database (Appendix 2). One record was 56 km east of the survey area, on Goldfields Highway as part of a fauna survey undertaken in 2022. The other two records were also from a fauna survey. These records are from Canegrass in 2021, approximately 48 km to the south-east of the survey area.

The survey area contains suitable habitat in the way of Mixed Eucalyptus Woodland, with species present including *Senna* species, mixed flowering shrubs and open areas of well drained exposed ground. A lack of nearby records, however and a lack of sightings during the survey, results in the species being considered Unlikely to occur on the survey area.

Peregrine Falcon

The Peregrine Falcon is an uncommon but wide-ranging bird across Australia. It occurs mainly along rivers and ranges as well as wooded watercourses and lakes and nests primarily on cliffs, granite outcrops and quarries (Barrett *et al.* 2003). Rather than building a nest, it lays its eggs in recesses of cliff faces, tree hollows or in the large, abandoned nests of other birds. The female incubates the eggs and is fed by the male on the nest. When the young have hatched, both parents hunt to provide food. Young Peregrine Falcons disperse widely but often return to their original home area to breed when mature (Australian Museum 2025).

This species is a large, powerfully built raptor, with a black hood, blue-black upperparts and creamy white chin, throat and underparts, which are finely barred from the breast to the tail. The long tapered wings have a straight trailing edge in flight and the tail is relatively short. The eye-ring is yellow, with the heavy bill also yellow, tipped black (BirdLife 2025).

The diet of the Peregrine Falcon has been well studied and primarily includes flocking species such as parrots, pigeons and on the east coast European Starlings (*Sturnus vulgaris*) (Olsen & Fuentes 2008). The Peregrine Falcon swoops down on its prey from above, catching or stunning it with its powerfully hooked talons, before grasping and carrying it off to a perch to

pluck and eat it. It will pursue flying birds, being able to fly at speeds of up to 300 km/h, and it soars to a great height in search of prey. Pairs may hunt co-operatively, with one member, usually the male, scattering a flock of birds while the other swoops down to attack a particular individual. This co-operative behaviour is most often observed during the breeding season (Australian Museum 2025).

The DBCA threatened fauna database returned five records of the Peregrine Falcon, between 2002 and 2014 (Appendix 2). None of these records have any contextual details provided in the DBCA threatened fauna database. Three of these records are from 15.5 km away from the survey area and the remaining two records are almost 50 km from the survey area (Figure 4).

The survey area lacks suitable foraging or nesting habitat in the form of rivers, however the numerous old mine pits in the immediate vicinity of the survey area are deep and so the walls of the pit could be considered analogous to cliff or rock outcrop habitat utilised by the species. This could therefore be considered suitable nesting and foraging habitat. The Peregrine Falcon may fly over the survey area however the species is considered Unlikely to occur in the survey area.

5.2 Fauna Habitat

Mixed Eucalyptus Woodland

Mixed Eucalyptus Woodland comprised 45% (115.5 ha) of the survey area. This habitat consisted of mixed mallee Eucalyptus trees, including Griffiths Grey Gum, Red Mallee and Ewart's Mallee in the upper storey, with mixed Acacia, Casuarina, Eremophila and Senna shrubs on low stony hills.

The mixed Eucalyptus trees and mid-storey shrubs provide structure and habitat for several birds, including the various Honeyeater species, including Singing Honeyeater, Brown Honeyeater and White-eared Honeyeater. As well as the Grey Shrike-thrush, Crested Bellbird, Striated Pardalote and Splendid Fairy-wren, all of which were recorded in this habitat. Mixed Eucalyptus Woodland also provides potential breeding and foraging habitat for Malleefowl (as discussed in Section 5.1.1).

Open Eucalyptus Woodland

Open Eucalyptus Woodland comprised 34% (87.6 ha) of the survey area. This habitat is generally very open and consisted of scattered Salmon Gum trees and stands of Gimlet, with sparse Ptilotus on low sandy-loam flats.

The large Eucalyptus trees provide structure and habitat for several larger bird species, including the Australian Ringneck, Australian Magpie and Grey Currawong, all of which were recorded in this habitat. Open Eucalyptus Woodland also provides some potential foraging habitat for Malleefowl (as discussed in Section 5.1.1).

In some areas, leaf-litter is present which provides shelter required by small reptiles and small mammals, while in some areas, the sandy substrate provides habitat for burrowing species, particularly reptile species.

Degraded/Cleared

The Degraded/Cleared areas comprised 21% (53.2 ha) of the survey area. These areas were heavily disturbed from past mining and exploration activities, an old townsite, roads, tracks etc., and offered little value to fauna species, particularly the Malleefowl, ABAB and IHB.

6 References

- Australian Museum (2025). <https://australian.museum/learn/animals/birds/peregrine-falcon/>
- Baker, A. M., & Gynther, I. C. (2023). Strahan's Mammals of Australia. Fourth Edition. New South Wales: Reed New Holland Publishers.
- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Birds Australia (Royal Australasian Ornithologists Union), Melbourne.
- Benshemesh, J. (2007). National Recovery Plan for Malleefowl, Department for Environment and Heritage, South Australia.
- Benshemesh, J. (1992). The conservation ecology of Malleefowl, with particular regard to fire. Pages 1-224. Monash University, Clayton.
- BirdLife Australia (2025). [Peregrine Falcon - BirdLife Australia](#)
- Booth, D. T. (1987). Home range and hatching success of Malleefowl, *Leipoa ocellata* Gould (Megapodiidae), in Murray mallee near Renmark, S.A. Australian Wildlife Research 14, 95-104.
- Bureau of Meteorology (BOM) (2025). Climate Data Online, Commonwealth of Australia. Retrieved September 2025, from www.bom.gov.au/climate/data/
- Chapple, D.G., Tingley, R., Mitchell, N.J., Macdonald, S.L., Keogh, J.S., Shea, G.M., Bowles, P., Cox, N.A. & Woinarski, J.C.Z. (2019). The Action Plan for Australia Lizards and Snakes 2017.
- Christidis, L., & Boles, W.E. (2008). Systematics and Taxonomy of Australian Birds. Victoria: CSIRO Publishing.
- Cogger, H. (2018). Reptiles and Amphibians of Australia. CSIRO Publishing.
- Commonwealth of Australia (2008). National Land and Water Resources Audit. Rangelands 2008 – Taking The Pulse.
- Conservation Advice (CA 2015). *Ogyris subterrestris petrina* Arid bronze azure (a butterfly). Commonwealth Threatened Species Scientific Committee.
- Cowan, M. (2001a). A Biodiversity Audit of Western Australia's 53 Biogeographical Region in 2001- Eastern Goldfields (COO3 Eastern Goldfields subregion), Department of Conservation and Land Management.
- Cowan, M. (2001b). A Biodiversity Audit of Western Australia's 53 Biogeographical Region in 2001- Murchison 1 (MUR1 – East Murchison subregion), Department of Conservation and Land Management.
- Currie, D. J. (2007). Disentangling the roles of environment and space in ecology. Journal of Biogeography 34, 2009–2011.
- Department of Biodiversity, Conservation and Attractions (DBCA). (2025). Threatened Fauna Search.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2020a). Guideline for the survey of arid bronze azure butterfly (ABAB) in Western Australia, Version 1, September 2020.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2020b). Arid bronze azure butterfly (ABAB) survey in Western Australia additional information.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2025a). Interim Biogeographic Regionalisation for Australia (IBRA).
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2025b). EPBC Act Protected Matters Search Tool, [Online], Australian Government.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) (2024). National Recovery Plan for Malleefowl (*Leipoa ocellata*)



- Eastwood, R., Jacks, A.A., Williams, A. E., Petersen, L. & Cameron, J. (2023). Current distribution, preferred habitat, behaviour, and biology of the Inland Hairstreak, *Jalmenus aridus* Graham & Moulds, 1988 (Lepidoptera: Lycaenidae) in the Eastern Goldfields region of Western Australia. Records of the Western Australian Museum, 38, 68-75.
- Garnett, S.T., Szabo, J. K., & Dutson, G. (2011). The action plan for Australian birds 2010. CSIRO Publishing
- Garnett, S. T., & Baker, G. B. (Eds) (2021). The Action Plan for Australian Birds 2020. CSIRO Publishing, Melbourne.
- Harlen, R., & D. Priddel. (1996). Potential food resources available to Malleefowl *Leipoa ocellata* in marginal mallee lands during drought. Australian Journal of Ecology 21, 418-428.
- Johnstone, R.E. & Storr, G. M. (1998). Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird). Oxford University Press.
- Keighery, B. J. (1994). Bushland Plant Survey. A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc.), Western Australia.
- National Malleefowl Recovery Team. (2020) National Malleefowl Monitoring Manual: Edition: v2020_1 - (Revised June 2020).
- Olsen, J. & Fuentes, E. (2008). Dietary shifts based upon prey availability in Peregrine Falcons and Australian Hobbies breeding near Canberra, Australia. Journal of Raptor Research 42, 125–137.
- Parsons, B. C., Short, J. C., & Roberts, J. D. (2008). Contraction in the range of Malleefowl (*Leipoa ocellata*) in Western Australia: a comparative assessment using presence-only and presence-absence datasets. Emu, vol. 108, pp. 221-231.
- Slater, P., Slater, P., & Slater, Raoul. (2017). The Slater Field Guide to Australian Birds. Second Edition.
- The Western Australian Biodiversity Science Institute (WABSI). Arid Bronze Azure Butterfly Workshop Report 2022.
- West Australian (WA) Museum. (2024). Checklist of the Terrestrial Fauna of Western Australia. Government of Western Australia.
- Wilson, S. & Swan, G. (2023). A Complete Guide to Reptiles of Australia. Fifth Edition. New Holland: Sydney, NSW.
- Woinarski, J. C. Z. (1989). The vertebrate fauna of Broombush *Melaleuca uncinata* vegetation in north-western Victoria, with reference to effects of broombush harvesting. Australian Wildlife Research 16, 217-238.
- Woinarski, J. C.Z. Burbidge, A. A., & Harrison, P. L. (2014). The action plan for Australian Mammals 2012. CSIRO Publishing.



APPENDICES



Appendix 1: Conservation Categories

Categories of Threatened Fauna Species under the EPBC Act

Conservation Code	Description
Ex	Extinct Taxa which at a particular time if, at the time, there is no reasonable doubt that the last member of the species has died.
ExW	Extinct in the Wild Taxa which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CE	Critically Endangered Taxa which at a particular time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
En	Endangered Taxa which is not critically endangered and it is facing a very high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
Vu	Vulnerable Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

Source: Environment Protection and Biodiversity Conservation Act 1999.

Categories of Threatened Flora and Fauna Species under the BC Act



Department of Biodiversity,
Conservation and Attractions

CONSERVATION CODES For Western Australian Flora and Fauna

Threatened, Extinct and Specially Protected fauna or flora¹ are species² which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016*.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

T Threatened species

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 28(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

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

CR **Critically endangered species**

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

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

EN **Endangered species**

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

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

VU **Vulnerable species**

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

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct species

Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.

EX Extinct species

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

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

EW Extinct in the wild species

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

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

Specially protected species

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

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

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

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

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

CD Species of special conservation interest (conservation dependent fauna)

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

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

OS Other specially protected species

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

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



Conservation codes for Western Australian flora and fauna

P Priority species

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

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

1 Priority 1: Poorly-known species

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

2 Priority 2: Poorly-known species

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

3 Priority 3: Poorly-known species

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

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

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

¹ The definition of flora includes algae, fungi and lichens

² Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

Last updated 3 January 2019



Appendix 2: Fauna Database Searches

Scientific Name	Common Name	Class	Status	WA Status	EPBC Stat	Date	Certainty	Obs Method	Obs Type	Sec Sign	Count	Locality	Site	Accuracy M	Lat	Long
<i>Actitis hypoleucos</i>	Common Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	9/10/2012	Not Defined				0	C2, Credo Station	C2, Credo Station	0	-30.4678	120.8264
<i>Actitis hypoleucos</i>	Common Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	10/10/2012	Not Defined				0	Credo C2	Credo C2	0	-30.4678	120.8264
<i>Actitis hypoleucos</i>	Common Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	5/10/2013	Not Defined				0	Credo GWW homestad	Credo GWW homestad	0	-30.4811	120.8283
<i>Actitis hypoleucos</i>	Common Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	5/10/2002	Not Defined				0	Rowles Lagoon	Rowles Lagoon	100	-30.4268	120.8648
<i>Actitis hypoleucos</i>	Common Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	17/09/2003	Not Defined				0	Rowles Lagoon	Rowles Lagoon	100	-30.4265	120.8637
<i>Apus pacificus</i>	Fork-tailed Swift	BIRD	Specially Protected - Migratory	MI	MI	30/03/2002	Not Defined				0	Fence Track	Fence Track	100	-30.2914	120.6514
<i>Arenaria interpres</i>	Ruddy Turnstone	BIRD	Specially Protected - Migratory	MI	MI	2/11/2016	Not Defined				0	Rowles Lagoon Nature Reserve	Rowles Lagoon Nature Reserve	0	-30.4363	120.8585
<i>Arenaria interpres</i>	Ruddy Turnstone	BIRD	Specially Protected - Migratory	MI	MI	2/11/2016	Not Defined				0	Rowles Lagoon Nature Reserve	Rowles Lagoon Nature Reserve	0	-30.4363	120.8585
<i>Aspidites ramsayi</i> (southwest subpopulation)	Woma (Southwest subpopulation)	REPTILE	Priority	P1		11/02/1966	Certain	Historical (written)	Dead		1	Menzies	south of Menzies - 19km south of Menzies	1000	-29.69999676	121.0333356
<i>Charadrius cucullatus</i>	Hooded Plover	BIRD	Priority	P4		16/07/2014	Not Defined				0	Credo 17	Credo 17	100	-30.2553	120.6617
<i>Charadrius veredus</i>	Oriental Plover	BIRD	Specially Protected - Migratory	MI	MI	10/10/2012	Not Defined				0	C2, Credo Station	C2, Credo Station	0	-30.4678	120.8264
<i>Charadrius veredus</i>	Oriental Plover	BIRD	Specially Protected - Migratory	MI	MI	12/10/2012	Not Defined				0	Credo C2	Credo C2	0	-30.4678	120.8264
<i>Charadrius veredus</i>	Oriental Plover	BIRD	Specially Protected - Migratory	MI	MI	5/10/2013	Not Defined				0	Credo GWW homestad	Credo GWW homestad	0	-30.4811	120.8283
<i>Charadrius veredus</i>	Oriental Plover	BIRD	Specially Protected - Migratory	MI	MI	10/01/2013	Not Defined				0	Credo Airstrip	Credo Airstrip	100	-30.4683	120.8131
<i>Dasyurus geoffroii</i>	Chuditch	MAMMAL	Threatened - Vulnerable	VU	VU	1/07/2008	Not Sure	Opportunistic sighting	Secondary sign	Tracks		Goongarrie	Goongarrie Station, ~90km North of Kalgoorlie	1000	-30.01806414	120.9694158
<i>Falco peregrinus</i>	Peregrine Falcon	BIRD	Specially Protected - Other Specially Protected	OS		10/10/2012	Not Defined				0	C13, Credo Station	C13, Credo Station	0	-30.1917	120.6511
<i>Falco peregrinus</i>	Peregrine Falcon	BIRD	Specially Protected - Other Specially Protected	OS		17/04/2014	Not Defined				0	Credo Station - campsite - house	Credo Station - campsite - house	100	-30.4658	120.8283
<i>Falco peregrinus</i>	Peregrine Falcon	BIRD	Specially Protected - Other Specially Protected	OS		10/01/2013	Not Defined				0	House Dam Credo 5	House Dam Credo 5	100	-30.4678	120.8264
<i>Falco peregrinus</i>	Peregrine Falcon	BIRD	Specially Protected - Other Specially Protected	OS		11/01/2013	Not Defined				0	Ullaring Rock	Ullaring Rock	100	-29.9278	120.5503
<i>Falco peregrinus</i>	Peregrine Falcon	BIRD	Specially Protected - Other Specially Protected	OS		31/03/2002	Not Defined				0	Ullaring Rock	Ullaring Rock	100	-29.9257	120.5511
<i>Jalmenus aridus</i>	Inland Hairstreak Butterfly	INVERTEBRATE	Priority	P2		22/10/2022	Certain	Targeted survey	Day sighting		5	Kanowna	Goldfields Hwy	1000	-30.232367	121.209483
<i>Jalmenus aridus</i>	Inland Hairstreak Butterfly	INVERTEBRATE	Priority	P2		12/10/2021	Very Certain	Survey	Caught or trapped		1	5 km north of Canegrass	Canegrass		-30.13175	121.159806
<i>Jalmenus aridus</i>	Inland Hairstreak Butterfly	INVERTEBRATE	Priority	P2		13/10/2021	Very Certain	Survey	Caught or trapped		1	5 km north of Canegrass	Canegrass		-30.126806	121.161278
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	14/09/2012	Not Defined				0	Siberia	Siberia	100	-30.2403	120.9486
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	21/06/2013	Not Defined				0	Credo	Credo	100	-30.4311	120.7014
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	18/06/2013	Not Defined				0	Roadside	Roadside	100	-30.4114	120.7914
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	7/09/2011	Not Defined				0			30	-29.8794	120.5927
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	7/09/2011	Very Certain	Survey	Sighting		1	ULARRING	Credo Station	30	-29.8794	120.5927
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	26/10/2007	Certain	Opportunistic sighting	Day sighting		1	Menzies	10km North of pub on Davyhurst Road	50000	-29.6928133	121.0380843
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	5/04/2011	Certain	Opportunistic sighting	Day sighting		1		VCL mining company camp 12.9km to the east of the sighting	1000	-30.29252596	120.7778931
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	20/03/2011	Certain	Opportunistic sighting	Day sighting		1		NE Credo Station	1000	-30.11472565	120.2416629
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	25/01/2011	Certain	Opportunistic sighting	Day sighting		2		Hospital Rocks	1000	-29.83675614	120.1311251
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	4/07/2011	Certain	Opportunistic sighting	Day sighting		2			1000	-30.40222642	120.6490883
													Goongarrie Station, approx 5km from Goldfields Hwy heading towards homestead on Goongarrie Access Road			
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	20/12/2011	Certain	Opportunistic sighting	Day sighting		1			1000	-30.02694187	121.1061135
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	1/05/2012	Certain	Targeted survey	Day sighting		1	Orabanda	Ora Banda area.	1000	-30.36350826	121.09041
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	15/10/2012	Certain	Targeted survey	Day sighting		1	Orabanda	Ora Banda area.	1000	-30.3666726	121.0847096
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	15/10/2012	Certain	Targeted survey	Day sighting		1	Orabanda	Ora Banda area.	1000	-30.35554578	121.086955
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	15/10/2012	Certain	Targeted survey	Day sighting		1	Orabanda	Ora Banda area.	1000	-30.36334332	121.0920882

<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	15/10/2012	Certain	Targeted survey	Day sighting			1	Orabanda	Ora Banda area.	1000	-30.36942634	121.0762598
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	15/10/2012	Certain	Targeted survey	Day sighting			1	Orabanda	Ora Banda area.	1000	-30.37008297	121.0742909
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	15/10/2012	Certain	Targeted survey	Day sighting			1	Orabanda	Ora Banda area.	1000	-30.36947026	121.0804726
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	13/03/2014	Certain	Opportunistic sighting	Day sighting			2	Menzies	Goldfields Highway, about 110km north of Kalgoorlie. Just north of Pianto Road	1000	-29.86083316	121.1041145
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	21/01/2014	Certain	Opportunistic sighting	Secondary sign	Mound		0	Ora Banda	North of Siberia Berwick Pit near the corner of exploration lines, immediately to the edge of the east-west track on the south side.	1000	-30.19431491	120.9720594
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	24/01/2014	Certain	Opportunistic sighting	Secondary sign	Mound		0	Ora Banda	south of the former goongorrie steds on existing tracks	1000	-30.19431491	120.9720594
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	4/05/2015	Certain	Opportunistic sighting	Day sighting			1	Ora Banda	Davyhurst St Ora Banda Rd	1000	-30.27469748	120.9739005
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	4/10/2016	Moderately Ce	Opportunistic sighting	Sighting			1	Mount Burges	Traveling route back from Lake Carnage (Coolgardie Nth Rd??), 10km S of Ora Banda	1000	-30.500398	120.937504
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	12/10/2013	Certain	Community survey	Secondary sign	Mound		0	Ora Banda	"Camper Down Area" near old sand open pit mine	1000	-30.203	120.9794
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	12/10/2013	Very Certain	Community survey	Secondary sign	Mound		0	Ora Banda	"Camper Down Area" near old sand open pit mine	1000	-30.20611515	120.9861094
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	14/10/2013	Certain	Community survey	Secondary sign	Mound		0	Ora Banda	"Camper Down Area" near old sand open pit mine	1000	-30.2049	120.986
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	15/10/2013	Very Certain	Community survey	Secondary sign	Mound		0	Ora Banda	"Camper Down Area" near old sand open pit mine	1000	-30.20861267	120.9713923
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	16/10/2013	Moderately Ce	Community survey	Secondary sign	Mound		0	Ora Banda	"Camper Down Area" near old sand open pit mine	1000	-30.22972222	120.9536111
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	3/05/2017	Very Certain	Monitoring	Remote camera			1	Walleroo	W of western boundary of Credo ex-pastoral leade (proposed Conservation Park)	1000	-30.4336	120.6245
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	30/03/1975	Moderately Ce	Opportunistic sighting	Sighting	Mound		2	MENZIES	10 miles South of Menzies	1000	-29.8166	121.0667
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	19/07/1974	Moderately Ce	Opportunistic sighting	Secondary sign	Mound		0	MENZIES	11 miles South of Menzies	1000	-29.8333	121.0833
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	13/08/1967	Moderately Ce	Historical (written)	Secondary sign	Mound		1	MENZIES	11 miles South of Menzies	1000	-29.85865	121.102858
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	24/05/1969	Moderately Ce	Historical (written)	Secondary sign	Mound		0	MENZIES	13 miles South of Menzies	1000	-29.8666	121.0833
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	19/07/1974	Moderately Ce	Opportunistic sighting	Secondary sign	Mound		0	MENZIES	12 miles South of Menzies	1000	-29.85	121.0833
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	7/01/1994	Moderately Ce	Opportunistic sighting	Sighting			2	MENZIES	17 km west of Menzies		-29.71666667	120.8666667
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	5/09/2004	Moderately Ce	Opportunistic sighting	Secondary sign	Mound		0	ORA BANDA	200-300m northwest from the Cave Hill Mine.	300	-30.28046667	120.9175722
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	8/10/2001	Moderately Ce	Opportunistic sighting	Sighting	Mound		1	MENZIES	200m south of Comet Hill on main track from the homestead to Comet Vale		-29.96666667	121.0833333
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	27/09/1990	Moderately Ce	Opportunistic sighting	Sighting			1	ULARRING	29 km east of Menzies		-29.73333333	120.7333333
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	13/05/1964	Moderately Ce	Historical (written)	Sighting	Mound		1	ULARRING	5 miles West North West of Callion	1000	-30.1	120.5
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	1/09/1979	Moderately Ce	Opportunistic sighting	Secondary sign	Mound		0	MENZIES	70 mile peg	10000	-29.8666	121.0833
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	1/01/2016	Moderately Ce	Opportunistic sighting	Secondary sign	Mound		0	ORA BANDA	90 km nth of Kalgoorlie. Mining lease M24/35 WMC Siberia lease	300	-30.22573664	120.9945639
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	30/08/1979	Moderately Ce	Opportunistic sighting	Secondary sign	Mound		0	MENZIES	Comet Vale	10000	-29.9333	121.1167
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	29/03/1975	Moderately Ce	Opportunistic sighting	Secondary sign	Mound		0	MENZIES	Comet Vale	10000	-29.9333	121.1167
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	1/01/1995	Moderately Ce	Opportunistic sighting	Sighting			1	MENZIES	Near intersection of Kalgoorlie Leonora Road and Pianto Road. Approx 25 km sth of Menzies.		-29.86666667	121.1
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	8/07/1993	Moderately Ce	Opportunistic sighting	Secondary sign	Tracks		1	MENZIES	NW corner of Lake Googarrie		-29.91666667	121.1666667
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	1/01/2016	Moderately Ce	Opportunistic sighting	Dead	Feathers		1	ORA BANDA	Ora Banda	10000	-30.3666	121.0667
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	6/09/2017	Certain	Opportunistic sighting	Day sighting			1	Credo	ex-Credo Ucl - Dept Interest	1000	-29.9483	120.4882
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	19/02/2018	Not Sure	Opportunistic sighting	Sighting			1	Ora Banda	Norton Gold field mining lease road	1000	-30.3984	121.1507
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	26/04/2018	Very Certain	Monitoring	Remote camera			1	Walleroo	Approx. 2km W of ex-Credo pastoral lease, Wallaroo	30	-30.43419603	120.6148963

<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	26/11/2007	Certain	Opportunistic sighting			1	Menzies	20km south of Menzies, North Eastern Goldfields	1000	-29.9571	121.1325
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	13/11/2007	Certain	Opportunistic sighting			1	Menzies	Goongarrie Station, 90km N of Kalgoorlie/Menzies Rd	1000	-29.982	121.0447
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	20/03/2007	Certain	Opportunistic sighting			1	Menzies	Riverina Station, menzies	1000	-29.6936	121.0285
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	12/07/2012	Certain	Opportunistic sighting	Day sighting	Tracks	1	Goongarrie	Goongarrie Station - directly north of homestead - road leading to northern boundary	1000	-29.968	121.0449
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	18/04/2012	Certain	Opportunistic sighting	Secondary sign	Mound	0	Menzies	Northern end of Credo Station, beside track running between Davyhurst Rd and Davyhurst-Mulline rd - about halfway along	1000	-29.86833333	120.585
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	1/11/2008	Certain	Opportunistic sighting			1	Ora Banda	near Canegrass	1000	-30.22305556	121.0008333
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	18/10/2008	Certain	Opportunistic sighting	Day sighting		1	Menzies	approx. 25km north of Ora Banda Inn	1000	-30.18364636	120.9746457
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	20/10/2008	Certain	Opportunistic sighting	Day sighting		1	Menzies	approx. 2km west of Goldfields hwy	1000	-29.84788566	121.0865682
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	15/05/2008	Certain	Opportunistic sighting			1	Menzies	track of the Daryhurst Malline Rd on Credo Station	1000	-29.91833333	120.5183333
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	8/06/2008	Certain	Opportunistic sighting			2	Goongarrie	Goongarrie station	1000	-29.978	121.0416
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	11/04/2009	Certain	Opportunistic sighting	Dusk sighting		1	Menzies	Within Goongarrie station boundary, on track beside railway.	10000	-29.97869729	121.1065012
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	27/02/2009	Certain	Opportunistic sighting			1	Menzies	25km S of Menzies on Goldfields Hwy	1000	-29.9244	121.1257
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	10/01/2009	Certain	Opportunistic sighting	Day sighting	Mound	1	Ora Banda	Approx. 6km north of Credo Homestead, 80km north of Coolgardie	1000	-30.46330305	120.7435664
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	19/10/2010	Certain	Opportunistic sighting	Sighting		1	Menzies	1km NE of Goongarrie camp ground, near Comet Vale	10000	-29.95166274	121.0627752
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	12/09/2011	Certain	Opportunistic sighting			2	Menzies	Goldfields Hwy, 20km S of Menzies township	1000	-29.9256	121.1224
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	12/08/2011	Certain	Opportunistic sighting			1	Ullaring	Evanston-Menzies Road, 82km west of Menzies township	10000	-29.85299561	120.3076952
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	18/09/2011	Certain	Survey		Tracks	0	Ora Banda		1000	-30.48430067	121.0127559
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	18/09/2011	Certain	Survey		Tracks	0	Ora Banda		1000	-30.48530722	121.0077773
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	28/06/2013	Certain	Opportunistic sighting	Secondary sign	Mound	0	Ora Banda	In the bush approx 9km West	1000	-30.3755	120.966
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	13/07/2013	Certain	Opportunistic sighting	Dusk sighting		1	Menzies	14km west of Menzies on Evanston-Menzies Road	1000	-29.7163	120.8824
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	3/03/2019	Very Certain	Opportunistic sighting	Day sighting		1	Menzies	Davyhurst Road,	300	-29.97749635	120.6699985
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	21/09/2019	Certain	Opportunistic sighting	Sighting	No other s	1	Goongarrie Station	150m from the station boundary on Davyhurst Goongarrie Road, 90km N of Kalgoorlie	30	-30.0487	120.8268
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	23/01/2020	Very Certain	Opportunistic sighting	Dead	No other s	1	Credo	Davyhurst-Mulline Road approx 400m south of turn-off to Ullaring Soak	30	-29.93688872	120.5411914
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	24/08/2020	Very Certain	Opportunistic sighting	Dead		1	Menzies	Approximately 100km north of Kalgoorlie along the Goldfields Highway.	1000	-30.005694	121.160896
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	24/10/2021	Very Certain	Opportunistic sighting	Dead		1	Ullaring	Davyhurst Ora Banda Road, approximately 500m from Goongarrie Station access road.	1000	-30.22569	120.94278
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	19/10/2022	Very Certain	Opportunistic sighting	Secondary sign	Tracks	1		Unrehabilitated drill line on Mining Lease 24/550 (part of the Cawse Nickel Project)		-30.3308	121.1065
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	27/09/2020	Moderately C	Opportunistic sighting	Day sighting		1	Coolgardie	Coolgardie North rd	10000	-30.4888249	120.8819803
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	3/12/2022	Moderately C	Opportunistic sighting	Sighting		1	Ullaring	Davyhurst-Mulline rd	30	-29.900633	120.531556
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	22/08/2022	Certain	Opportunistic sighting	Sighting		1	Ullaring Soak	on road just south of ullaring soak	1000	-29.9429882	120.5415296

<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	23/04/2023	Moderately Ce	Opportunistic sighting	Dusk sighting			2	Ularring Soak	Davyhurst Mulline rd	1000	-29.9842785	120.5402741
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	26/01/2024	Certain	Opportunistic sighting	Day sighting			1	Mount Burges	Davyhurst-Mulline rd	30	-29.96705828	120.5417139
<i>Leipoa ocellata</i>	Malleefowl	BIRD	Threatened - Vulnerable	VU	VU	2/04/2025	Certain	Opportunistic sighting	Day sighting			2	Menzies	Ora Banda-Davyhurst rd	30	-30.1239	120.8125586
<i>Nyctophilus major tor</i>	Central Long-eared Bat	MAMMAL	Priority	P3		1/12/2007	Certain	Survey	Caught or trapped			2	Goongarrie National Park	Goongarrie National Park	10000	-30.02000225	121.0577362
<i>Ogyris subterrestris petrina</i>	Arid Bronze Azure Butterfly	INVERTEBRATE	Threatened - Critically Endangered	CR	CR	13/10/2021	Very Certain	Survey	Caught or trapped			1	5 km north of Canegrass	Canegrass		-30.127139	121.161
<i>Ogyris subterrestris petrina</i>	Arid Bronze Azure Butterfly	INVERTEBRATE	Threatened - Critically Endangered	CR	CR	13/10/2021	Very Certain	Survey	Caught or trapped			1	5 km north of Canegrass	Canegrass		-30.127306	121.161389
<i>Ogyris subterrestris petrina</i>	Arid Bronze Azure Butterfly	INVERTEBRATE	Threatened - Critically Endangered	CR	CR	13/10/2021	Very Certain	Targeted survey	Caught or trapped			1	Canegrass	5km North of Canegrass	30	-30.127139	121.161
<i>Ogyris subterrestris petrina</i>	Arid Bronze Azure Butterfly	INVERTEBRATE	Threatened - Critically Endangered	CR	CR	13/10/2021	Very Certain	Targeted survey	Caught or trapped			1	Canegrass	5km North of Canegrass	30	-30.127306	121.161389
<i>Ogyris subterrestris petrina</i>	Arid Bronze Azure Butterfly	INVERTEBRATE	Threatened - Critically Endangered	CR	CR	1/01/2022	Certain	Targeted survey	Sighting				Canegrass	80km N of Kalgoortie	30	-30.12901	121.16177
<i>Oxyura australis</i>	Blue-billed Duck	BIRD	Priority	P4		16/07/2014	Not Defined					0	Credo extra 7	Credo extra 7	100	-30.4469	120.8419
<i>Oxyura australis</i>	Blue-billed Duck	BIRD	Priority	P4		13/04/2016	Not Defined					0	Rowles Lagoon	Rowles Lagoon Campsite	0	-30.4267	120.8631
<i>Oxyura australis</i>	Blue-billed Duck	BIRD	Priority	P4		9/10/2015	Not Defined					0	Rowles Lagoon	Rowles Lagoon	500	-30.4661	120.8278
<i>Oxyura australis</i>	Blue-billed Duck	BIRD	Priority	P4		9/10/2015	Not Defined					0	Credo 26	Credo 26	100	-30.4331	120.8631
<i>Oxyura australis</i>	Blue-billed Duck	BIRD	Priority	P4		12/10/2015	Not Defined					0	Credo Station	Credo Station	0	-30.4269	120.8594
<i>Oxyura australis</i>	Blue-billed Duck	BIRD	Priority	P4		25/04/1999	Not Defined					0	Rowles Lagoon	Rowles Lagoon	100	-30.4242	120.8639
<i>Oxyura australis</i>	Blue-billed Duck	BIRD	Priority	P4		30/08/1999	Not Defined					0	Carnage Lake	Carnage Lake	100	-30.4009	120.8737
<i>Oxyura australis</i>	Blue-billed Duck	BIRD	Priority	P4		7/10/1999	Not Defined					0	Rowles Lagoon	Rowles Lagoon	500	-30.432	120.8514
<i>Plegadis falcinellus</i>	Glossy Ibis	BIRD	Specially Protected - Migratory	MI	MI	5/12/1981	Not Defined					0	ORA BANDA	ORA BANDA	18000	-30.4154	120.9181
<i>Pseudomys occidentalis</i>	Western Mouse	MAMMAL	Priority	P4		27/12/2000	WAM Voucher	Collection	Specimen			17			0	-30.2013	120.9742
<i>Tringa glareola</i>	Wood Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	13/09/2017	Not Defined					0	OB39	OB39	0	-30.4367	120.8561
<i>Tringa glareola</i>	Wood Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	12/09/2017	Not Defined					0	OB34A	OB34A	0	-30.4343	120.8594
<i>Tringa glareola</i>	Wood Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	15/09/2017	Not Defined					0	OB95	OB95	0	-30.4335	120.8596
<i>Tringa glareola</i>	Wood Sandpiper	BIRD	Specially Protected - Migratory	MI	MI	6/12/2017	Not Defined					0	Muddy Lake	Muddy Lake	0	-30.4269	120.8314
<i>Tringa nebularia</i>	Common Greenshank	BIRD	Specially Protected - Migratory	MI	MI	10/01/2013	Not Defined					0	House Dam Credo 5	House Dam Credo 5	100	-30.4678	120.8264
<i>Tringa nebularia</i>	Common Greenshank	BIRD	Specially Protected - Migratory	MI	MI	6/12/2017	Not Defined					0	Rowles Lagoon	Rowles Lagoon	0	-30.4335	120.8596



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 29-Sep-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	13
Listed Migratory Species:	7

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	11
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species

[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area	In feature area
PLANT			
Eleocharis papillosa Dwarf Desert Spike-rush [2519]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Myriophyllum lapidicola Chiddarcooping Myriophyllum [55940]	Endangered	Species or species habitat known to occur within area	In buffer area only
Ricinocarpos brevis [82879]	Endangered	Species or species habitat likely to occur within area	In feature area
REPTILE			
Egernia stokesii badia Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink [64483]	Endangered	Species or species habitat may occur within area	In buffer area only
Listed Migratory Species [Resource Information]			
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

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

Commonwealth Land Name	State	Buffer Status
Unknown		
Commonwealth Land - [51750]	WA	In buffer area only

Listed Marine Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat may occur within area overfly marine area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Clear And Muddy Lakes	Nature Reserve	WA	In buffer area only
Credo	NRS Addition - Gazettal in Progress	WA	In feature area
Rowles Lagoon	Conservation Park	WA	In buffer area only
Nationally Important Wetlands			[Resource Information]
Wetland Name		State	Buffer Status
Rowles Lagoon System		WA	In buffer area only
EPBC Act Referrals			[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Comet Vale Sand Project	2023/09460		Assessment	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Ularring Hematite Project, WA	2012/6426	Not Controlled Action	Completed	In buffer area only



Appendix 3: Fauna Habitat Assessment Examples

FAUNA HABITAT ASSESSMENT SHEET										
Location:		OBM - Golden Eagle (Davyhurst) (HA19)								
Survey Dates:		10th September 2025								
Easting:		274729				Northing:		6673896		
Aspect		SW				Soil Texture		Stoney		
Fauna Habitat Type: MIXED EUCALYPTUS WOODLAND						Average Height	Cover (tick)			
Stratum							Scattered Plants	Sparse	Moderate	Thick
Overstorey		E. graffithsii, E. oleosa, E. ewariana				6			✓	
Midstorey		Acacia, Casuarina, Eremophila and Senna				2			✓	
Ground Cover		Mixed hebs and grasses				0.5		✓		
CONDITION						LAST FIRE				
Excellent	Very Good	Good	Degraded	Completely Degraded		<1 year	1-3 Yr	4-5 Yr	>5 Yr	
Notes:										
(general)					(cattle)					
Heavy	Medium	Mild	None	None		Heavy	Medium	Mild	None	
Notes: Mining disturbance - old tracks										
GROUND COVER										
Bare Ground (%)	<5	<20	20-60	60-100		Hummock Grass (%)	<5	<20	20-60	60-100
Rock (%)	<5	<20	20-60	60-100		Other Grass (%)	<5	<20	20-60	60-100
Leaf Litter (%)	<5	<20	20-60	60-100		Herbs (%)	<5	<20	20-60	60-100
Hollow logs (%)	<5	<20	20-60	60-100		Other:(%)	<5	<20	20-60	60-100
MICROHABITATS										
Burrowing Suitability (%)	Rock	Stoney	Sandy Loam	Sand	Peeling Bark	None	Rare	Moderate	Common	
Pebbles Stones (%)	<5	<20	20-60	60-100	Hollows	None	Rare	Moderate	Common	
Exfoliating Slabs (%)	<5	<20	20-60	60-100	Water Prescence	None	Rare	Moderate	Common	
Rock Crevices (%)	<5	<20	20-60	60-100	Distance to Water	>5km	2-5km	500m - 2km	<500m	
Boulders (%)	<5	<20	20-60	60-100	Termite Mounds	None	Rare	Moderate	Common	
Caves	Absent		Present		Woody Debris	None	Rare	Moderate	Common	
Fauna										
Specie Recorded	Singing Honeyeater, Brown Honeyeater and White-eared Honeyeater, Grey Shrike-thrush, Crested Bellbird, Striated Pardalote, Splendid Fairy-wren									
Potential threatened fauna species	Malleefowl, IHB									
Threatened fauna habitat	Suitable Malleefowl foraging habitat. Suitable Malleefowl breeding habitat - only in areas with dense shrub layer, leaf litter for mound construction and in areas where substrate was not too rocky. Suitable habitat for IHB, in terms or Senna, with mixed flowering shrubs including Eremophila and Casuarina									
										

FAUNA HABITAT ASSESSMENT SHEET										
Location:	OBM - Golden Eagle (Davyhurst) (HA12)									
Survey Dates:	10th September 2025									
Easting:	273971				Northing:	6674319				
Aspect	N/A				Soil Texture	Sandy-loam				
Fauna Habitat Type: OPEN EUCALYPTUS WOODLAND					Average Height	Cover (tick)				
Stratum						Scattered Plants	Sparse	Moderate	Thick	
Overstorey	E. salmonophloia, E. salubris					18		✓		
Midstorey										
Ground Cover	Ptilotus				0.5		✓			
CONDITION						LAST FIRE				
Excellent	Very Good	Good	Degraded	Completely Degraded		<1 year	1-3 Yr	4-5 Yr	>5 Yr	
Notes:										
(general)			DISTURBANCE			(cattle)				
Heavy	Medium	Mild	None	None		Heavy	Medium	Mild	None	
Notes: Mining disturbance - old tracks and exploration										
GROUND COVER										
Bare Ground (%)	<5	<20	20-60	60-100		Hummock Grass (%)	<5	<20	20-60	60-100
Rock (%)	<5	<20	20-60	60-100		Other Grass (%)	<5	<20	20-60	60-100
Leaf Litter (%)	<5	<20	20-60	60-100		Herbs (%)	<5	<20	20-60	60-100
Hollow logs (%)	<5	<20	20-60	60-100		Other: (%)	<5	<20	20-60	60-100
MICROHABITATS										
Burrowing Suitability (%)	Rock	Stoney	Sandy Loam	Sand	Peeling Bark	None	Rare	Moderate	Common	
Pebbles Stones (%)	<5	<20	20-60	60-100	Hollows	None	Rare	Moderate	Common	
Exfoliating Slabs (%)	<5	<20	20-60	60-100	Water Prescence	None	Rare	Moderate	Common	
Rock Crevices (%)	<5	<20	20-60	60-100	Distance to Water	>5km	2-5km	500m - 2km	<500m	
Boulders (%)	<5	<20	20-60	60-100	Termite Mounds	None	Rare	Moderate	Common	
Caves	Absent		Present		Woody Debris	None	Rare	Moderate	Common	
Fauna										
Species recorded	Australian Ringneck, Australian Magpie, Grey Currawong									
Potential threatened fauna species	Malleefowl, ABAB									
Threatened fauna habitat	Suitable Malleefowl foraging habitat. Unsuitable Malleefowl breeding habitat, due to a lack of dense shrubland and canopy to provide shelter for mounds. Suitable smooth bark eucalyptus trees for Sugar Ant (for ABAB).									



FAUNA HABITAT ASSESSMENT SHEET										
Location:		OBM - Golden Eagle (Davyhurst) (HA7)								
Survey Dates:		10th September 2025								
Easting:		273249			Northing:		6673713			
Aspect		E			Soil Texture		Sandy-loam			
Fauna Habitat Type: DEGRADED/CLEARED					Average Height	Cover (tick)				
Stratum						Scattered Plants	Sparse	Moderate	Thick	
Overstorey										
Midstorey										
Ground Cover		Mixed weedy hebs and grasses				<0.5			✓	
CONDITION						LAST FIRE				
Excellent	Very Good	Good	Degraded	Completely Degraded		<1 year	1 -3 Yr	4-5 Yr	>5 Yr	
Notes:										
(general)					DISTURBANCE		(cattle)			
Heavy	Moderate	Mild	None			Heavy	Medium	Mild	None	
Notes: Mining and exploration activities, an old townsite, roads and tracks. Cattle, weeds etc										
GROUND COVER										
Bare Ground (%)	<5	<20	20-60	60-100		Hummock Grass (%)	<5	<20	20-60	60-100
Rock (%)	<5	<20	20-60	60-100		Other Grass (%)	<5	<20	20-60	60-100
Leaf Litter (%)	<5	<20	20-60	60-100		Herbs (%)	<5	<20	20-60	60-100
Hollow logs (%)	<5	<20	20-60	60-100		Other: (%)	<5	<20	20-60	60-100
MICROHABITATS										
Burrowing Suitability (%)	Rock	Stoney	Sandy Loam	Sand	Peeling Bark	None	Rare	Moderate	Common	
Pebbles Stones (%)	<5	<20	20-60	60-100	Hollows	None	Rare	Moderate	Common	
Exfoliating Slabs (%)	<5	<20	20-60	60-100	Water Prescence	None	Rare	Moderate	Common	
Rock Crevices (%)	<5	<20	20-60	60-100	Distance to Water	>5km	2-5km	500m - 2km	<500m	
Boulders (%)	<5	<20	20-60	60-100	Termite Mounds	None	Rare	Moderate	Common	
Caves	Absent		Present		Woody Debris	None	Rare	Moderate	Common	
Fauna										
Species recorded	Kestrel (flying overhead)									
Potential threatened fauna species	N/A									
Threatened fauna habitat	Unsuitable habitat for all three threatened target fauna species									
										