



PURPOSE PERMIT AMENDMENT APPLICATION
DUKETON GOLD PROJECT
CPS 10694 - SOUTHERN TENEMENTS

Addition of the M38/262, Palliard's Find Tenement

October 2025

EXECUTIVE SUMMARY

The Duketon Gold Project (DGP) occurs between 50 and 120 km north of Laverton, comprises three processing plants (Moolart Well, Garden Well and Rosemont), which process ore from open pits and underground mines.

Regis Resources Limited (Regis) is seeking to amend Native Vegetation Clearing Permit CPS 10694(1) by 147 ha applying to the southern tenements at the DGP to incorporate mining on the historic Palliard's Find tenement M38/262. Part of M38/262 is already within CPS 10694(1) which hosts a section of the Ben Hur haul road.

Palliard's Find is a legacy tenement held by Regis, which has past workings around the Queen Margaret and Victory prospects. The tenement lies 60 km north of Laverton, 7 km north of Regis' King of Creation mine and 21 km south of the Garden Well processing plant.

Mining on M38/262 is expected to comprise several small pits and waste dumps. To minimise disturbance, it is planned to backfill at least some of the shallow open pits, subject to Geological Survey of Western Australia approval.

Key environmental values present on M38/262 include:

- Five land systems - Bevon, Brooking, Felix, Gransal and Jundee.
- Vegetation mapping is dominated by Acacia dominated vegetation associations, typical of the East Murchison IBRA subregion and Austin Botanical District. Minor vegetation associations include drainage and ridge line associations although these are still Acacia dominated.
- No Threatened or Priority flora have been recorded on M38/262. The Priority flora species *Eremophila pungens* (P4) was recorded at Russell's Find (8 km north) at the time of the Palliard's Find survey (part of the same flora survey).
- Palliard's Find is within the Lake Carey catchment.
- No riparian vegetation occurs in the application area, with the closest being vegetation association D2 which is a Mulga community associated with red clay soils in minor drainage lines.
- No Threatened Ecological Communities or Priority Ecological Communities are present in M38/262.
- There is one broad fauna habitat across M38/262, sparse open Mulga woodland. Within this habitat are areas of cleared or degraded land from past mining or cattle grazing and four small ridges.
- Conservation significant avian species Princess Parrot, Southern Whiteface, Fork-tailed Swift and Peregrine Falcon may infrequently be seen in the application area similar to the remainder of the DGP.

Environmental management of potential impacts are discussed in Section 4 based on existing site controls.

An assessment has been made of the application areas against the ten Clearing Principles which are presented on the next page.

Table ES.1 Assessment of Proposal Against the Ten Clearing Principles

Clearing Principle	Assessment	Discussion
1. Native vegetation should not be cleared if it comprises a high level of biological diversity	Proposal is not at variance to this principle	Comparison of aerial photography of the survey area and surrounding areas suggests the area under application is typical of the vegetation throughout the region. Cowan (2001) states that the Eastern Murchison subregion is rich and diverse in both flora and fauna. However, most species are wide ranging and usually occur in at least one, and often several, adjoining sub regions. Additionally, Beard states the Murchison is essentially the Mulga region of Western Australia and those conditions within the Murchison region favour Mulga more generally than in any other part of Western Australia. The application area does not have a high level of biodiversity and is well represented within the local and broader region.
2. 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.	Proposal is not at variance to this principle	Although proposed clearing areas will comprise habitat that may be suitable for fauna indigenous to Western Australia, from a regional context, the vegetation associations within the project area are well represented within the broader region. Terrestrial Ecosystems have identified the conservation significant fauna with the greatest likelihood occurring (on the basis of occasional, infrequent or potential presence) are avifauna including Peregrine Falcon, Southern Whiteface, Fork-tailed Swift and Princess Parrot.
3. Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, Threatened flora.	Proposal is not at variance to this principle	No Threatened flora species pursuant to section 19 of the <i>Biodiversity Conservation Act</i> , or pursuant to section 179 of the EPBC Act were recorded near the application area by Mattiske Consulting Pty (2023). On a wider scale, no Threatened flora has been recorded throughout the Duketon Gold Project despite numerous surveys by experienced botanists from Mattiske Consulting Pty Ltd (2009 to 2023).
4. Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a Threatened Ecological Community.	Proposal is not at variance to this principle	No Threatened Ecological Communities have been recorded near the application area. The closest is 28 km to the southwest of Palliard's Find.
5. Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	Proposal is not at variance to this principle	The application area is not considered significant as extensive areas nearby and within the project area remain uncleared. Surveys conducted by Mattiske Consulting Pty Ltd have identified the application area as typical of vegetation throughout the region. The application area forms part of a pastoral station where grazing has already occurred in various densities.

Clearing Principle	Assessment	Discussion
6. Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Proposal is unlikely to be at variance to this principle	Minor ephemeral drainage lines exist within the application area including Kirkpatrick Creek. Flow only occurs after heavy rainfall events, particularly cyclonic rain and hence are unlikely to be at variance with this principle. These channels remain dry for most of the year. No wetlands exist within the application area, with the closest being Mappa Lake, a small 7 ha lake some 21 km northeast of M38/262.
7. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Proposal is not at variance to this principle	With the exception of previously cleared areas, their immediate surrounds and legacy impacts from past mining and pastoral grazing activities, the vegetation across M38/262 is predominantly “Good” condition, with a smaller area in the northwestern corner of the tenement being Very Good” (using the criteria of Keighery 1994).
8. 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.	Proposal is not at variance to this principle	The Laverton Water Reserve and Catchment Area is the closest reserve to the application area which lies approximately 36 km south southeast of M38/262. No impacts on the environmental values of the reserve will occur from clearing in the application area due to the distance from the proposed activities.
9. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface and underground water.	Proposal is unlikely to be at variance to this principle	Vegetation associations that occur on minor ephemeral drainage lines within the application area receive sporadic, surface water flows following the remnants of cyclones or thunderstorms, which is itself often of poor quality (as in TSS) due to high intensity of rainfall. Impacts from proposed clearing activities should seek to minimise incremental suspended solids adding to high intensity runoff.
10. Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	Proposal is not at variance to this principle	M38/262 occurs in the upper (albeit flat) catchment of Kirkpatrick Creek. The application area occurs on flat landscape with gentle gradients where flooding occurs following sporadic heavy rainfall, typically from cyclonic systems.

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1. INTRODUCTION

1.1 Project Overview

Regis Resources Limited (Regis) is an Australian mineral exploration and gold mining company with major land holdings in the Northeastern Goldfields of Western Australia. Its Duketon Gold Project (DGP) occurs between 70 km and 115 km north of Laverton (Figure 1). The DGP comprises three processing plants (Moolart Well, Garden Well and Rosemont), which process ore from several pits and underground mines across Regis' Duketon tenement package.

In 2024, Regis established clearing permit CPS 10694 applying to the southern tenements of the DGP for new disturbance relating to Ben Hur/King of Creation and Russell's Find/Reichelt's Find.

This application seeks to amend CPS 10694 by increasing the disturbance allocation by 147 ha to enable mining to occur on the Palliard's Find tenement (M38/262). This will bring the total approved disturbance allowance under CPS 10694 to 759 ha within an overall envelope of 17,782 ha.

Table 1 and Figure 2 present tenements on CPS 10694.

Table 1: Tenements in CPS 10694

Tenement	Tenement Holder
L38/20	Duketon Resources Pty Ltd, Regis Resources Limited
L38/202	Regis Resources Limited
L38/203	Regis Resources Limited
L38/206	Regis Resources Limited
L38/234	Regis Resources Limited
L38/364	Regis Resources Limited
L38/365	Regis Resources Limited
M38/114	Duketon Resources Pty Ltd, Regis Resources Limited
M38/160	Regis Resources Limited
M38/262	Duketon Resources Pty Ltd, Regis Resources Limited
M38/341	Duketon Resources Pty Ltd, Regis Resources Limited
M38/630	Duketon Resources Pty Ltd, Regis Resources Limited
M38/1297	Regis Resources Limited
M38/1304	Regis Resources Limited

1.2 Statutory Requirements

This application does not trigger items listed under the Memorandum of Understanding between the Environmental Protection Authority (EPA) and Department of Mines, Petroleum and Exploration (DMPE). Based on previously approved Mining Proposals and Native Vegetation Clearing Permits (NVCP) in the immediate region and considering the scope, location and environmental setting of the proposal, the proposed clearing and impacts can be adequately managed under the *Mining Act* and *Environmental Protection (Clearing of Native Vegetation) Regulations*.

This document addresses activities within the disturbance envelope, including the ten principles for clearing of native vegetation as set out in Schedule 5 of the *Environmental Protection Act* and is to be read in conjunction with the completed application for a new clearing permit.

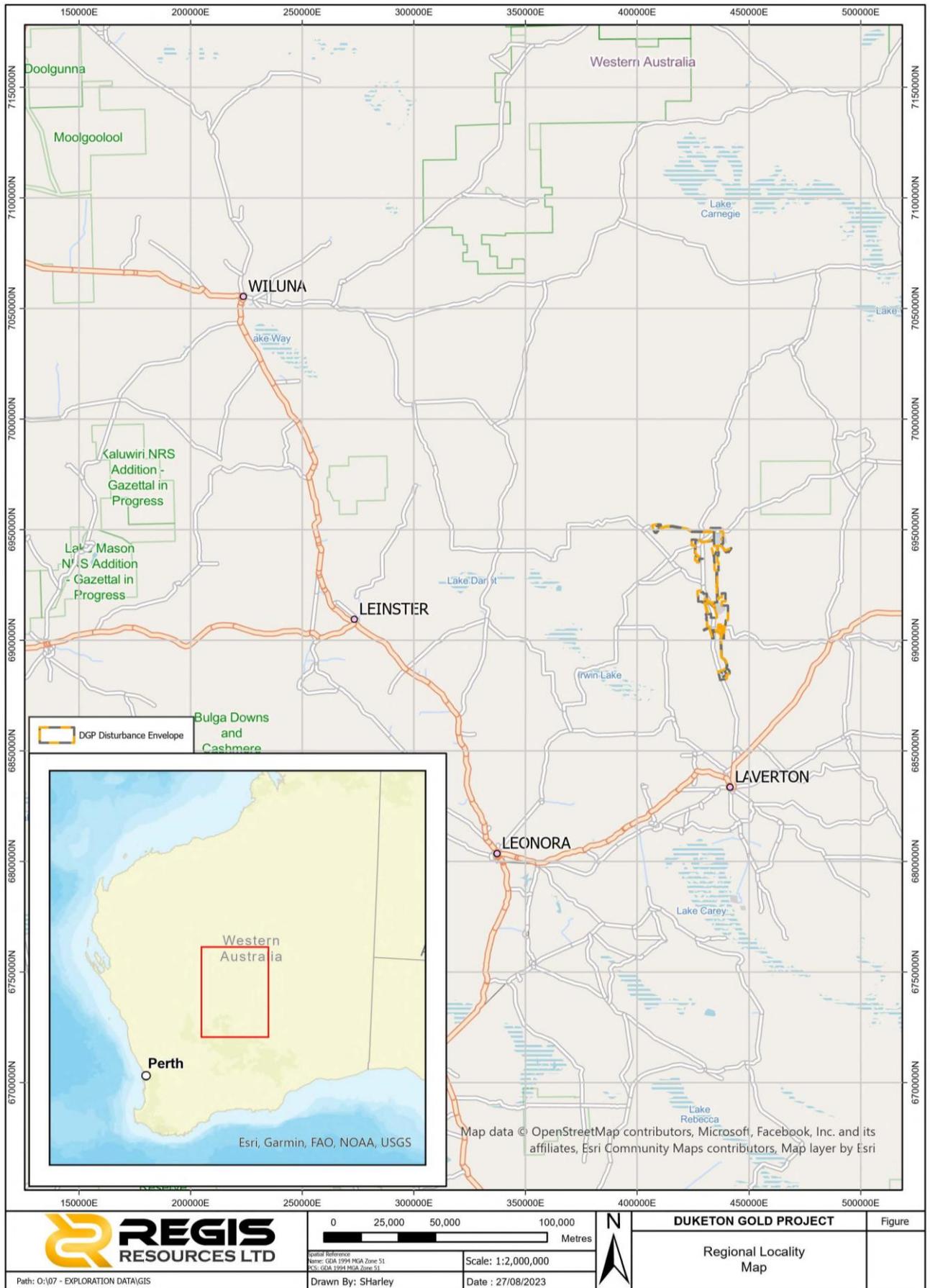


Figure 1: Duketon Gold Project Regional Location

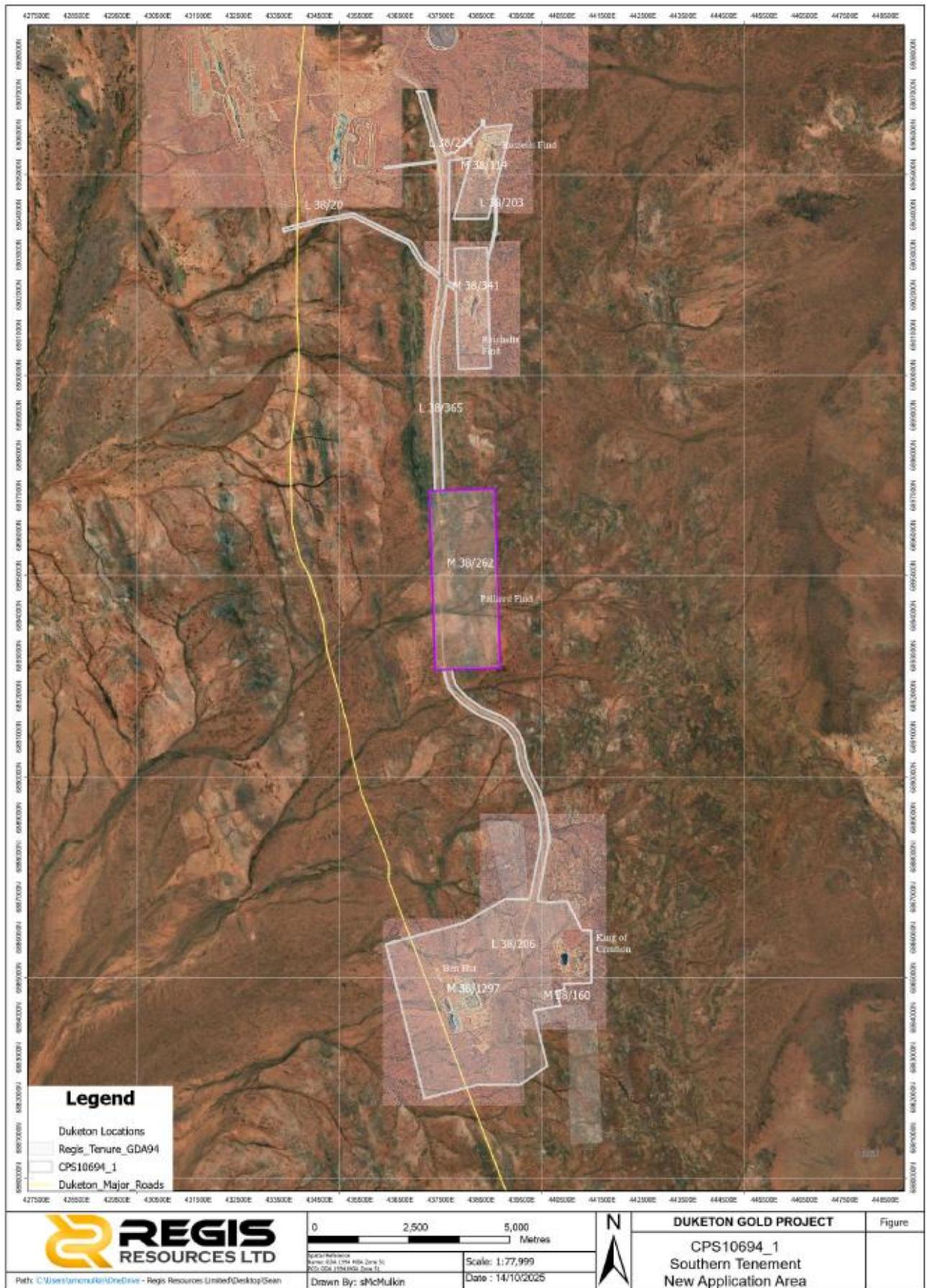


Figure 2: Updated Application Area for CPS 10694

2. PROJECT DESCRIPTION

2.1 Previous Activities

Whilst Regis has conducted mining at the DGP since 2010, earlier phases of mining have been undertaken by previous operators. Previous activities relevant to this application are described below.

Activities at Palliard's Find date back to 1898 with numerous shafts excavated. Sporadic activities have occurred on M38/262 until the first modern exploration was conducted by Delta Gold between 1983 and 1985. Since acquiring the legacy tenement, Regis has conducted exploration across Palliard's Find. On the western side of the tenement lies the Ben Hur haul road which was constructed in 2023.

2.2 Project Description for this Amendment

2.2.1 Location

M38/262 (Palliard's Find) is an elongated tenement 60 km north of Laverton, 7 km north of Regis' King of Creation mine and 21 km south of Regis Garden Well mine. On the western margin of the tenement is the Ben Hur haul road linking Ben Hur and King of Creation to Garden Well which is the processing centre for Duketon South Operations.

2.2.2 Description of Changes

Regis plans to conduct mining on M38/262 through a series of small open pits with associated waste dumps. Ore will be hauled via the existing Ben Hur haul road to the Garden Well processing plant. Thus, the planned disturbance is incremental without needing to incur additional processing and tailings infrastructure. Part of the project coincides with previous disturbance of old shafts and exploration disturbance.

Regis also plans to backfill some of the pits (subject to Geological Survey of Western Australia consent), to reduce the extent of waste dumps.

2.2.3 Rehabilitation

Management procedures have been developed for rehabilitation of disturbed areas and are outlined in Section 4. The most recently submitted Mine Closure plan for the Duketon Gold Project was approved by the then Department of Energy, Mines, Industry regulation and Safety in December 2024.

Regis has an active programme to rehabilitate areas once mining activities have been completed, having completed approximately 200 ha of rehabilitation across the DGP over the past year.

2.2.4 Clearing Under Existing CPS 10694/1

The Annual Report for CPS 10694/1 was recently submitted. For the reporting year ended 30 June 2025, 120.04 ha was cleared (Table 2). All disturbance during the year occurred at Ben Hur / King of Creation. The full Annual Report for CPS 10694/1 is provided in Appendix

Table 2: Clearing Undertaken Under CPS 10694 as at 30 June 2025

Mine operation		Monthly Disturbance (ha)												Total
Areas	Tenement	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Disturbance (ha)
Ben Hur, King of Creation and Ben Hur Haul Rd	M 38/1297									5.35	0.23			5.58
	L 38/206													0
	L 38/365													0
	M 38/160								1.37	31.28	41.68	0.09	0.14	74.56
	M 38/1304								16.32	0.52	20.22	2.84		39.9
Queen Margaret	M 38/262													0
Reichel's Find	M 38/341													0
	L 38/20													0
Russell's Find	M 38/114													0
	M 38/630													0
	L 38/202													0
	L 38/203													0
	L 38/234													0
	L 38/364													0
TOTAL		0	0	0	0	0	0	0	17.69	37.15	62.13	2.93	0.14	120.04
Total Year to Date (Cumulative)		0	0	0	0	0	0	0	17.69	54.84	116.97	119.9	120.04	

3. REGIONAL ENVIRONMENTAL SETTING

3.1 Natural Environment

The DGP is located in the Murchison biogeographic region (bioregion) of the Interim Biogeographic Regionalisation for Australia (IBRA). The Murchison bioregion is subdivided into the East Murchison (MUR 1) and West Murchison (MUR 2) subregions.

The DGP is located in MUR 1 containing the northern parts of the Southern Cross and Eastern Goldfields' terrains of the Yilgarn Craton. The subregion is characterised by expansive elevated red desert sandplains with minimal dune development, internal drainage and salt lakes, which are associated with the occluded palaeodrainage system. Red- brown soils dominate the terrain forming broad plains and breakaway complexes. Vegetation of this region typically consists of Mulga Woodlands rich in ephemeral grass and shrub communities, specifically, hummock grasslands, saltbush shrublands and *Halosarcia* shrublands (Cowan, 2001).

3.2 Climate

The climatic region within which the DGP is located is classified as desert, being described as arid, with rainfall averaging less than 250 mm a year (Beard, 1990). Rainfall occurs over summer and winter months and is sporadic with no month being reliably wet or dry (Beard, 1990).

The nearest meteorological station is located at Laverton. The average monthly maximum and minimum temperatures and the average monthly rainfall recorded for Laverton are shown on Figure 3.

The mean maximum monthly temperature at Laverton ranges from 17.8 °C in July to 35.8 °C in January, with the median precipitation being 215 mm per year (Bureau of Meteorology, BoM, 2025). The mean number of rain days receiving >1 mm for Laverton is 30 per year.

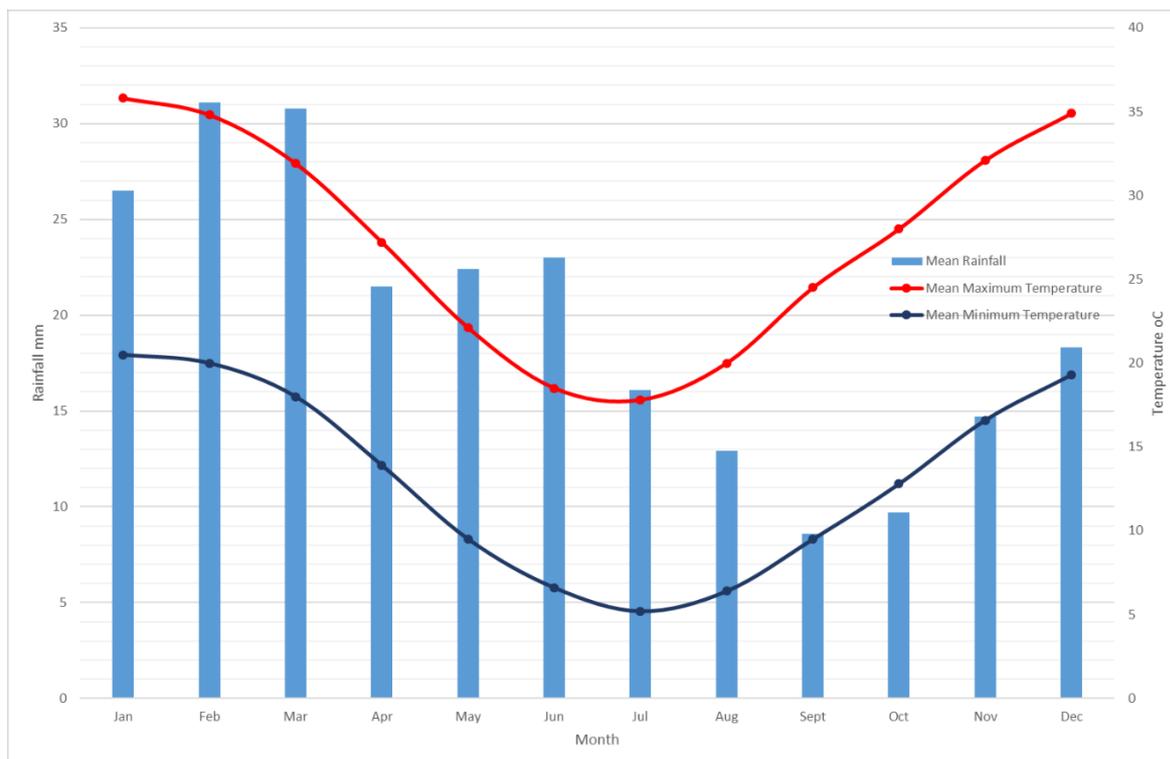


Figure 3: Mean Maximum and Minimum Temperatures and Rainfall at Laverton

3.3 Geology, Soils and Topography

The Eastern Goldfields region is underlain by rocks of the Yilgarn Craton which are mostly Archaean granitic rocks, often intruded by quartz veins and dolerite dykes. Areas of Archaean migmatite and gneiss are associated with Archaean greenstone belts, which contain a mix of metamorphosed mafic-ultramafic and felsic volcanics and metasediments. The Archaean bedrock has been extensively weathered and is often covered by Tertiary and Quaternary alluvial, colluvial and Aeolian deposits (Beard 1990; Tille 2006).

Topographically, it comprises undulating low hills and extensive sandplains in the eastern half. Soils are predominantly shallow earthy loam overlying red-brown hardpan; shallow stony loams on hills and red earthy sands on the plains (Beard, 1990).

In more recent times, mapping of soils and landscapes has become available at a greater level of detail. The Department of Primary Industries and Regional Development (DPIRD), in its "Soil-landscapes of Western Australia's Rangelands and Arid Interior" (Tille, 2006), describes a range of soil-landscape mapping units. The project falls within the Salinaland Plains Zone of the Murchison Province (Mattiske Consulting Pty Ltd, 2023). The Salinaland Plains Zone is characterised by:

- Sandplains (with hardpan wash plains and some mesas, stony plains and salt lakes) on granitic rocks (and some greenstone) of the Yilgarn Craton.
- Red sandy earths, red deep sands, red shallow loams and red loamy earths with some red-brown hardpan shallow loams, saltlake soils and red shallow sandy duplexes.
- Mulga shrublands with spinifex grasslands (and some halophytic shrublands and eucalypt woodlands).

3.4 Land Systems

The Austin Botanical District is the largest of the Eremaean regions and is essentially Mulga woodlands associated with red loams over siliceous hardpans on the plains reducing to scrub on the rises and hills (Pringle *et al.*, 1994). This botanical district is also comprised of Mulga and *Eremophila* shrublands which dominate on stony plains and chenopod communities are more often associated with duplex soils (Pringle *et al.*, 1994).

Land system mapping of the north eastern Goldfields, including the survey area has been prepared by DPIRD (Pringle *et al.*, 1994). This mapping sought to define the topographic characteristics of the north eastern Goldfields. Land systems are grouped into land types according to a combination of landforms, soils, vegetation and drainage patterns. Pringle *et al.* (1994) found that boundaries between plant communities are often sharp and mostly associated with boundaries between landforms and their soils along the slope of the land. Greater diversity in plant communities is often found higher in the landscape where differential weathering and erosion occurs across slope.

M38/262 coincides with the Brooking, Bevon, Felix, Gransal, Jundee and Nubev land systems. These land systems are summarised in Table 3 within the context land systems spread across mine sites at the DGP.

Land System	Land System Description	Moolart Well	Anchor	Coopers / Dogbolter	Petra	Rosemont	Baneygo	Garden Well	Toohays Well / Beamish	Erlistoun	King John	BRT Trend	Palliards Find
Ararak system	Broad plains with mantles of ironstone gravel supporting mulga shrublands with wanderrie grasses												
Bevon system	Irregular low ironstone hills with stony lower slopes supporting mulga shrublands												
Brooking system	Prominent ridges of banded iron formation supporting mulga shrublands and occasional minor halophytic communities												
Cunyu system	Calcrete platforms, intervening drainage floors and channels and minor alluvial plains, supporting acacia shrublands, occasional casuarina woodlands and minor halophytic shrublands												
Felix system	Gently undulating plains with quartz mantles, supporting acacia-eremophila shrublands locally with wanderrie grasses												
Gransal	Stony plains and low rises based on granite supporting mainly halophytic low shrublands												
Hootanui system	Breakaways, hills and ridges with saline gravelly and stony lower plains supporting scattered halophytic low shrublands												
Jundee system	Hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands												
Nubev system	Gently undulating stony plains, minor limonitic low rises and drainage floors supporting mulga and halophytic shrublands												
Steer system	Gravelly alluvial plains supporting chenopod shrublands												
Teutonic system	Hills and stony plains on acid volcanic rocks supporting acacia shrublands												
Tiger system	Gravelly hardpan plains and sandy banks with mulga shrublands and wanderrie grasses												
Violet system	Gently undulating gravelly plains on greenstone, laterite and hardpan, with low stony rises and minor saline plains; supporting groved mulga and bowgada shrublands and occasionally chenopod shrublands												

Table 3: Land Systems Associated Project Areas Across the Duketon Gold Project

3.5 Surface Water

The Duketon Gold Project is located within the internally draining Salt Lake Basin (~441,000 km²), which extends across much of central Western Australia. The Salt Lake Basin comprises several large and broad sub-parallel southeast trending Salt Lake drainage systems which extend from a regional divide to the west of Wiluna/Sandstone and drain to either Ponton Creek (Raeside and Rebecca system) or terminate at the edge of sand plains (Carey/Minigwal system).

All tenements within CPS 10694 are within the Lake Carey catchment. There are no significant river systems or Ramsar sites within the envelope of CPS 10694.

Minor ephemeral drainage lines are scattered across the landscape of which specific to M38/262 Kirkpatrick Creek is the only named creek. These minor ephemeral drainage lines primarily occur in an east-west direction and only briefly flow after substantial rainfall events such as the remnants of cyclones and thunderstorms.

3.6 Vegetation and Flora

The primary flora and vegetation survey for the application area is *Detailed Flora and Vegetation Assessment Palliard's Find, Budgerigar and Russells Find South Project Areas* (Mattiske Consulting Pty Ltd 2023). As noted earlier, part of M38/262 already exists within CPS10964 which relates to the Ben Hur haul road.

3.6.1 Threatened and Priority Flora

No Threatened flora species pursuant to section 19 of the *Biodiversity Conservation Act* and as listed by the Department of Biodiversity, Conservation and Attractions (DBCA 2025), or pursuant to section 179 of the EPBC Act or listed by the Department of Climate Change, Energy, the Environment and Water, have been recorded at the DGP.

From past flora and vegetation studies of mining project areas across the DGP, five Priority flora species have been recorded (Table 4), of which none were recorded at Palliard's Find. The closest reported Priority flora have been *Calytrix praecipua* to the south of King of Creation (and outside of the development envelope of CPS10964) and *Eremophila pungens*, *Lysiandra baeckoides* and *Calytrix praecipua* at Russell's Find.

Table 4: Records of Priority Flora Recorded Across the Duketon Gold Project

Family	Species	Priority	No. of Locations
Chenopodiaceae	<i>Einadia nutans</i> subsp. <i>nutans</i>	P3	2
Frankeniaceae	<i>Frankenia georgei</i>	P1	7
Myrtaceae	<i>Calytrix praecipua</i>	P3	2
Phyllanthaceae	<i>Lysiandra baeckeoides</i>	P3	6
Scrophulariaceae	<i>Eremophila pungens</i>	P4	165

3.6.2 Vegetation Associations

Vegetation associations at Palliard's Find have been mapped in accordance with the structural forms of vegetation described by Beard (1990). The nine vegetation associations mapped are primarily dominated by *Mulga/Acacia* species (Table 5, Figure 3).

Table 5: Vegetation Associations at Palliard's Find

Vegetation Association Code	Description	Mapped Area (ha)
A1	Acacia section Juliflorae (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) and <i>Acacia quadrimarginea</i> tall- open shrubland, over mid-sparse shrubland of <i>Psyrax rigidula</i> , <i>Senna artemisioides</i> , and <i>Acacia tetragonophylla</i> over low sparse shrubland of <i>Frankenia fecunda</i> , <i>Ptilotus obovatus</i> , and <i>Ptilotus schwartzii</i> on undulating red clay flats with ironstone and quartz pebbling	40.787
A3	Acacia section Juliflorae (<i>Acacia aneura</i> , <i>Acacia aptaneura</i> , and <i>Acacia caesaneura</i>) and <i>Acacia oswaldii</i> tall-open shrubland over mid-sparse shrubland of <i>Acacia tetragonophylla</i> , <i>Acacia craspedocarpa</i> , and <i>Psyrax suaveolens</i> over low-sparse shrubland of <i>Sida ectogama</i> , <i>Ptilotus obovatus</i> , and <i>Cheilanthes sieberi</i> on undulating red clay flats with ironstone and quartz pebbling	125.507
A5	Acacia section Juliflorae (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) and <i>Acacia quadrimarginea</i> tall- open shrubland over mid-sparse shrubland of <i>Acacia tetragonophylla</i> , <i>Senna artemisioides</i> , and <i>Psyrax suaveolens</i> over low-sparse shrubland of <i>Sida ectogama</i> , <i>Ptilotus obovatus</i> , and <i>Cheilanthes sieberi</i> on undulating red clay flats with ironstone and quartz pebbling	81.980
A7	Acacia section Juliflorae (<i>Acacia aptaneura</i>) tall-sparse shrubland over mid-sparse shrubland of <i>Senna artemisioides</i> , <i>Psyrax suaveolens</i> , and <i>Eremophila galeata</i> over low-sparse shrubland of <i>Ptilotus obovatus</i> , <i>Sida ectogama</i> , and <i>Cheilanthes sieberi</i> on undulating red clay flats with ironstone and quartz pebbling	5.642
A8	Acacia section Juliflorae (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) tall-sparse shrubland over mid- sparse shrubland of <i>Acacia tetragonophylla</i> , <i>Senna artemisioides</i> , and <i>Acacia craspedocarpa</i> over low-sparse shrubland of <i>Sida ectogama</i> , <i>Ptilotus obovatus</i> , and <i>Rhagodia eremaea</i> on undulating red clay flats with ironstone and quartz pebbling	131.604
A10	Acacia section Juliflorae (<i>Acacia aneura</i> , <i>Acacia aptaneura</i> and <i>Acacia incurvaneura</i>) tall-sparse shrubland over mid-sparse shrubland of <i>Eremophila latrobei</i> and <i>Psyrax suaveolens</i> over low- sparse tussock grassland of <i>Eriachne mucronata</i> , <i>Eragrostis eriopoda</i> , and <i>Ptilotus obovatus</i> on undulating red clay flats with ironstone and quartz pebbling	53.847
C5	Acacia section Juliflorae (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) tall-sparse shrubland over mid- sparse shrubland of <i>Hakea preissii</i> , <i>Senna artemisioides</i> , and <i>Eremophila platycalyx</i> over low- sparse chenopod shrubland of <i>Maireana triptera</i> , <i>Sclerolaena eriacantha</i> , and <i>Maireana pyramidata</i> on undulating red-orange, sandy-clay flats with quartz pebbling	104.205
D2	Acacia section Juliflorae (<i>Acacia aneura</i> , <i>Acacia aptaneura</i> , and <i>Acacia caesaneura</i>) and <i>Acacia craspedocarpa</i> tall-open shrubland over mid-open shrubland of <i>Acacia burkittii</i> , <i>Acacia tetragonophylla</i> , and <i>Senna artemisioides</i> over low-open shrubland of <i>Sida ectogama</i> , <i>Cheilanthes sieberi</i> , and <i>Solanum lasiophyllum</i> on red clay soils in minor drainage lines	63.902
R1	Acacia section Juliflorae (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) and <i>Acacia oswaldii</i> tall-sparse shrubland over mid-sparse shrubland of <i>Senna artemisioides</i> and <i>Acacia tetragonophylla</i> over low sparse shrubland of <i>Ptilotus obovatus</i> on skeletal red clay soil on ironstone ridgelines	18.892

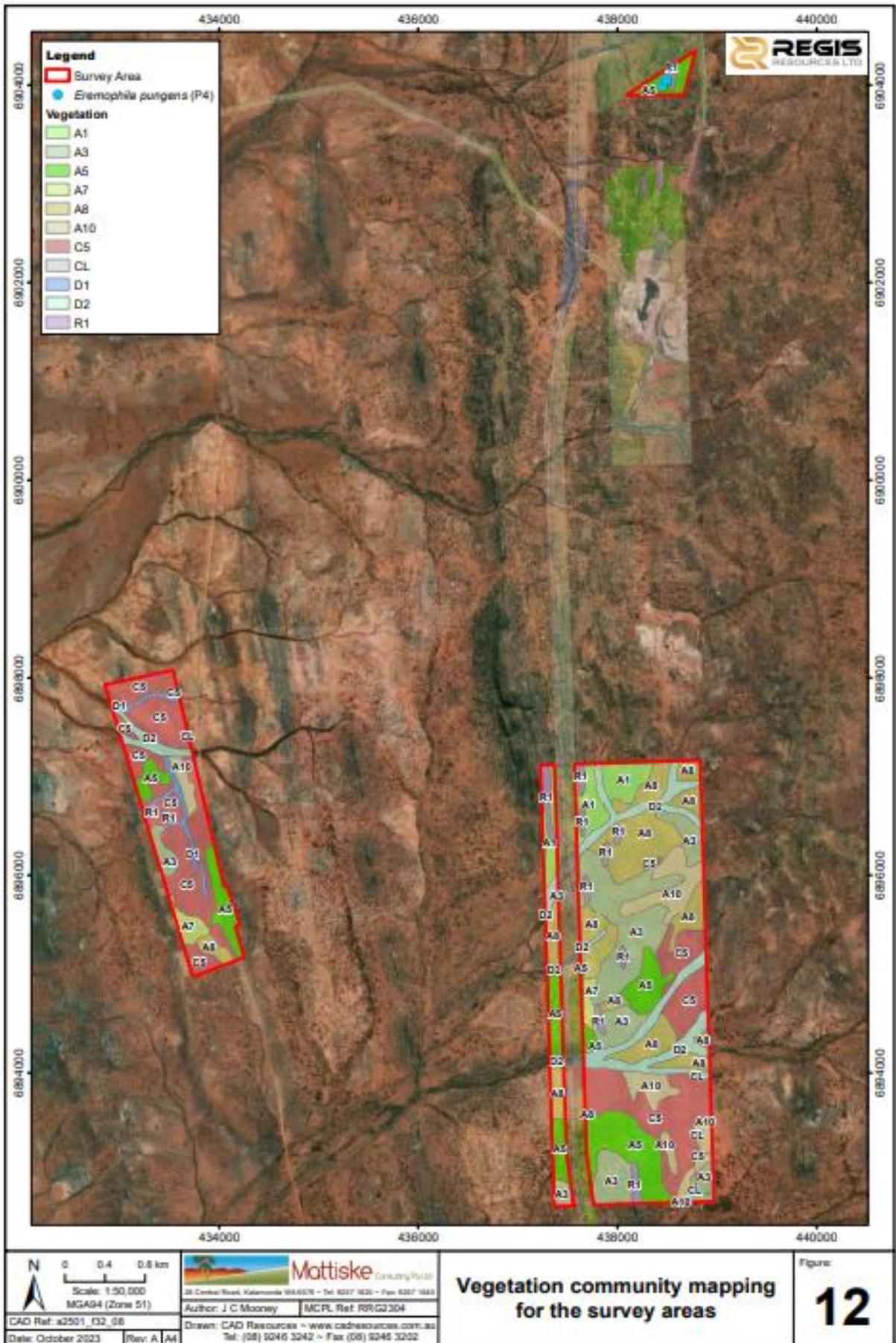


Figure 4: Vegetation Associations Recorded at Palliard's Find (Bottom Right Area)

3.6.3 Wetlands and Riparian Vegetation

Ephemeral drainage lines occur across the DGP landscape, which typically only flow after sustained heavy rainfall such as remnants of ex-tropical cyclones. Nearly all creeks are unnamed although Kirkpatrick Creek occurs within M38/262. No wetlands exist within the application area, with the closest being Mappa Lake a small 7 ha lake some 21 km northeast of M38/262.

The closest vegetation associations to “riparian vegetation” in M38/262 is the D2 vegetation association which is described as *Acacia* section Juliflorae (*Acacia aneura*, *Acacia aptaneura*, and *Acacia caesaneura*) and *Acacia craspedocarpa* tall-open shrubland over mid-open shrubland of *Acacia burkittii*, *Acacia tetragonophylla*, and *Senna artemisioides* over low-open shrubland of *Sida ectogama*, *Cheilanthes sieberi*, and *Solanum lasiophyllum* on red clay soils in minor drainage lines.

3.6.4 Threatened Ecological Communities

No Threatened Ecological Communities (TECs), pursuant to Schedule 1 of the *Biodiversity Conservation Act 2016* and as listed by the DBCA has been recorded either within the M38/262 or previously surveyed areas at the DGP. Similarly, no Priority Ecological Communities (PECs) exist in any of the project survey areas. The closest PEC to Palliard’s Find is ~28 km to the southwest of M38/262.

3.7 Vertebrate Fauna

Regis has commissioned Terrestrial Ecosystems (2023), to conduct a fauna survey for the project area. Terrestrial Ecosystems noted that the survey area contained a single fauna habitat of sparsely vegetated open Mulga woodland. It was noted that within the habitat large sections of the project area are sparsely vegetated with many patches of bare ground and with areas degraded by historical exploration and cattle grazing. Within the single fauna habitat was mapping of cleared areas and five small rocky outcrops. None of which was sufficient to support populations of Long-tailed Dunnarts. A substantial rocky outcrop starts adjacent to the northwestern corner of M38/262.

3.7.1 Conservation Significant Species Potentially Present

From the fauna assessment reports, Table 6 identifies conservation significant species assessed to have some potential to be present (Terrestrial Ecosystems 2023).

Table 6: Current Conservation Significant Species Potentially Present in at Palliard's Find

Species	Conservation Significance	Palliard's Find Survey Area
Malleefowl	BC Act Vulnerable; EPBC Act Vulnerable	Very low probability of being present in the project area, as tracks for a single individual was recorded in recent Regis surveys (50km north west)
Princess Parrot	BC Act Vulnerable EPBC Act Vulnerable	May occasionally be seen in the region
Southern Whiteface	BC Act Vulnerable EPBC Act Vulnerable	No nesting sites Identified during survey, may occasionally be seen in wider Duketon Area, but it will readily move, so any impacts are unlikely to be significant
Fork-tailed Swift	BC Act Migratory EPBC Act Migratory	May infrequently be seen flying in the region
Peregrine Falcon	BC Act Other Specially Protected	May occasionally be seen in the region
Long-tailed Dunnart	DBCA – Priority 4	Very low probability of being present in the rocky outcrop areas, as a single individual was caught in the recent Regis surveys (50km northwest). The rocky outcropping in the project area appear too small to support a population of Long-tailed Dunnarts

4. PROJECT IMPACTS AND MANAGEMENT

4.1 Approach to Environmental Management

Regis is committed to fulfilling its social and regulatory environmental responsibility. The company plans its mining activities to avoid or minimise impacts to environmental values.

Areas have been reviewed and assessed for potential impacts on the surrounding environment and Aboriginal heritage values.

Development activities will result in the direct loss of native vegetation through clearing. There is also potential for indirect losses from dust, competition from weeds, inadequate topsoil stripping and management and poor machinery control during rehabilitation.

Clearing of native vegetation can also directly affect fauna, for example as a result of deaths caused during clearing operations, and through the loss of habitat.

Management controls addressing each of these aspects are identified in the following sections.

4.2 Land Clearing

This amendment application applies for 147 ha of new vegetation disturbance on M38/262. This will result in direct loss of vegetation, requiring removal of topsoil from disturbance areas.

Objectives

- Avoid clearing of native vegetation wherever possible.
- Limit clearing of native vegetation to approved areas.
- Undertake activities in a manner to minimise adverse impacts to vegetation.
- Strip and stockpile topsoil for use in rehabilitation.

Management Controls

Management controls that relate specifically to land clearing are detailed below:

- Clearing is managed by Regis via an internal clearing permit system. As part of the clearing permit system, proposed activities are checked against flora and fauna values, Priority flora locations, Aboriginal heritage, tenure, Mining Proposal / Mine Development and Closure Proposal footprints.
- Inductions cover the importance of minimising vegetation clearing and disturbance.
- Areas to be cleared will be delineated on project drawings and defined in the field by survey using coloured flagging to indicate the extent of authorised clearing. The site representative, work area supervisor and equipment operator will walk the area to be cleared prior to the commencement of clearing. Conspicuous flagging will be used to identify clearing boundaries.
- Personnel involved in clearing activities will be informed about avoidance areas (flora, fauna, heritage areas and other features) and the conditions that apply to each area. All employees will be competent in managing potential risks to these sensitive areas.

- The Survey Department undertake monthly reconciliations of:
 - Area of land cleared in the past month.
 - Progressive total area of land cleared.
 - Locations of topsoil stockpiles.

The reconciled data is used for record keeping including annual reports for clearing permits.

4.3 Flora

No Threatened or Priority flora have been identified within M38/262. However, it is acknowledged Priority flora species have been recorded within 15 km to the north and south of the application area.

The following measures are designed to minimise adverse impacts on flora and vegetation within the project area and surrounds.

Objectives

- Avoid impacts to native vegetation wherever possible.
- Limit disturbance of native vegetation to those areas necessary.
- Mitigate impacts to native vegetation.
- Rehabilitate disturbance areas as soon as practicable.

Management Controls

Management controls that relate specifically to flora are detailed below:

- Internal clearing permits are developed, assessed and approved before clearing can commence (as described in section 4.1.2).
- Vegetation clearing will be minimised, with preferential use of previously disturbed or degraded areas where possible.
- Progressive rehabilitation will be undertaken as soon as practicable.
- Priority Flora locations near vegetation disturbance footprints are avoided from direct and inadvertent impacts wherever possible.
- Site inductions will ensure personnel have an awareness of Priority Flora expected to occur within the project area.
- Dust suppression will be regularly undertaken on high traffic roads to minimise potential dust related impacts on adjacent vegetation.

4.4 Introduced Flora

Objectives

- Prevent and minimise the introduction and spread of weeds within the project area.

Management Controls

Management controls that relate specifically to introduced flora are detailed below:

- All ground engaging, earthmoving and tracked equipment will be cleaned prior to arrival on site to remove all earth, stones or vegetative material, and prior to entering a weed free area to prevent the introduction of weeds and plant pathogens.
- All other general equipment, including light vehicles, will be presented to site in a clean state, free from soil or vegetative material.
- Any new weed infestations will be reported as an environmental incident.
- If substantial populations of weeds are identified, targeted weed spraying will be implemented.
- Work areas will be inspected for weeds on an ongoing basis.

4.5 Topsoil and Rehabilitation

Disturbed areas that are not rehabilitated, or inadequately rehabilitated, may result in long-term changes to the landscape through soil erosion and associated sedimentation, introduction of weeds and use of tracks to gain access to restricted areas.

Objectives

- Meet legislative requirements with respect to the rehabilitation of relevant project sites and to liaise closely with Government bodies to ensure compliance.
- Maintain positive topsoil balances when planning topsoil stripping for new disturbance.
- Encourage re-establishment of self-sustaining ecosystems compatible with surrounding undisturbed areas.

Management Controls

Management controls that relate specifically to topsoil management and rehabilitation are detailed below:

- Topsoil will be stripped and stockpiled as part of clearing works.
- Topsoil will be removed to a depth of 100 mm to 300 mm, depending on the nature of the material and existing materials balance.
- Topsoil will be directly transferred to areas being rehabilitated where possible. Where this is not possible, topsoil will be stored in stockpiles for later use. From the topsoil study conducted during the project planning assessment, an area of approximately 1 ha associated with old mine workings has been identified as having adverse soil properties. Topsoil from this 1 ha area will not be stockpiled for use in rehabilitation.
- Stockpiles will be no higher than 3 m and identified on a site plan.
- No burning of vegetation spoil will occur.
- All disturbed areas no longer required will be landformed and have topsoil applied.
- Where practicable, disturbed areas will be progressively rehabilitated.
- Disused compacted surfaces will be scarified
- Topsoil and vegetation will be respread over disused areas.
- Large rocks and logs will be placed in rehabilitation areas to simulate fauna habitats.
- Where appropriate, natural drainage patterns will be reinstated.
- Where the establishment of supplementary vegetation cover is necessary, local seed and plants will be used in site rehabilitation.
- The Survey Department undertake monthly reconciliations of:
 - Area of land cleared in the past month.

- Progressive total area of land cleared.
- Locations of topsoil stockpiles.

4.6 Surface Water

Regis undertakes project activities in a manner that minimises adverse impacts to ephemeral surface water quality and hydrology.

Objectives

- Avoid impacts to the quality of surface water wherever possible.
- Minimise unavoidable impacts on the quality of surface water.
- Avoid unnecessary disturbance to natural surface water drainage.

Management Controls

Management controls that relate specifically to surface water are detailed below:

- Project design seeks to avoid interaction with drainage where possible. Where drainage interception is required, diversions, culverts, overflows and floodways will be designed to protect people and infrastructure from flooding risks. Design of creek crossings for infrastructure corridors have sought to minimise direct disturbance by crossing perpendicular to ephemeral drainage lines. Indirect impacts are minimised by allowing for low flow culverts and floodways to avoid restricting flow.
- The establishment and construction of drainage structures will be monitored to ensure compliance with the design specifications.
- Diversions, culverts, overflows and flood-ways will be incorporated into road design to maintain close-to-natural drainage patterns.
- Culverts will be designed and constructed to minimise the extent of upstream ponding and the need for outlet drains.
- Culverts will be sized to accommodate seasonal flows.
- Pipelines will be buried when crossing drainage features.

4.7 Fauna

Most fauna is expected to move into adjacent areas during clearing activities. Whilst some sedentary fauna may be lost, most will shift into neighbouring areas. Migrants increase competition for resources, which may result in the subsequent loss of migrants or local individuals who have been displaced. Impacts associated with clearing vegetation in the project area in a landscape or bioregion context on the vertebrate fauna are likely to be low as there are vast tracts of similar habitat in adjacent areas.

Conservation significant fauna are unlikely to be affected as habitat is too open for terrestrial conservation significant fauna, or in the case of avian species, are either aerial specialists occasionally visiting habitats or opportunistically exploiting conditions (such as after heavy rainfall events).

Between Garden Well and Ben Hur/King of Creation are numerous rocky outcrops which provide suitable habitat for the Priority 4 Long-tailed Dunnart which has a low likelihood of occurring. Within the overall single open Mulga habitat for fauna there are five small rocky ridges. These have been assessed as being too small to sustain populations of Long-tailed Dunnart. Much larger rocky habitats occur outside the application area, such as the ridge almost immediately northwest of M38/262.

Objectives

- Minimise impacts to native fauna species during disturbance activities.
- Ensure conservation significant fauna are not adversely affected by the project.
- Minimise the spread of pest species.

Management Controls

Management controls that relate specifically to fauna are detailed below:

- Habitats with greater conservation value will be planned for avoidance where possible.
- Road kills, including those resulting from travel to and from project areas, will be removed from the road and reported as an environmental incident.
- All fauna deaths and feral animal sightings will be reported to the site environmental representative.
- No pets or other animals will be brought onto the site.
- Firearms will be prohibited on site.
- All trenches will be fitted with ramps (as appropriate), and will be filled/closed when no longer required, to avoid entrapment of fauna.
- An employee induction program outlining fauna and habitat of conservation significance will be implemented.

5. CLEARING PRINCIPLES

An assessment of the disturbance identified in this application has been made against the ten Principles for Native Vegetation Clearing (Table 7).

Table 7: Assessment of Proposal Against the Ten Clearing Principles

Clearing Principle	Assessment	Discussion
1. Native vegetation should not be cleared if it comprises a high level of biological diversity	Proposal is not at variance to this principle	Comparison of aerial photography of the survey area and surrounding areas suggests the area under application is typical of the vegetation throughout the region. Cowan (2001) states that the Eastern Murchison subregion is rich and diverse in both flora and fauna. However, most species are wide ranging and usually occur in at least one, and often several, adjoining sub regions. Additionally, Beard states the Murchison is essentially the Mulga region of Western Australia and those conditions within the Murchison region favour Mulga more generally than in any other part of Western Australia. The application area does not have a high level of biodiversity and is well represented within the local and broader region.
2. 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.	Proposal is not at variance to this principle	Although proposed clearing areas will comprise habitat that may be suitable for fauna indigenous to Western Australia, from a regional context, the vegetation associations within the project area are well represented within the broader region. Terrestrial Ecosystems have identified the conservation significant fauna with the greatest likelihood occurring (on the basis of occasional, infrequent or potential presence) are avifauna including Peregrine Falcon, Southern Whiteface, Fork-tailed Swift and Princess Parrot.
3. Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, Threatened flora.	Proposal is not at variance to this principle	No Threatened flora species pursuant to section 19 of the <i>Biodiversity Conservation Act</i> , or pursuant to section 179 of the EPBC Act were recorded near the application area by Mattiske Consulting Pty (2023). On a wider scale, no Threatened flora has been recorded throughout the Duketon Gold Project despite numerous surveys by experienced botanists from Mattiske Consulting Pty Ltd (2009 to 2023).
4. Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a Threatened Ecological Community.	Proposal is not at variance to this principle	No Threatened Ecological Communities have been recorded near the application area. The closest is 28 km to the southwest of Palliard's Find.
5. Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	Proposal is not at variance to this principle	The application area is not considered significant as extensive areas nearby and within the project area remain uncleared. Surveys conducted by Mattiske Consulting Pty Ltd have identified the application area as typical of vegetation throughout the region. The application area forms part of a pastoral station where grazing has already occurred in various densities.

Clearing Principle	Assessment	Discussion
6. Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Proposal is unlikely to be at variance to this principle	Minor ephemeral drainage lines exist within the application area including Kirkpatrick Creek. Flow only occurs after heavy rainfall events, particularly cyclonic rain and hence are unlikely to be at variance with this principle. These channels remain dry for most of the year. No wetlands exist within the application area, with the closest being Mappa Lake, a small 7 ha lake some 21 km northeast of M38/262.
7. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Proposal is not at variance to this principle	With the exception of previously cleared areas, their immediate surrounds and legacy impacts from past mining and pastoral grazing activities, the vegetation across M38/262 is predominantly "Good" condition, with a smaller area in the northwestern corner of the tenement being Very Good" (using the criteria of Keighery 1994).
8. 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.	Proposal is not at variance to this principle	The Laverton Water Reserve and Catchment Area is the closest reserve to the application area which lies approximately 36 km south southeast of M38/262. No impacts on the environmental values of the reserve will occur from clearing in the application area due to the distance from the proposed activities.
9. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface and underground water.	Proposal is unlikely to be at variance to this principle	Vegetation associations that occur on minor ephemeral drainage lines within the application area receive sporadic, surface water flows following the remnants of cyclones or thunderstorms, which is itself often of poor quality (as in TSS) due to high intensity of rainfall. Impacts from proposed clearing activities should seek to minimise incremental suspended solids adding to high intensity runoff.
10. Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	Proposal is not at variance to this principle	M38/262 occurs in the upper (albeit flat) catchment of Kirkpatrick Creek. The application area occurs on flat landscape with gentle gradients where flooding occurs following sporadic heavy rainfall, typically from cyclonic systems.

6. REFERENCES

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7. APPENDICES

7.1 Tenement Summary Report for M38/262



Department of Mines,
Petroleum and Exploration



MINING TENEMENT SUMMARY REPORT

MINING LEASE 38/262

Status: Live

TENEMENT SUMMARY

Area: 717.45000 HA	Death Reason :
Mark Out : 30/08/1989 09:10:00	Death Date :
Received : 31/08/1989 09:22:00	Commence : 31/01/1990
Term Granted : 21 Years (Renewed)	Expiry : 30/01/2032

CURRENT HOLDER DETAILS

Name and Address

REGIS RESOURCES LIMITED
HETHERINGTON EXPLORATION & MINING TITLE SERVICES, C/- HETHERINGTON EXPLORATION &
MINING TITLE SERVICES, SUITE 404, GROUND FLOOR, 50 ST GEORGES TERRACE, PERTH, WA, 8000,
xxxxx@hemts.com.au, xxxxx977

DUKETON RESOURCES PTY LTD
HETHERINGTON EXPLORATION & MINING TITLE SERVICES, C/- HETHERINGTON EXPLORATION &
MINING TITLE SERVICES, SUITE 404, GROUND FLOOR, 50 ST GEORGES TERRACE, PERTH, WA, 8000,
xxxxx@hemts.com.au, xxxxx977

DESCRIPTION

Locality: PAILLARDS FIND
Datum: DP SITUATED NE CORNER OF LATE SURVEYED MC
931T
Boundary: THENCE BOUNDARIES IDENTICAL TO LATE
SURVEYED MC's 926T-931T INCLUSIVE
(CONVERSION OF P 38/718 PURSUANT TO SECTION
49(2) AND CONDITIONAL SURRENDER OF M38/88
AND M38/182)

Area :	Type	Dealing No	Start Date	Area
	Surveyed		09/07/2014	717.45000 HA
	Granted		31/01/1990	717.00000 HA
	Applied For		30/08/1989	717.00000 HA

SHIRE DETAILS

Shire	Shire No	Start	End	Area
LAVERTON SHIRE	4970	30/08/1989		717.45000 HA

RENT STATUS

Due For Year End 30/01/2026: PAID IN FULL
Due For Year End 30/01/2027: \$21,037.40

Created 22/10/2025 09:05:58

Requested By: Paul McNeil/Page 1 of 2

Mining Tenement Summary Report

MINING LEASE 38/262 - Live

EXPENDITURE STATUS

Expended Year End 30/01/2025: EXPENDED IN FULL
Current Year Commitment : \$71,800.00

7.3 Detailed Flora and Vegetation Assessment Palliard's Find, Budgerigar and Russell's Find (South) Project Areas (Mattiske Consulting Pty Ltd 2023)

DETAILED FLORA & VEGETATION ASSESSMENT

PALLIARDS FIND, BUDGERIGAR AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Prepared By



Mattiske Consulting Pty Ltd

Prepared For

Regis Resources Ltd.

Date

November 2023



DOCUMENT STATUS				
DOCUMENT REFERENCE: RRG2304/027/23				
VERSION	TYPE	AUTHOR/S	REVIEWER/S	DATE DISTRIBUTED
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FINAL	Final Report	J. C. Mooney	E. M. Mattiske	24/11/2023



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LIST OF ABBREVIATIONS

ANOSIM	Analysis of Similarity
BAM Act:	<i>Biosecurity and Agriculture Management Act 2007 (WA)</i>
BC Act:	<i>Biodiversity Conservation Act 2016 (WA)</i>
BOM:	Bureau of Meteorology
CLUSTER	Hierarchical clustering
DBCA	Department of Biodiversity, Conservations and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPIRD	Department of Primary Industries and Regional Development
EP Act:	<i>Environmental Protection Act 1986 (WA)</i>
EPA:	Environmental Protection Authority
EPBC Act:	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
HGM	Halpern, Glick, and Maunsell
IBRA	Interim Biogeographical Regionalisation for Australia
IBSA	Index of Biodiversity Surveys for Assessment
MAIA	Maia Environmental Consultancy
Mulga	<i>Acacia aneura</i> and its close relatives
MUR1	Eastern Murchison IBRA Subregion
OES	Outback Ecology Service
Survey areas	Palliards Find, Budgerigar, and Russells Find (South) Project Areas
Mattiske Consulting	Mattiske Consulting Pty. Ltd.
NVIS	National Vegetation Information System
PEC:	Priority Ecological Community
Regis Resources	Regis Resources Ltd.
SIMPER	Similarity percentage
SIMPROF	Similarity profile
TEC:	Threatened Ecological Community
TFPL	Threatened and Priority flora
WAH:	Western Australian Herbarium (PERTH)

EXECUTIVE SUMMARY

Mattiske Consulting Pty. Ltd. was engaged by Regis Resources Ltd. to conduct a desktop assessment and field survey to evaluate flora and vegetation values within the Palliards Find, Budgerigar, and Russels Find (South) survey areas. The survey areas are located approximately 75 km north of Laverton, Western Australia. A detailed field assessment of the flora and vegetation values within the survey areas was undertaken from the 23rd to the 28th of August, 2023 by four botanists from Mattiske Consulting. This report outlines the methodology and results from a desktop assessment and field survey of vegetation within the survey areas.

A total of 206 vascular plant taxa were recorded during the survey. The vascular plant taxa are representative of 91 genera and 40 families. The most common families were Fabaceae, Chenopodiaceae, and Poaceae. One Priority taxon, *Eremophila pungens* (P4), was recorded at two locations within the Russels Find (South) project area. No Threatened flora were recorded within the survey areas.

Seven introduced taxa were recorded within the survey areas. These included **Bidens bipinnata* (Bipinnate Beggartick), **Cucumis myriocarpus* (Prickly Paddy Melon), **Lysimachia arvensis* (Pimpernel), **Malvastrum americanum* (Spiked Malvastrum), **Mesembryanthemum crystallinum* (Iceplant), **Solanum nigrum* (Black Berry Nightshade), and **Sonchus oleraceus* (Common Sowthistle).

A total of 10 vegetation communities were delineated within the survey areas. These consisted of three open mulga shrubland communities, three sparse mulga shrubland communities, two drainage line communities, one chenopod flat community, and one ridgeline community. None of the vegetation communities are restricted to the survey areas. Disturbances within the survey areas were largely limited to introduced species, cattle grazing, exploration drill tracks, and in some areas extensive exploration drilling works.

There do not appear to be any floristic or vegetative concerns within the survey areas that would limit operational activities. However, sites with known populations of *Eremophila pungens* (P4) should be avoided if possible.

1. INTRODUCTION

Regis Resources Ltd. (Regis Resources) engaged Mattiske Consulting Pty. Ltd. (Mattiske Consulting) in May 2023 to undertake a detailed flora and vegetation assessment of the Palliards Find, Budgerigar, and Russells Find (South) project areas (survey areas). This report outlines the methodology and results from a desktop assessment and field survey of the survey areas.

1.1 Location and Scope of Project

The August 2023 survey areas include Palliards Find (approx. 627 ha), Budgerigar (approx. 187 ha), and Russells Find (south) (approx. 13 ha). The survey areas are located approximately 75 km North of Laverton, Western Australia in the Shire of Laverton (Figure 1). The survey areas intersect a number of tenements, including E38/2868, E38/2975, E38/3518, E38/3554, E38/3776, L38/365, M38/114, M38/1241, M38/262, M38/740, and P38/4497 (Figure 2). The survey areas fall within the Austin Botanical District of the Eremaean Botanical Province of Western Australia (Beard 1990), and the Eastern Murchison (MUR1) subregion of the Murchison Interim Biogeographic Regionalisation for Australia (IBRA) region (Cowan 2001; DCCEEW 2023d). The scope of this project was to define and map the vegetation in the survey areas.

1.2 Environmental Legislation and Guidelines

The following key Commonwealth (federal) legislation relevant to this survey is the:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

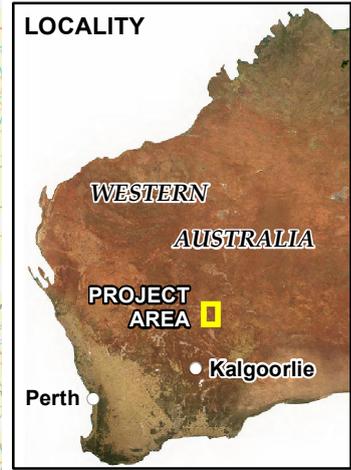
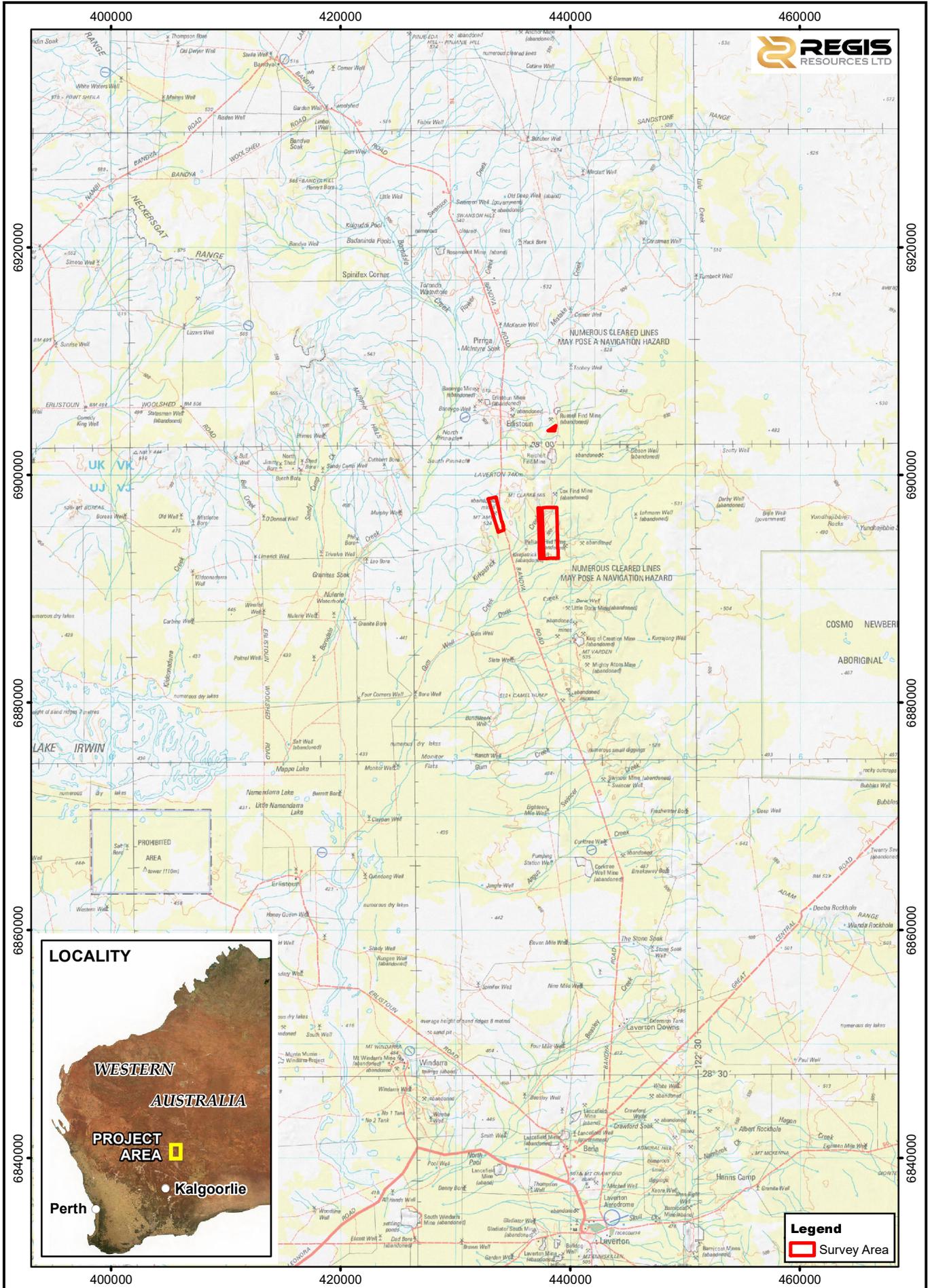
The following key Western Australian (state) legislation relevant to this survey include the:

- *Biodiversity Conservation Act 2016* (BC Act);
- *Biosecurity and Agriculture Management Act 2007* (BAM Act);
- *Environmental Protection Act 1986* (EP Act); and
- *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*

Furthermore, key Western Australian guidelines relevant to this survey are the:

- *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* ((Environmental Protection Authority [EPA] 2016a); and
- *Environmental Factor Guideline: Flora and Vegetation* (EPA 2016b)

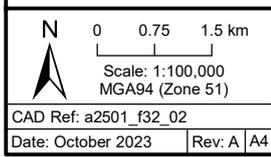
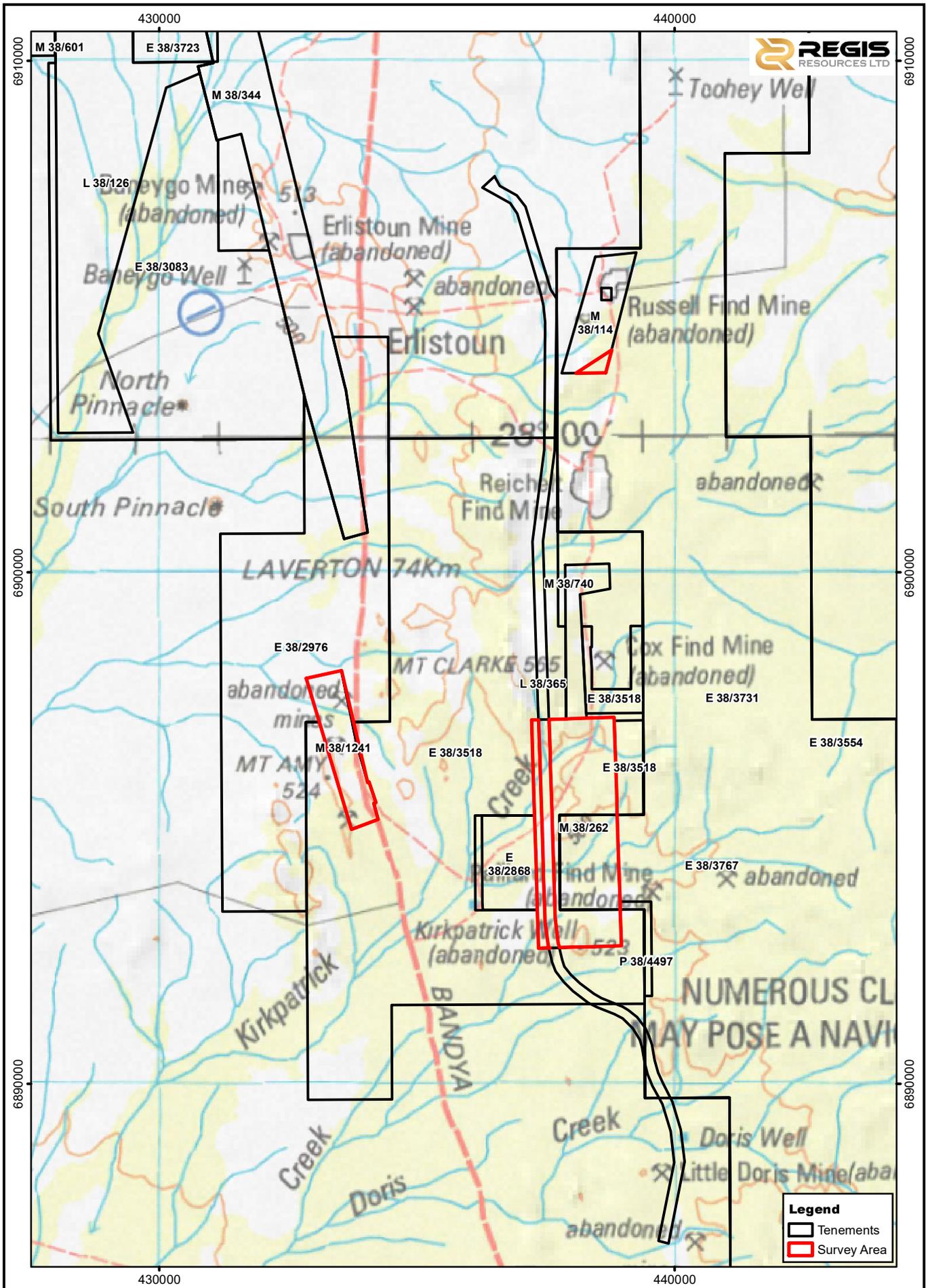
Definitions of flora and vegetation terminology commonly used throughout this report are set out in Appendices A1–A4.



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Locality map of the survey areas
 Figure: **1**




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Tenement map of the survey areas

Figure: 2

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 Date: October 2023 Rev: A | A4

2. OBJECTIVES

The objective of this survey was to undertake a detailed flora and vegetation assessment of the survey areas in accordance with the *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (EPA 2016a) and *Environmental Factor Guideline: Flora and vegetation* (EPA 2016b). This includes:

- Perform a desktop survey of the survey areas to identify potential environmental values;
- Undertake a detailed field survey of the areas, and collect and identify the vascular plant species present;
- Undertake targeted searches for Threatened and Priority flora;
- Review the conservation status of the vascular plant species recorded by reference to current literature and listings by the Department of Biodiversity, Conservation and Attractions (DBCA) and plant collections held at the Western Australian State Herbarium (WAH), and listed by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (formerly the Department of Agriculture, Water and the Environment) under the EPBC Act;
- Identify and record the location of any threatened and priority flora located within each survey area;
- Identify and record the locations of any Declared Pest Organisms within each survey area;
- Define and prepare a vegetation map of the vegetation communities within the survey areas;
- Provide descriptions of the vegetation communities present within survey areas and evaluate their regional significance and map their condition; and,
- Prepare a report summarising the findings.

3. METHODS

3.1 Desktop Survey

The desktop assessment for the survey areas was undertaken using the resources of the DBCA (2023a, 2023b, 2023c, 2023d, 2023e, 2023f), *Biodiversity Conservation Regulations 2018*, the DCCEEW (2023a, 2023b, 2023c, 2023d), and the WAH (1998–) databases. The parameters used for the database searches was an 80 km buffer about a central point (437799mE, 6896754mN, z51) (DBCA 2023e). In addition, a search of the DBCA Threatened and Priority Flora and Ecological Community database was requested to determine if any conservation significant flora or ecological communities may be present within the survey areas (DBCA ref: 48-0123FL; 19-0223FL) (DBCA 2023d, 2023f). Several surveys in surrounding areas have been conducted previously by Mattiske Consulting (2009-2023b), OES (2007), MAIA (2013), and HGM (1998). Of particular interest to the current survey are the detailed flora and vegetation assessment in the Russels, Reichelts, Ben Hur, and Ben Hur Expansion areas due to the proximity to the current survey areas (Mattiske Consulting 2015c; 2015d; 2021a; 2023a; 2023b).

3.2 Regional Flora Data

Regional flora data, with respect to the range of conservation significant flora recorded within 80 km of the survey areas, was requested from the DBCA on 27 January 2023, and 7 February 2023. Data extracted from the DBCA's Threatened and Priority Flora (TPFL) database and the WAH Specimen database was received on 30 January 2023, and 10 February 2023 (DBCA Ref: 48-0123FL, 19-0223FL). This data was used for spatial mapping of individual species distribution (Figure 3).

3.3 Field Survey

The detailed flora and vegetation assessment of the survey area was undertaken by four botanists from Mattiske Consulting from the 23rd to 28th August 2023. All botanists held valid collection licenses to collect flora for scientific purposes, issued under Regulation 62 of the *Biodiversity Conservation Regulations 2018*. During the field survey, botanists had access to all relevant data in the Esri iOS application, Collector for ArcGIS on Apple iPads (provided and maintained by CAD Resources). Data layers accessible in the field included the survey area boundary, locations of all known conservation significant flora from both historical and contemporary surveys, and aerial imagery acquired by CAD Resources. A total of 90 vegetation quadrats were established to sample all apparent vegetation communities present. Vegetation quadrat placement was initially based on aerial imagery, with additional locations being identified during the field survey. All vegetation survey quadrats measured 20 m × 20 m in size. In areas where a 20 m × 20 m quadrat could not be established (drainage line, ridgelines, etc.) a survey area of similar total area was established (400 m²). Where possible, a minimum of three survey quadrats were established in the same, but disjunct vegetation based on aerial imagery. The flora and vegetation were sampled and described systematically at each vegetation survey quadrat, and additional opportunistic collecting was undertaken wherever previously unrecorded plants were observed.

At each vegetation survey quadrat, the following floristic and environmental parameters were recorded:

- GPS location (GDA94 datum);
- Photograph of the vegetation from the north-west corner of quadrat facing south-east;
- Soil type, colour and any additional observations;
- Local site topography;
- Presence of any outcropping rocks and their type;
- Aspect of the hill-slopes;
- Percentage of litter cover (logs, twigs, and/or leaves);
- Percentage of bare ground;
- Time since fire;
- Condition of the vegetation, based Trudgen (1988) scale (Appendix A5);
- Alive and dead percentage of foliage cover; and,
- Average height of each species recorded.

All plant specimens collected during the field survey were dried and processed in accordance with the requirements of the WAH. All plant specimens were identified through comparisons with pressed specimens housed at the Mattiske Consulting herbarium and WAH. Where appropriate, plant taxonomists with specialist skills were consulted. Nomenclature of the species recorded is in accordance with the WAH (1998–).

3.4 Pre-processing of data to enable comparison to regional database

To enable regional comparison with a database containing 1,065 vegetation quadrats spanning Regis Resources' Duketon tenements, all 90 survey quadrats were sorted by landform or dominant vegetation structure (Mattiske Consulting 2023a). The resulting groups included quadrats associated with Chenopod flats (24 quadrats), Drainage channels (16 quadrats), open Mulga shrublands (>20% coverage) (19 quadrats), sparse Mulga shrublands (<20% coverage) (17 quadrats), and Ridgelines (14 quadrats). All species of Mulga (*Acacia aneura* and its close relatives) were merged into *Acacia* section Juliflorae, excluding *Acacia craspedocarpa* to enable consistency with historical data. Quadrats processed as above were each analysed using Plymouth Routines in Multivariate Ecological Research version 7 (PRIMER v7) to draw comparisons to regional vegetation.

3.5 Statistical Analysis of Data and Vegetation Mapping

A species accumulation curve, based on accumulated species versus number of quadrats surveyed was prepared, to evaluate the level of adequacy of the survey effort. The species accumulation curve was based on the species accumulation analysis of Colwell (2013).

Plymouth Routines in Multivariate Ecological Research version 7 (PRIMER v7) statistical analysis software was used to analyse species-by-site data and discriminate sites on the basis of their species composition (Clarke and Gorley 2015). Sample associations were based on coverage data which had undergone a fourth root transformation to down weight the contribution of dominant species. Introduced species, singletons (species recorded at only one site) and specimens that were not identified down to the species level were excluded from the analysis. Annuals were removed from the data in analysis due to the likelihood of substantial differences between years based on seasonality of local rainfall events. Computation of similarity matrices was based on the Bray–Curtis similarity measure. Transformed data were analysed using a series of multivariate analysis routines including Hierarchical Clustering (CLUSTER), Similarity Profile (SIMPROF), Similarity Percentages (SIMPER), and Analysis of Similarity (ANOSIM). Results were used to inform and support interpretation of aerial photography and delineation of individual vegetation communities.

3.6 Vegetation descriptions and mapping

Vegetation descriptions were based on Aplin's (1979) modification of the vegetation classification system of Specht (1970), to align with the National Vegetation Information Systems (NVIS). Vegetation communities were described at the association level of the NVIS classification framework, as defined by the Executive Steering Committee for Australian Vegetation Information (NVIS Technical Working Group 2017, Appendix A6), consistent with the *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (EPA 2016b). Vegetation communities were described and mapped using a combination of aerial imagery, previous vegetation mapping, statistical analysis, and field observations.

3.7 Index of Biodiversity Survey for Assessment Data

Data files for the current survey were prepared and submitted in accordance with the specifications set out in the instructions for preparing data packages for the Index of Biodiversity Surveys for Assessments (EPA 2023).

4. DESKTOP SURVEY RESULTS

4.1 Bioregional Setting

The survey areas lie within the Austin Botanical District of the Eremaean region, as defined by Beard (1990). The Austin Botanical District is the largest of the Eremaean regions and is predominately Mulga (*Acacia aneura* and its close relatives) shrublands on red loams over siliceous hardpans on the plains, reducing to scrub on the rises and hills (Pringle *et al.* 1994). This botanical district is also comprised of tree steppe of *Eucalyptus spp.* and *Triodia basedowii* on sand plains (Beard 1990), Mulga and *Eremophila* shrublands which dominate on stony plains, and chenopod communities associated with duplex soils (Pringle *et al.* 1994). Within a more local context, a number detailed flora and vegetation surveys have been undertaken in the areas surrounding the survey areas (Mattiske Consulting 2009-2023b; OES 2007; MAIA 2013; HGM 1998).

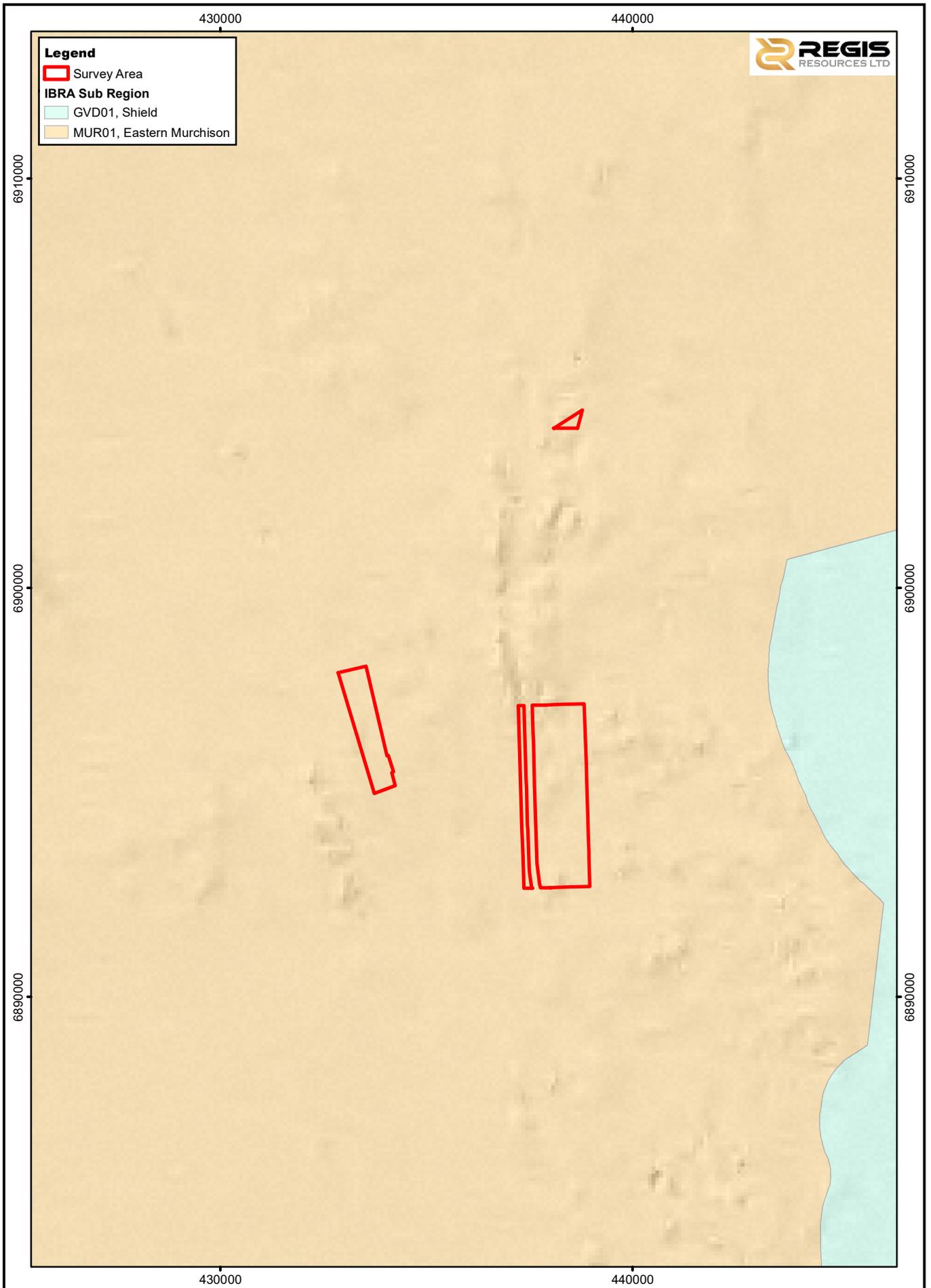
The Interim Biogeographic Regionalisation for Australia (IBRA) delineated 89 bioregions across Australia and 419 subregions, based on a range of biotic and abiotic factors, including climate, vegetation, fauna, geology, and landform (Thackway and Cresswell 1995; DCCEEW 2023d). The IBRA subregions represent more localised and homogenous geomorphological units in each bioregion (DCCEEW 2023d). The survey areas are located within the Murchison Bioregion, and the Eastern Murchison (MUR1) subregion. A summary of the subregion is set out below:

- MUR1 Eastern Murchison subregion – Cowan (2001) described the Eastern Murchison subregion as an area dominated by elevated red desert sandplains with minimal dune development, and salt lakes associated with obstructed Paleodrainage lines. Floristically, the subregion is composed of open shrublands of Mulga (*Acacia aneura* and its close relatives) over annual species (Asteraceae sp.), hummock grasslands (*Triodia basedowii*), saltbush shrublands, and Halosarcia shrublands (*Tecticornia spp.*).

The intersection of the survey areas with the Eastern Murchison (MUR1) IBRA sub-region is set out in Figure 4 and Table 1.

Table 1: Extent of IBRA sub-regions intersecting the survey areas

IBRA SUBREGION	SURVEY AREAS (HA)			TOTAL EXTENT (HA)	PERCENTAGE INTERSECTION (%)		
	BUDGERIGAR	PALLIARDS FIND	RUSSELS FIND (SOUTH)		BUDGERIGAR	PALLIARDS FIND	RUSSELS FIND (SOUTH)
EASTERN MURCHISON (MUR1)	187.233	626.859	13.011	21163322.2	0.0009	0.003	6.1481E-05



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Intersection of the survey areas with IBRA subregion

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4.2 Climate

The Austin Botanical District is characterised by an arid climate with cool winters and hot summers (Beard 1990). Rainfall occurs in both the warmer and cooler seasons. Winter rainfall promotes the growth of annual species, and summer cyclonic rainfall tends to aid the growth of woody, sclerophyllous plants. Despite rainfall during hotter and dryer months, overall plant growth within the Austin Botanical District is greater during winter due to evaporative demand being lower as a consequence of lower temperatures and greater water retention in the soils (Aplin 1979; Beard 1990).

The nearest Bureau of Meteorology (BOM) weather station with the most complete long-term and the latest climate data is Laverton Aero Station (ID 12305), which is located approximately 110 km south of the survey areas (BOM 2023). Rainfall and temperature data for the 19 months preceding the August 2023 survey in addition to long-term data from the Laverton Aero Station (ID 12305) is presented in Figure 5. Total rainfall for the 12 months to August 2023 was 144.4 mm, 48.8% lower than the long-term average of 276.2 mm for the same period. During historically wet summer months (December 2022–February 2023), 26.6 mm of precipitation fell, a reduction of 79% from the long-term average of 127.5 mm.

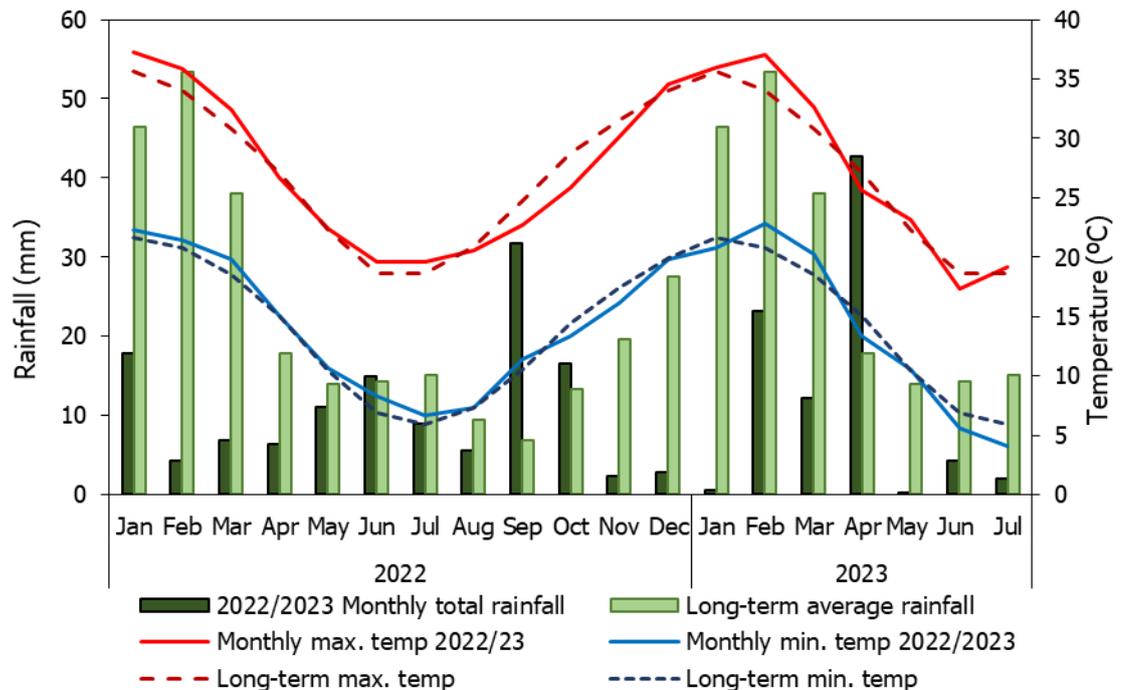


Figure 5: Climatic data for Laverton Aero Station, WA (ID12305) (2022-2023)

Long-term average rainfall data, together with monthly rainfall and average maximum and minimum temperature data, for the period January 2022 to July 2023 from the Laverton Airport Weather Station (ID12305).

4.3 Land Systems and Soils

The eastern Goldfield region is underlain by rocks of the Yilgarn Craton, which are mostly Archaean granitic rocks, often intruded by quartz veins and dolerite dykes. Areas of Archaean migmatite and gneiss are associated with Archaean greenstone belts, which contain a mix of metamorphosed mafic-ultramafic, felsic volcanics, and metasediments. The Archaean bedrock has experienced extensive weathering and is often covered by Tertiary and Quaternary alluvial, colluvial, and Aeolian deposits (Beard 1990; Tille 2006). Land system mapping of the north-eastern Goldfields, including the survey area, was undertaken by the Agriculture and Food division of the Department of Primary Industries and Regional Development (DPIRD) (Pringle *et al.* 1994). This mapping defined the topographic characteristics of the north-eastern Goldfields. Land systems are grouped into land types according to a combination of landforms, soils, vegetation, and drainage patterns. Pringle *et al.* (1994) noted that boundaries between plant communities are often sharp and mostly associated with boundaries between landforms and their soils along the slope of the land. Greater diversity in plant communities is often found higher in the landscape where differential weathering and erosion occurs across slope.

A total of six land systems are intersected by the survey areas (Figure 6). A description of each land system, summarised from Pringle *et al.* (1994) is presented in Table 2. The total area of intersection between land systems and the survey areas are is presented in Table 3.

Table 2: Extent of the land systems intersecting the survey areas

SYSTEM	DESCRIPTION
Brooking	Prominent ridges of banded iron formation supporting mulga shrublands and occasional minor halophytic communities.
Bevon	Irregular low ironstone hills with stony lower slopes supporting mulga shrublands.
Felix	Gently undulating plains with quartz mantles, supporting acacia-eremophila shrublands locally with wanderrie grasses.
Gransal	Stony plains and low rises based on granite supporting mainly halophytic low shrublands.
Jundee	Hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands.
Nubev	Gently undulating stony plains, minor limonitic low rises and drainage floors supporting mulga and halophytic shrublands.

Table 3: Extent of land systems intersecting the survey areas

LAND SYSTEM	SURVEY AREAS (HA)			TOTAL EXTENT (HA)	PERCENTAGE INTERSECTION (%)		
	BUDGERIGAR	PALLIARDS FIND	RUSSELS FIND (SOUTH)		BUDGERIGAR	PALLIARDS FIND	RUSSELS FIND (SOUTH)
Brooking	19.241	82.372	0.327	90753.240	0.021	0.091	0.0004
Bevon		254.180	12.685	217239.240		0.117	0.006
Felix		73.650		34219.840		0.215	
Gransal		212.888		319767.694		0.067	
Jundee		3.768		408820.109		0.001	
Nubev	167.992			147400.376	0.114		

4.4 Pre-European Vegetation

The pre-European vegetation dataset, prepared through the National Land and Water Resources Audit, describes vegetation in relation to natural resource boundaries commonly used for environmental reporting (Shepherd *et al.* 2002). The pre-European vegetation dataset builds on the vegetation map database was developed by G. R. Beeston and A. J. M. Hopkins, based on 1: 250,000 scale mapping. A total of 819 vegetation types were recognised in Western Australia, ranging from tall forests, through to a wide variety of forests and woodlands, shrublands and grasslands, mostly with an overstorey of trees. The identification of the original pre-European and current extent of each of the vegetation types assist in providing baselines for managing issues such as land clearing (Shepherd *et al.* 2002).

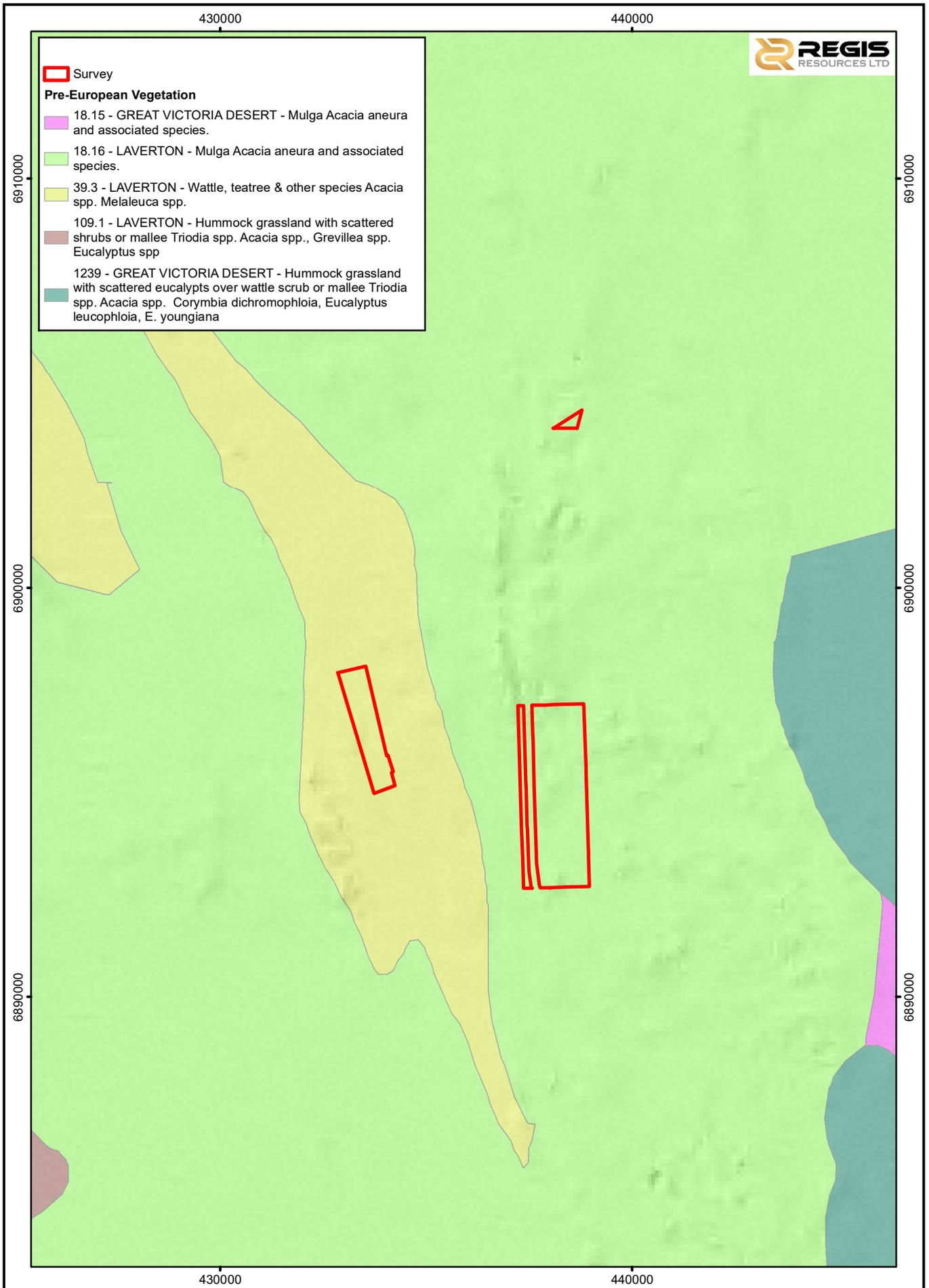
Shepherd *et al.* (2002) delineated a series of vegetation maps based primarily on the work of John Beard, carried out from 1964 to 1981. The survey areas lie within Beard's (1990) Austin Botanical District. The vegetation of the Austin Botanical District is predominantly Mulga (*Acacia aneura* and its close relatives) low woodland and open shrublands over a range of short-lived annual species on red earths, becoming a steppe of *Eucalyptus* spp. and *Triodia basedowii* on sandplains. The survey areas intersect two pre-European vegetation units (Laverton 18.16, Laverton 39.30) described in Table 4. Both Palliards Find, and Russels Find (South) are dominated by continuous *Acacia* spp. woodland (Figure 7). Budgerigar is dominated by chenopod scrubland with occasional *Acacia* spp. scrub (Figure 7). The total area of intersection for each of the three survey areas and the pre-European vegetation unit is presented in Table 5.

Table 4: Description of pre-European vegetation unit intersecting the survey areas

VEGETATION UNIT	DESCRIPTION
Laverton 18.16	Low woodland, open low woodland or sparse woodland of Mulga. Either as low woodland, open low woodland or sparse woodland.
Laverton 39.30	Scrub, open scrub or sparse scrub of chenopods and <i>Acacia</i> spp.

Table 5: Extent of land pre-European vegetation unit intersecting the survey areas

LAND SYSTEM	LAND SYSTEM UNIT	SURVEY AREAS (HA)			TOTAL EXTENT (HA)	PERCENTAGE INTERSECTION (%)		
		BUDGERIGAR	PALLIARDS FIND	RUSSELS FIND (SOUTH)		BUDGERIGAR	PALLIARDS FIND	RUSSELS FIND (SOUTH)
Laverton	18.16		626.859	13.011	2363368.514		0.027	0.0006
	39.30	187.233			155998.416	0.120		



4.5 Previous Flora and Vegetation Surveys in the Vicinity of the survey area

There have been several detailed flora and vegetation surveys conducted on Regis Resources tenements by Mattiske Consulting (2009-2023b), and other consultancies (OES 2007, MAIA 2013, HGM 1998). A total of 555 flora species, representative of 170 genera and 55 families have been recorded within the Regis Resources tenements surrounding the current survey areas since 1998. The most represented genera included *Eremophila* (45 taxa), *Acacia* (44 taxa), *Senna* (19 taxa), and *Maireana* (18 taxa). Five Priority species have been recorded in the areas surrounding the survey areas. These include *Calytrix praecipua* (P3), *Einadia nutans* subsp. *nutans* (P3), *Eremophila pungens* (P4), *Frankenia georgei* (P1), and *Lysiandra baeckeoides* (P3). Ten introduced flora species have been identified within the previous survey areas including **Bidens bipinnata*, **Carpobrotus aequilaterus*, **Chenopodium murale*, **Citrullus amarus*, **Lysimachia arvensis*, **Malvastrum americanum*, **Mesembryanthemum crystallinum*, **Sagina apetala*, **Sonchus oleraceus*, and **Tribulus terrestris*.

In 2015, 2021, and 2023 Mattiske Consulting undertook detailed flora and vegetation surveys to support the development of the Russels, Reichelts, Ben Hur, and Ben Hur extension operations (Mattiske Consulting 2015c; 2015d; 2021a; 2023b). The current survey areas are located within approximately 20 km of each of the operational areas listed above. In 2023 works were undertaken to merge historic vegetation mapping completed across Regis Resources' tenements. This work streamlined the system of vegetation units used to describe areas within a regional context (Mattiske Consulting 2023a). Within a regional context, 21 vegetation units were described including, open and sparse Mulga flats, chenopod flats, ridgelines, and drainage communities. Using merged vegetation mapping, 16 vegetation communities were identified as being present within the operational areas previously surveyed by Mattiske Consulting (2015c; 2015d; 2021a; 2023a; 2023b). These vegetation units included one ridgeline community, five open Mulga communities, four sparse Mulga communities, three chenopod flat communities, and three drainage line communities. The dominant vegetation community recorded within the previously surveyed areas was a tall-sparse Mulga shrubland, with mid-sparse understory of *Eremophila galeata*, and *Eremophila latrobei*, and low-sparse shrubland of *Ptilotus obovatus*, and *Eragrostis eriopoda* (Mattiske Consulting 2015c; 2015d; 2021a; 2023a; 2023b).

None of the vegetation communities delineated in the Gloster operation were restricted and all were representative of regional and pre-European vegetation values (Beard 1990). Three Priority flora were recorded in the various surveys surrounding the current survey areas; including *Calytrix praecipua* (P3), *Lysiandra baeckeoides* (P3), and *Eremophila pungens* (P4) (Mattiske consulting 2015c; 2021a). Two introduced taxa, **Citrullus amarus*, and **Tribulus terrestris* were recorded in areas previously surveyed by Mattiske Consulting (2023b).

4.6 Threatened Ecological and Priority Ecological Communities

There were no Threatened Ecological Communities (TECs) listed at the Commonwealth level pursuant to sections 181 and 182 of the EPBC Act (1999) and listed by the DCCEEW (2023b), or at State level pursuant to Part 2 of the BC Act (2016) and as listed by DBCA (2023c). There were no Priority Ecological Communities (PECs) as listed at State level by DBCA (2023c) that could potentially occur within the survey areas.

4.7 State Reserves

The survey areas do not lie within any State Reserves.

4.8 Flora

The assessment for potential flora taxa which may be present with the survey area was based on an 80 km search radius from the centre of the survey areas. A total of 711 plant taxa, comprising species, sub-species, varieties, and phrased-named taxa, were identified in the desktop assessment as having the potential to occur within the survey areas (Appendix B) (DBCA 2023d-2023f; Mattiske Consulting 2009-2023b; OES 2007; MAIA 2013; HGM 1998). The 711 taxa were representative of 65 families and 225 genera. The most represented families were Fabaceae (88 taxa), Chenopodiaceae (84 taxa), Poaceae (74 taxa), Asteraceae (68 taxa), Scrophulariaceae (56 taxa), and Myrtaceae (40 taxa). The most represented genera were *Eremophila* (55 taxa), *Acacia* (50 taxa), *Senna* (21 taxa), *Eucalyptus* (21 taxa), *Maireana* (19 taxa), *Ptilotus* (17 taxa), and *Sclerolaena* (17 taxa) (Appendix B).

4.9 Threatened and Priority Flora

A range of sources were used to assess the potential threatened and priority flora taxa which may be present within the survey area. These included:

1. A search for threatened and priority taxa using Dandjoo search tool (DBCA 2023e);
2. A search of the DBCA Threatened and Priority flora database (DBCA request reference: 48-0123FL, 19-0223FL) (DBCA 2023d; 2023f);
3. A search of the WAH database (DBCA request reference 48-0123FL, 19-0223FL) (DBCA 2023d; 2023f);
4. A search of the DCCEEW database (DCCEEW 2023c); and,
5. Data from surveys in the area by Mattiske Consulting (2009-2023b) and OES (2007), MAIA (2013), and HGM (1998).

The assessment for potential Threatened and Priority taxa which may be present within the survey areas was based primarily on an 80 km search radius about a point central to all survey areas (437799mE, 6896754mN, z51).

A total of 30 conservation significant flora taxa were recorded from the desktop assessment. No Threatened taxa were recorded within the 80 km search radius. All 30 conservation significant flora were assessed for likelihood of occurrence within the survey areas using the following criteria:

- Known records within a 40 km radius of the centre of the survey area (as described above). More recent, proximal, and numerous records were ranked higher;
- Potential presence of suitable habitat and landforms for the species within the survey area (e.g., soil type, bedrock type, topography, drainage lines, vegetation); and,
- The likelihood was ranked as very likely, likely, unlikely, highly unlikely.

A description of all 30 conservation significant flora taxa and their likelihood of occurrence is presented in Appendix C. Four conservation significant flora were ranked as having either a highly likely or likely potential of occurring within the survey areas. These were *Einadia nutans* subsp. *nutans* (P3), *Calytrix praecipua* (P3), *Lysiandra baeckeoides* (P3), and *Eremophila pungens* (P4). Descriptions of these four taxa are presented in Table 6. The remaining conservation significant flora were rated all as having an unlikely or highly unlikely potential of occurrence within the survey areas, either due to lack of suitable habitat, a lack of records within a 40km radius of the survey areas, or a combination of these two factors (Appendix C).

Table 6: Highly likely and likely priority species potentially located within survey area

SPECIES	FAMILY	HABIT DESCRIPTION	HABITAT PREFERENCES	LIKELIHOOD
<i>Calytrix praecipua</i> (P3)	MYRTACEAE	Shrub, 0.7 m high, Pink to white flowers during July- to July or September to November.	Skeletal sandy soils on breakaways and outcrops of granite and laterite.	Highly likely
<i>Lysiandra baeckeoides</i> (P3)	PHYLLANTHACEAE	Shrub up to 1.5 m high, white-yellow or green- yellow flowers during July to September.	Red lateritic and sandy soils among granite outcrops.	Highly likely
<i>Einadia nutans</i> subsp. <i>nutans</i> (P3)	CHENOPODIACEAE	Scrambling perennial herb, 0.3-1m high	Red sand and clay on rocky hillsides and on saline plains	Likely
<i>Eremophila pungens</i> (P4)	SCROPHULARIACEAE	Erect viscid shrub up to 1.5 m high, purple-violet flowers throughout June to August.	Sandy loam or clayey sand over laterite on plains, ridges, and breakaways.	Highly likely

4.10 Introduced Plant Taxa

A total of 12 introduced plant taxa were recorded from the desktop assessment utilising an 80 km search buffer about a point central to the survey areas, and previous detailed flora and vegetation assessments of nearby areas. Three introduced taxa were identified within the 80 km search buffer (DBCA 2023e). The remaining 9 introduced flora records were recorded in previous field surveys of nearby areas (Mattiske Consulting 2010, 2012b, 2013, 2015, 2016, 2017). Introduced flora identified as part of the desktop assessment are set out in Table 7. None of the introduced flora recorded within the desktop are prohibited organisms under the BAM Act (2007). All organisms were classified as s-11 (permitted).

Table 7: Introduced plant species in the vicinity of the survey areas

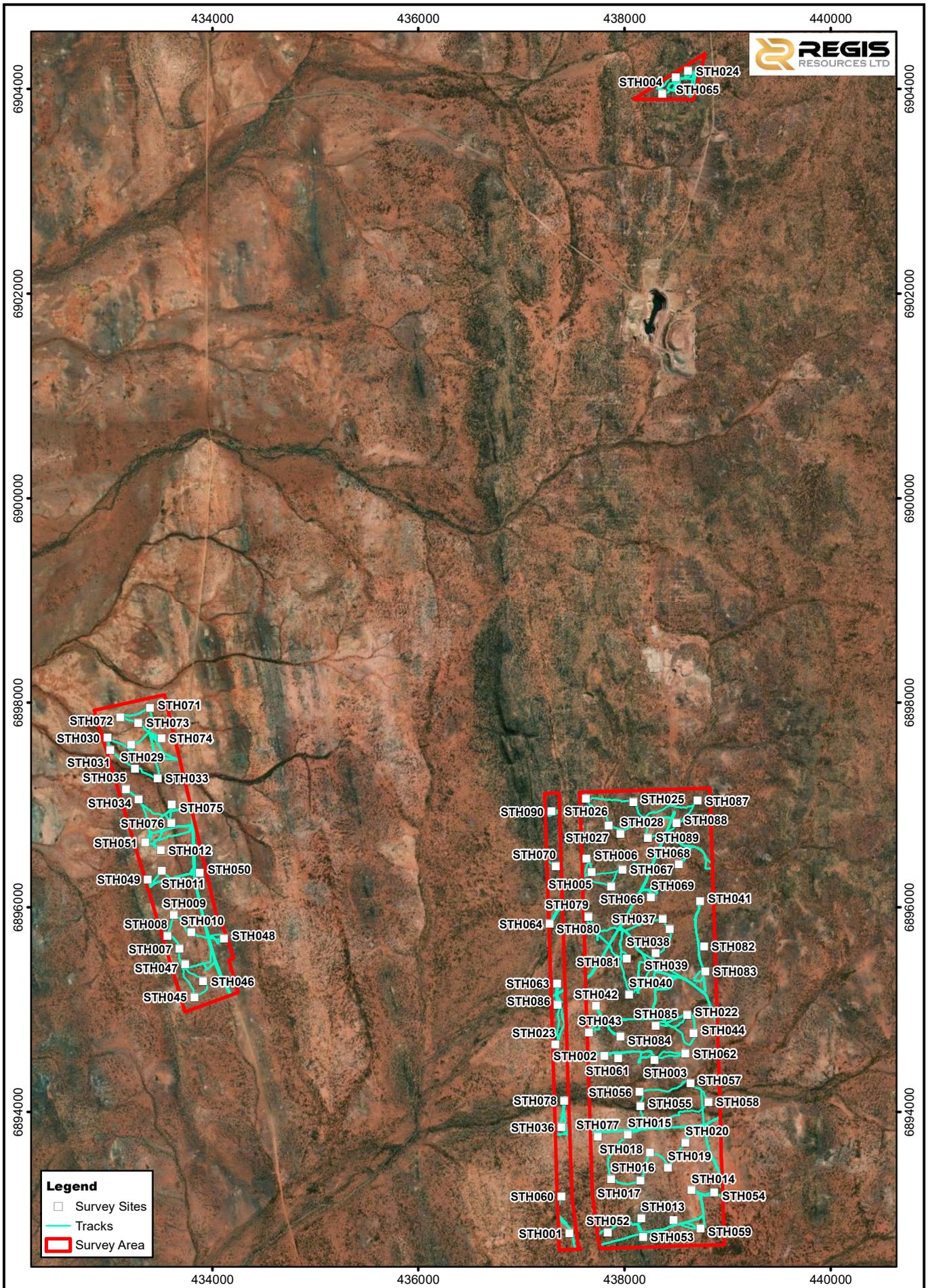
INTRODUCED SPECIES	FAMILY	COMMON NAME
* <i>Bidens bipinnata</i> ¹	Asteraceae	Spanish Needles
* <i>Carpobrotus aequilaterus</i> ³	Aizoaceae	Sea Fig
* <i>Chenopodium murale</i> ¹	Chenopodiaceae	Nettle-Leaf Goosefoot
* <i>Citrullus amarus</i> ⁸	Cucurbitaceae	–
* <i>Lysimachia arvensis</i> ³	Primulaceae	Pimpernel
* <i>Malvastrum americanum</i> ^{4, 5}	Malvaceae	Spiked Malvastrum
* <i>Mesembryanthemum crystallinum</i> ⁶	Aizoaceae	Iceplant
* <i>Rostraria pumila</i> ²	Poaceae	Rough Tail
* <i>Sagina apetala</i> ⁷	Caryophyllaceae	Pearlwort
* <i>Solanum nigrum</i> ²	Solanaceae	Black Berry Nightshade
* <i>Sonchus oleraceus</i> ^{1, 2, 5}	Asteraceae	Common Sowthistle
* <i>Tribulus ? terrestris</i> ⁸	Zygophyllaceae	Caltrop

¹ Mattiske Consulting 2015; ² Dandjoo (DBCA 2023e); ³ Mattiske Consulting 2016; ⁴ Mattiske Consulting 2012b; ⁵ Mattiske Consulting 2017; ⁶ Mattiske Consulting 2010; ⁷ Mattiske Consulting 2013; ⁸ Mattiske Consulting 2023b

4.11 Other Matters

In addition to the items reviewed in the preceding paragraphs of this desktop assessment (paragraphs 4.1 through 4.10), the EPBC Act Protected Matters Report (DCCEEW 2023c) reveals that within 80 km of the survey areas, the following applies:

World Heritage Properties	none
National Heritage Places	none
Wetlands of International Importance	none
Commonwealth Heritage Places	none
Listed Threatened Ecological Communities	none
State and Territory Reserves	none
Nationally Important Wetlands	none



Legend

- Survey Sites
- Tracks
- ▭ Survey Area

N
 0 0.4 0.8 km
 Scale: 1:50,000
 MGA94 (Zone 51)

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Survey effort within the survey areas

Figure:
8

CAD Ref: a2501_f32_07
 Date: October 2023 Rev: A | A4

5. FIELD SURVEY RESULTS

5.1 Survey and Effort

A total of 90 quadrats were surveyed within the survey areas. Survey quadrat locations are presented in Appendix D and Figure 8.

5.2 Flora

A total of 206 vascular plant taxa, representative of 91 genera, and 40 families (Appendix E) were recorded within the areas surveyed by Mattiske Consulting during the 2023 field survey. The most commonly represented families were Fabaceae (36 taxa), Chenopodiaceae (26 taxa), and Poaceae (23 taxa). The most commonly represented genera were *Acacia* (16 taxa), *Senna* (16 taxa), *Eremophila* (12 taxa), and *Maireana* (12 taxa). Plant species as recorded at each site are listed in Appendix F. Additionally, 22 taxa could only be identified to genus level, and four taxa to family level. This was due to a lack of fertile material, or other diagnostic features which enable identification to species level.

5.3 Proportion of Flora Collected

A species accumulation curve (Cowell 2013) was used to evaluate the sampling adequacy of the 2023 survey, and is presented in Figure 9. The theoretical asymptote of species richness was 250.78. Based on this value and the total of 206 taxa recorded in the present survey, approximately 82% of species potentially present within the survey areas were recorded.

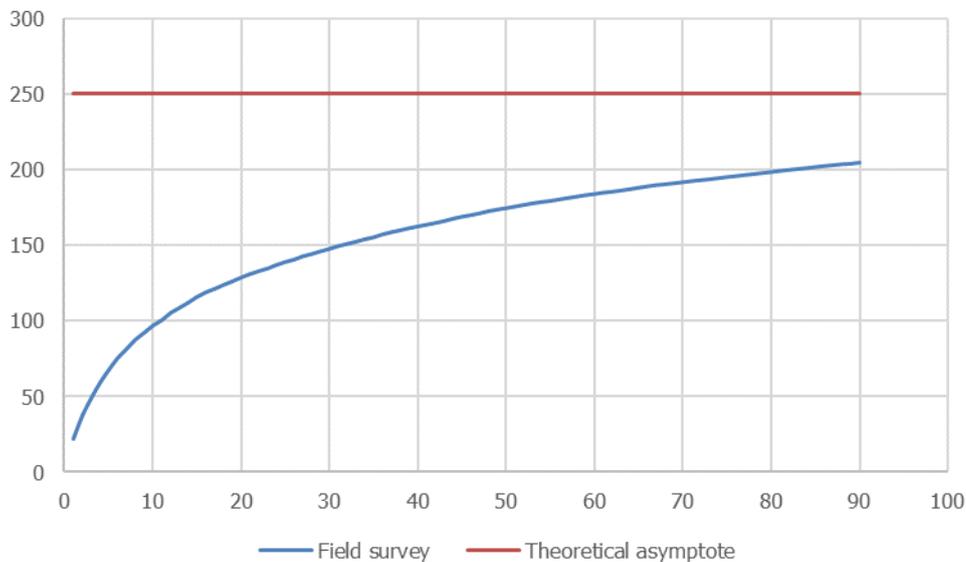


Figure 9: Average randomised species accumulation curve for the survey areas

5.4 Threatened and Priority Flora

No Threatened flora pursuant to section 179 of the EPBC Act (1999) and as listed by DCCEEW (2023c) or pursuant to Part 2, Division 1 and Subdivision 2 of the BC Act (2016) as listed by DBCA (2023a), were recorded within the survey areas.

One Priority species, *Eremophila pungens* (P4), as listed by DBCA (2023a) was recorded within the survey areas. A total of 25 individuals of this taxon were identified at two locations within the Russels Find (South) survey area. The locations of these individuals are presented in Appendix G. For confirmation, collections were submitted to taxonomic experts at the WAH where they were positively identified as *Eremophila pungens* (P4; accession number 10408/E).

5.5 Introduced Plant Taxa

Seven introduced plant taxa were recorded within the survey areas. These species include **Bidens bipinnata*, **Cucumis myriocarpus*, **Lysimachia arvensis*, **Malvastrum americanum*, **Mesembryanthemum crystallinum*, **Solanum nigrum*, and **Sonchus oleraceus*. Locations of introduced taxa recorded within the survey areas is presented in Appendix H. All introduced taxa recorded within the survey areas are classified as s11 Permitted pursuant to section 22 of the BAM Act (2007).

5.6 Statistical Analysis of Survey Quadrat Data

Cluster analyses derived from a species-by-site resemblance matrix (Bray–Curtis similarity) grouped survey sites into discrete clusters based on species composition (dissimilarity/distance increased) (Clarke and Gorley 2015). Only taxa which could be identified to species level were included in the analysis. Classification and ordination analyses were conducted on a data matrix of perennial taxa, with singularly occurring species and annual taxa omitted prior to analysis. This was justified on the basis that singleton taxa add little additional information, and annuals exhibit high inter-annual variation in distribution and abundance (Mott 1972, 1973). In addition, the omission of annual species from the statistical analysis allows for comparison of data from surveys undertaken in different seasons or survey years. Taxa which were identified to the subspecies, affinity, *sensu lato*, and variety levels were revised to the species level to reduce the tendency for this to create further statistical variation in analysis which was considered unwarranted. To enable consistency when comparing to the regional database, Mulga (*Acacia aneura* and its close relatives), excluding *Acacia craspedocarpa*, were merged to *Acacia* section *Juliflorae*. This was due to inconsistencies within the regional database with regards to Mulga nomenclature, as a split in Mulga in 2012 resulted in 12 newly defined species (Maslin and Reid 2012). To down weight the relative contributions of quantitatively dominant species a fourth root transformation was applied to percentage coverage data and used for statistical analysis. Computation of similarity matrices was based on the Bray Curtis similarity measure. Hierarchical Clustering was used in conjunction with Similarity Profile (SIMPROF), Similarity Percentages (SIMPER), site descriptions, site photos and aerial photographs; combining these methods increased the understanding of site inter-relations and thus the ability to accurately delineate those sites based on species composition.

Where appropriate, outliers and small groupings were assigned to broader comparative vegetation units based on factors including species composition and site descriptions; this is particularly relevant where survey quadrats were established on ecotones. For the purposes of vegetation mapping, i.e., extrapolating quadrat data to generalised vegetation communities over broad areas, an inclusive rather than exclusive approach was adopted for outliers.

Similarity Profile Analysis (SIMPROF) of the 90 survey quadrats resulted in 10 significantly associated groups of vegetation survey quadrats, with average similarity of 31.46% between all quadrats. To make community associations and enable regional consistency, data from all 90 survey quadrats was compared with a recently updated historical database comprising quadrat data spanning 1,065 quadrats established across Regis Resources' tenements since 1998 (Mattiske Consulting 2023a). The 90 quadrats were initially separated based on dominant landform (ridgeline, drainage line), or vegetation type (open Mulga

shrubland, sparse Mulga shrubland, Chenopod flat) and compared with the respective database for that landform or vegetation type. SIMPROF analysis across the regional database identified that the 90 survey quadrats were delineated into 10 statistically dissimilar vegetation associations. A simplified dendrogram based on this approach is presented in Figure 10.

Based on the above approach, 10 significantly dissimilar vegetation communities were delineated within the survey areas. The dendrogram representing the results of the cluster analysis and corresponding 9 vegetation communities is illustrated in Appendix I. Three of the associations made from the regional database give the appearance that there are singleton communities (A1, A7, and D1) within the local cluster analysis output. However, associations made using regional database SIMPROF outputs ensures that comparable replicates have been identified within Regis Resources tenements in previous surveys, and more than three suitable replicates exist in line with EPA guidelines (2016a).

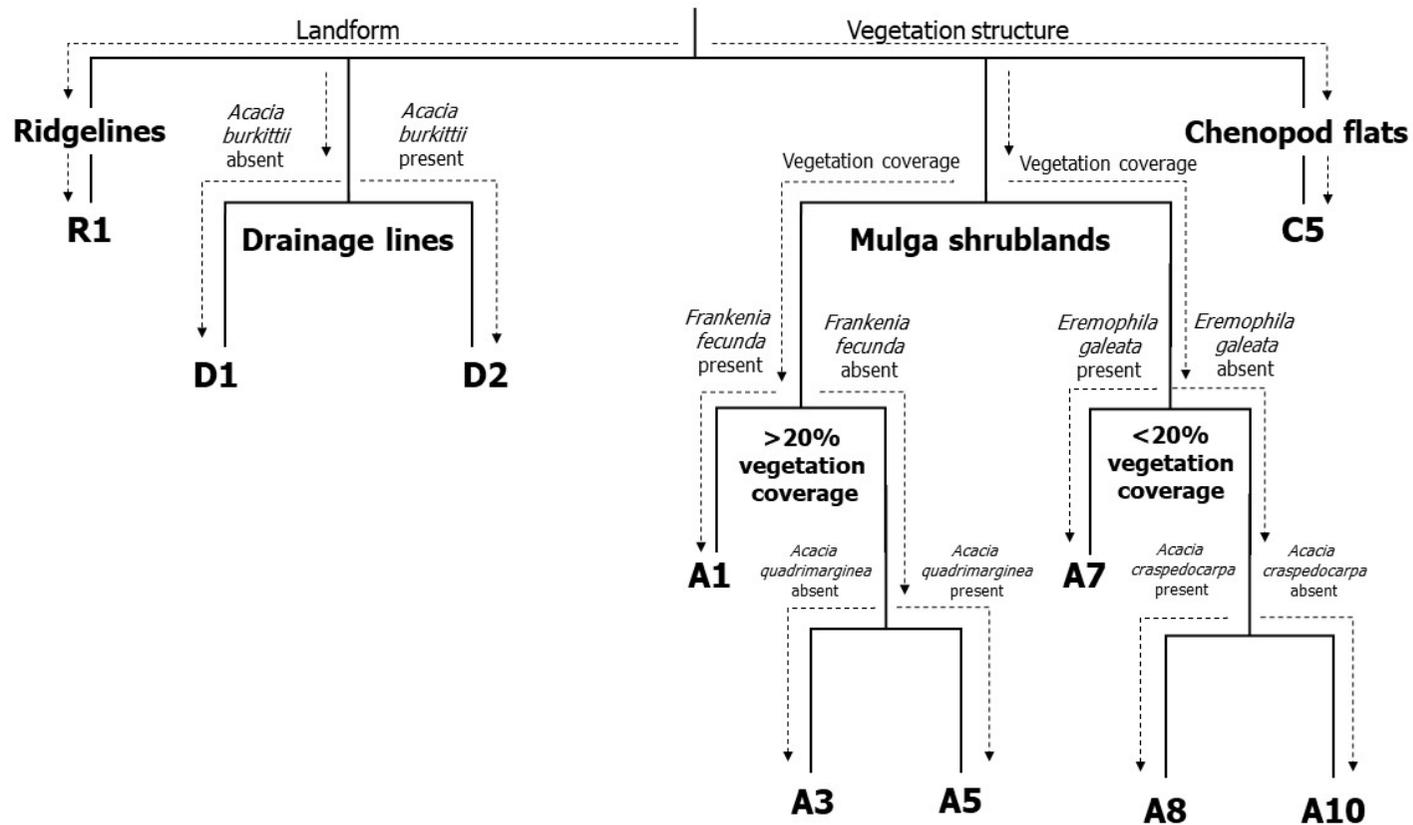


Figure 10: Simplified dendrogram showcasing how outputs from SIMPROF analysis and survey site contextual data were used in vegetation community delineation

5.7 Vegetation Communities and Mapping

Based on the statistical analysis (Section 5.6), 10 vegetation communities were delineated across the survey areas. In addition to the statistical analysis, survey quadrat physical data and aerial photographic maps were used to delineate the boundaries of the vegetation communities in the survey area. The descriptions of the vegetation communities were based on Aplin's (1979) modification of the vegetation classification system of Specht (1970), to align with the NVIS. Vegetation communities were described at the association level of the NVIS classification framework, as defined by the NVIS Technical Working Group (2017; Appendix A6) and are summarised below. Vegetation mapping is presented in Figure 11. The total area, and proportion of vegetation communities within defined survey boundaries is presented in Table 8. A detailed summary of vegetation communities defined below is presented in Appendix J. A detailed list of species recorded within each vegetation community is presented in Appendix K.

Open mulga shrubland communities

- A1 *Acacia* section *Juliflorae* (*Acacia aneura* and *Acacia aptaneura*) and *Acacia quadrimarginea* tall- open shrubland, over mid-sparse shrubland of *Psyrax rigidula*, *Senna artemisioides*, and *Acacia tetragonophylla* over low sparse shrubland of *Frankenia fecunda*, *Ptilotus obovatus*, and *Ptilotus schwartzii* on undulating red clay flats with ironstone and quartz pebbling
- A3 *Acacia* section *Juliflorae* (*Acacia aneura*, *Acacia aptaneura*, and *Acacia caesaneura*) and *Acacia oswaldii* tall-open shrubland over mid-sparse shrubland of *Acacia tetragonophylla*, *Acacia craspedocarpa*, and *Psyrax suaveolens* over low-sparse shrubland of *Sida ectogama*, *Ptilotus obovatus*, and *Cheilanthes sieberi* on undulating red clay flats with ironstone and quartz pebbling
- A5 *Acacia* section *Juliflorae* (*Acacia aneura* and *Acacia aptaneura*) and *Acacia quadrimarginea* tall- open shrubland over mid-sparse shrubland of *Acacia tetragonophylla*, *Senna artemisioides*, and *Psyrax suaveolens* over low-sparse shrubland of *Sida ectogama*, *Ptilotus obovatus*, and *Cheilanthes sieberi* on undulating red clay flats with ironstone and quartz pebbling

Sparse mulga shrubland communities

- A7 *Acacia* section *Juliflorae* (*Acacia aptaneura*) tall-sparse shrubland over mid-sparse shrubland of *Senna artemisioides*, *Psyrax suaveolens*, and *Eremophila galeata* over low-sparse shrubland of *Ptilotus obovatus*, *Sida ectogama*, and *Cheilanthes sieberi* on undulating red clay flats with ironstone and quartz pebbling
- A8 *Acacia* section *Juliflorae* (*Acacia aneura* and *Acacia aptaneura*) tall-sparse shrubland over mid- sparse shrubland of *Acacia tetragonophylla*, *Senna artemisioides*, and *Acacia craspedocarpa* over low-sparse shrubland of *Sida ectogama*, *Ptilotus obovatus*, and *Rhagodia eremaea* on undulating red clay flats with ironstone and quartz pebbling
- A10 *Acacia* section *Juliflorae* (*Acacia aneura*, *Acacia aptaneura* and *Acacia incurvaneura*) tall-sparse shrubland over mid-sparse shrubland of *Eremophila latrobei* and *Psyrax suaveolens* over low- sparse tussock grassland of *Eriachne mucronata*, *Eragrostis eriopoda*, and *Ptilotus obovatus* on undulating red clay flats with ironstone and quartz pebbling

Chenopod flat communities

- C5 *Acacia* section *Juliflorae* (*Acacia aneura* and *Acacia aptaneura*) tall-sparse shrubland over mid- sparse shrubland of *Hakea preissii*, *Senna artemisioides*, and *Eremophila platycalyx* over low- sparse chenopod shrubland of *Maireana triptera*, *Sclerolaena eriacantha*, and *Maireana pyramidata* on undulating red-orange, sandy-clay flats with quartz pebbling

Drainage line communities

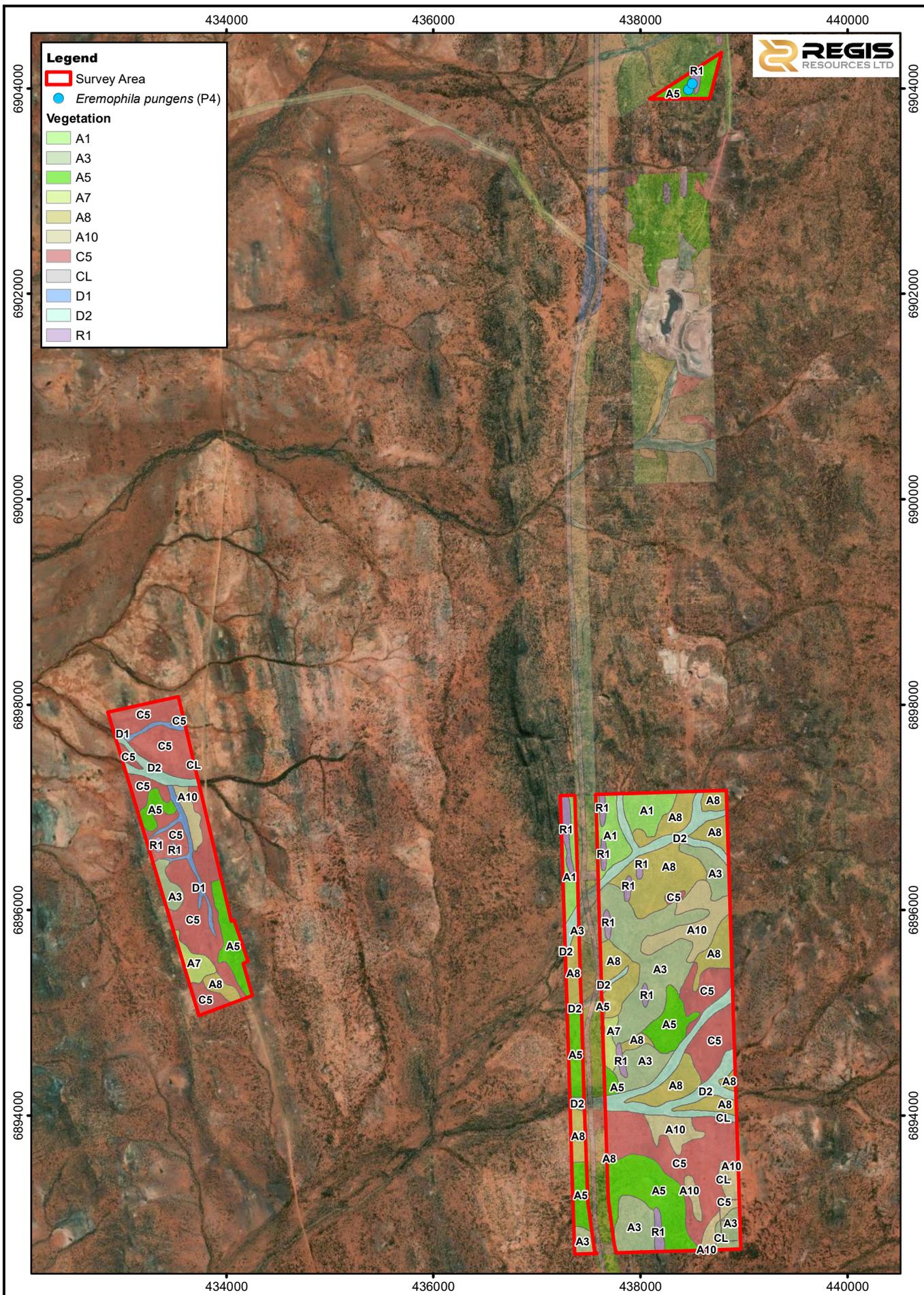
- D1 *Acacia* section *Juliflorae* (*Acacia aneura*) and *Acacia craspedocarpa* tall-open shrubland over mid- open shrubland of *Acacia tetragonophylla*, and *Senna artemisioides* over low-open shrubland of *Sida ectogama*, *Ptilotus obovatus*, and *Cheilanthes sieberi* on red clay soils in minor drainage lines
- D2 *Acacia* section *Juliflorae* (*Acacia aneura*, *Acacia aptaneura*, and *Acacia caesaneura*) and *Acacia craspedocarpa* tall-open shrubland over mid-open shrubland of *Acacia burkittii*, *Acacia tetragonophylla*, and *Senna artemisioides* over low-open shrubland of *Sida ectogama*, *Cheilanthes sieberi*, and *Solanum lasiophyllum* on red clay soils in minor drainage lines

Ridgeline communities

- R1 *Acacia* section *Juliflorae* (*Acacia aneura* and *Acacia aptaneura*) tall-sparse shrubland over mid- sparse shrubland of *Senna artemisioides*, *Eremophila latrobei*, and *Psydrax suaveolens* over low- sparse shrubland of *Ptilotus obovatus*, *Eriachne mucronata*, and *Cheilanthes sieberi* on skeletal clay soils on ironstone ridgelines

Table 8: Vegetation communities defined, and areas mapped within the survey areas

VEGETATION COMMUNITY	SURVEY AREA	AREA MAPPED (HA)	PROPORTION OF SURVEY AREA (%)	NUMBER OF QUADRATS
A1	Palliards Find	40.787	6.507	1
A3	Budgerigar	7.417	3.961	9
	Palliards Find	125.507	20.022	
A5	Budgerigar	23.179	12.380	9
	Palliards Find	81.980	13.078	
	Russels Find (South)	11.499	88.374	
A7	Budgerigar	8.532	4.557	2
	Palliards Find	5.642	0.900	
A8	Budgerigar	5.287	2.824	11
	Palliards Find	131.604	20.994	
A10	Budgerigar	7.273	3.884	4
	Palliards Find	53.847	8.590	
C5	Budgerigar	112.265	59.960	24
	Palliards Find	104.205	16.623	
D1	Budgerigar	12.125	6.476	2
D2	Budgerigar	9.706	5.184	14
	Palliards Find	63.902	10.194	
R1	Budgerigar	1.445	0.772	14
	Palliards Find	18.892	3.014	
	Russels Find (South)	1.513	11.626	
CL (Cleared areas)	Budgerigar	0.005	0.002	-
	Palliards Find	0.491	0.078	
Palliards Find = 626.859 ha; Budgerigar = 187.233 ha; Russels Find (South) = 13.011 ha				



N
 0 0.4 0.8 km
 Scale: 1:50,000
 MGA94 (Zone 51)
 CAD Ref: a2501_f32_08
 Date: October 2023
 Rev: A | A4


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**Vegetation community mapping
 for the survey areas**

5.8 Condition of the Vegetation

The vegetation condition ratings of the survey areas are as follows: five sites as 'degraded', 19 sites as 'poor', 54 sites as 'good', 11 sites as 'very good', and one site as 'excellent' based on the Trudgen (1988) scale. Sites were classified in terms of disturbance based on the presence of animal droppings/tracks, vehicle tracks, fire history, and density of introduced taxa. The most recent fire in the survey areas was estimated to have occurred over 20 years prior to the August 2023 survey. Vegetation condition mapping based on field observations is displayed in Figure 12, while the area and proportion of defined survey areas are presented in Table 9.

Table 9: Vegetation condition rating defined and mapped within the survey areas

SURVEY AREA	TOTAL AREA (HA)	VEGETATION CONDITION RATING	AREA MAPPED (HA)	PROPORTION OF SURVEY AREA (%)
Budgerigar	187.233	'Very good'	185.780	99.224
		'Good'	1.440	0.769
Palliards Find	626.859	'Very good'	59.680	9.520
		'Good'	566.690	90.402
		'Completely degraded' (Cleared areas)	0.490	0.078
Russels Find (South)	13.011	'Very good'	11.50	88.387
		'Good'	1.51	11.606

5.9 Threatened and Priority Ecological Communities

No Threatened or Priority Ecological Communities listed by the DBCA (2023b) or which are listed pursuant to the EPBC Act (1999) and as listed by the DCCEEW (2023b) intersect or are located near the survey areas.

440000



6900000

6900000



Legend

- Survey Area
- Condition**
- Very Good
- Good
- Completely Degraded

440000



0 0.4 0.8 km
 Scale: 1:50,000
 MGA94 (Zone 51)



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Vegetation condition mapping for the survey areas

Figure:

12

CAD Ref: a2501_f32_09
 Date: October 2023 Rev: A | A4

5.10 Field Survey Limitations and Constraints

An assessment of the survey against a range of factors which may have had an impact on the outcomes of the present survey is set out in Table 10. Based on this assessment, the current survey was not subject to any constraints.

Table 10: Potential flora and vegetation survey limitations for the survey areas

POTENTIAL SURVEY LIMITATION	IMPACT ON SURVEY
Availability of contextual information at a regional and local scale	Not a constraint. Numerous flora and vegetation surveys have been completed in adjacent areas by Mattiske Consulting (2009-2023b), OES (2007), MAIA (2013), and HGM (1998). Reference resources such as Beard (1990), Cowan (2001), and Shepherd <i>et al.</i> (2001), together with online flora and vegetation information, have provided an appropriate level of contextual information for the survey.
Scope (i.e., what life forms, etc., were sampled).	Not a constraint. Vascular flora, which was the focus of the present survey, was sampled.
Competency/experience of team carrying out survey; experience in the bioregion surveyed	Not a constraint. One senior botanist, and two experienced botanists had previous experience working on flora and vegetation surveys across Regis Resources tenements. The other botanist had experience working on flora and vegetation surveys within Western Australia.
Proportion of flora collected and identified (based on sampling, timing and intensity).	Not a constraint. The survey was conducted outside of optimal period for surveys within the Eremaean region, April to June (EPA 2016b). This was not a limitation of the current work as the majority of flora specimens collected were either in flower, fruiting, or contained a combination of diagnostic features rendering them readily identifiable. A species accumulation curve (Figure 9) indicated that 82% of taxa potentially present within the survey areas were identified. A total of 31% of taxa identified within this survey were annual species. All priority taxa with a high likelihood of occurrence within the survey area are perennial plant with a flowering period overlapping the survey timing.
Mapping reliability.	Not a constraint. The spatial coverage of the survey area is considered to be excellent. The quality of the aerial photographic maps available for the survey was considered to be good. Vegetation community boundaries were often discontinuous with interfaces resembling admixtures of one or more communities. This is a recognised and unavoidable limitation of vegetation mapping, particularly across the varying mulga shrublands which dominate the survey areas.
Timing, weather, season, cycle.	Not a constraint. The EPA (2016a) recommends that flora and vegetation surveys in the Eremaean Botanical Province take place in the 6 - 8 weeks post wet season (March – June), with supplementary surveys after Winter rainfall. This survey occurred in August 2023. Rainfall in the 12 months preceding the August 2023 survey was 144.4 mm, which is approximately 52.2% of the long-term average for the corresponding period at the Laverton Aero BOM Station (ID 12305). This may have impacted the presence of annual species within the survey areas (BOM 2023). A total of 31% of taxa identified within this survey were annual species. All priority taxa with a high likelihood of occurrence within the survey area are perennial plants.

Disturbances (fire, flood, accidental human intervention, etc.).	Not a constraint. The survey areas exhibited low levels of disturbance, limited to cattle grazing, extensive exploration drilling works, and the most recent fire event having occurred over 20 years prior to the August 2023 survey. Five survey sites were considered to be in 'degraded' condition. Little remnant vegetation was available for survey within these areas; however, flora species present did enable delineation of communities within these areas. Due to the low number of degraded sites, disturbance within the survey areas generally did not limit survey works, data collection, or taxa identification.
Survey effort and intensity (in retrospect, was the intensity adequate).	Not a constraint. The intensity of the survey effort was considered to be excellent. Initially all survey quadrats were selected from high quality aerial imagery, with additional quadrats added <i>in-situ</i> based on field observations. A total of 90 quadrats were established within the survey areas (Figure 8, Appendix D).
Resources (i.e., were there adequate resources to complete the survey to the required standard).	Not a constraint. Resources, in terms of equipment, support, and personnel were suitable to the survey work undertaken.
Access problems (i.e., ability to access the survey area).	Not a constraint. Numerous exploration drill tracks exist throughout the survey areas enabling easy access to survey sites.

6. DISCUSSION

Mattiske Consulting was engaged by Regis Resources to undertake a detailed flora and vegetation survey of the Palliards Find, Budgerigar, and Russels Find (South) project areas located approximately 75 km north of the Laverton in the Shire of Laverton (Figure 1). The survey areas comprised a total area of approximately 827 ha. The survey areas intersect a number of tenements, including E38/2868, E38/2975, E38/3518, E38/3554, E38/3776, L38/365, M38/114, M38/1241, M38/262, M38/740, and P38/4497 (Figure 2). A review of the potential constraints associated with the survey (Table 10) determined that the August 2023 survey was not subject to any constraints.

6.1 Flora

A total of 206 vascular plant taxa, representing 91 genera, and 40 families were recorded across 90 survey quadrats established within the survey areas. The most common families were Fabaceae, Chenopodiaceae, and Poaceae (Appendix E). The majority of taxa identified are found both locally and more broadly within the Eastern Murchison IBRA subregion, which the current survey intersects (Mattiske Consulting 2009-2023a; OES 2007; MAIA 2013; HGM 1998; Cowan 2001; Beard 1990; WAH 1998-). The lower number of taxa identified within the survey areas compared with the desktop study (711 taxa), is a consequence of the broader area searched as part of the desktop assessment (approx. 2,009,600 ha) when compared with the survey areas (approx. 827 ha). The larger area of the desktop study would naturally include a wider range of flora.

A species accumulation curve, based on the quadrat data recorded in the survey areas, demonstrated 82% of taxa potentially present were recorded. This demonstrates that the timing and survey effort were appropriate (Figure 8, Figure 9). A reduction in rainfall of 48.8% for the 12 months preceding the August 2023 survey when compared with long term averages for the nearest BOM station (ID12305) may have contributed to a decrease in species presence at the time of survey (BOM 2023).

Two records of priority taxa *Eremophila pungens* (P4) were located at two locations within the Russels Find (south) project area. The locations of these two records are presented in Figure 11 and Appendix G. These two records account for 25 individual members of this taxon. Both records of *Eremophila pungens* (P4) occur within the A5 vegetation community which dominates the Russels Find (south) area. This community is an open Mulga and *Acacia quadrimarginea* shrubland which occurs on stony undulating red clay flats. *Eremophila pungens* (P4) is known from 37 records distributed across an area of approximately 400 km × 400 km within the Murchison, Gascoyne, and Great Victoria Desert IBRA bioregions (Plate 1) (WAH 1998-). Records of *Eremophila pungens* (P4) are known two nature reserves, including De La Poer Nature Reserve, and Wanjarri Nature Reserve. Given the large distribution of *Eremophila pungens* (P4) across three bioregions, its lower priority rating, and its location within two nature reserves, there are minimal risks to this taxon associated with the proposed development of Russels Find (south). No additional priority taxa were recorded within the survey areas.

Seven introduced taxa were recorded within the survey areas. These included **Bidens bipinnata* (Bipinnate Beggartick), **Cucumis myriocarpus* (Prickly Paddy Melon), **Lysimachia arvensis* (Pimpernel), **Malvastrum americanum* (Spiked Malvastrum), **Mesembryanthemum crystallinum* (Iceplant), **Solanum nigrum* (Black Berry Nightshade), and **Sonchus oleraceus* (Common Sowthistle). The locations of all introduced taxa are presented in Appendix F. All introduced species recorded within the August 2023 survey areas have been identified in previous Mattiske Consulting surveys (2009-2023b) or were identified by the desktop analysis (DBCA 2023e), except **Cucumis myriocarpus*. **Cucumis myriocarpus* is a prostrate annual herb, which is widely distributed across the Murchison IBRA bioregion (WAH 1998-). None of the introduced taxa identified within the survey areas are declared pest organisms pursuant to s22 of the BAM Act (2007). All introduced taxa are classified as s11 (permitted organisms) under the BAM Act (2007).

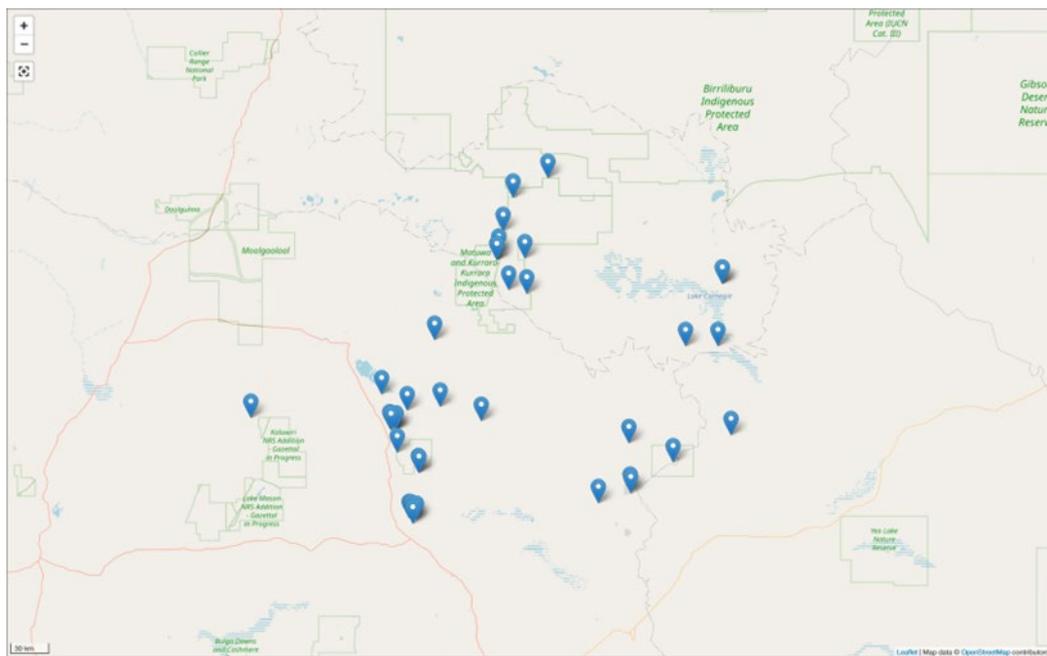


Plate 1: *Eremophila pungens* (P4) distribution (WAH 1998–)

6.2 Vegetation

A total of 10 vegetation communities were delineated and mapped across the survey areas. Vegetation community mapping over the survey areas is presented in Figure 11. The dendrogram output of CLUSTER and SIMPROF analysis with communities shown is presented in Appendix I. The dendrogram presented in Appendix I is based on a localised CLUSTER analysis of quadrats established in the current survey. Community associations for 90 survey quadrats were delineated based on SIMPROF analysis of survey sites within a database of 1,065 quadrats established across Regis Resources' Duketon tenements (Mattiske Consulting 2023a). This enabled regional consistency with vegetation community mapping previously completed across Regis Resources' Duketon tenements (Mattiske Consulting 2023a).

A simplified dendrogram showcasing the community delineation process is presented in Figure 10. Initial splits in the data were associated with dominant vegetation or landform associated with survey quadrats. This resulted in five distinct groupings of quadrats, including ridgelines (14 quadrats), open Mulga shrublands (19 quadrats), sparse Mulga shrublands (17 quadrats), chenopod flats (24 quadrats), and drainage lines (16 quadrats). These groups of quadrats were compared with the regional database where ten vegetation communities were delineated based on SIMPROF outputs (Figure 10, Appendix I). Three of the associations made from the regional database give the appearance that there are singleton communities (A1, A7, D2) within the local cluster analysis outputs (Appendix I). Singleton communities are the result of insufficient replicates within the data. EPA technical guidance requires communities to be established based off of associations between at least three independent survey quadrats (EPA 2016a). While communities A1, A7, and D2 appear to be singleton communities, they are based on comparisons with the regional database ensuring sufficient replicates have been identified within Regis Resources tenements in previous survey (Mattiske Consulting 2023a).

The dominant form of vegetation across all survey areas was chenopod shrubland community C5, which occurred on the red-orange, sandy clay flats which dominated the survey areas (Figure 11). C5 contained a tall-sparse upper stratum of Mulga, over a mid-sparse stratum of *Hakea preissii*, *Senna artemisioides* and *Eremophila platycalyx*, over a low-sparse stratum containing various chenopod species. This community tended to occupy the flats which were surrounded by a matrix of various Mulga shrubland communities on surrounding higher elevations. Although community C5 occurs in both the Budgerigar and the Palliards find survey areas, it is particularly dominant within the Budgerigar areas. This aligns with the pre-European association within Budgerigar (Laverton 39.30) which differs from that of Palliards (Laverton 18.16). The pre-European system of vegetation dominant within Budgerigar is that of low open chenopod scrublands (Table 4), which this mapping confirms.

The remaining vegetation communities delineated within the survey areas were split between open Mulga shrublands (A1, A3, A5), sparse Mulga shrublands (A7, A8, A10), drainage line communities (D1, D2), and a single ridgeline community (R1). An open Mulga shrubland community contains a vegetation coverage of over 20%, while a sparse Mulga shrubland contains a vegetation coverage of under 20%. Sparse mulga shrublands tend to present greater evidence of disturbance associated with grazing by cattle or other undulate species. Within these communities, new recruits of species like the various Mulga, *Eremophila*, or various tussock grass species (*Eriachne mucronata*, *Eragrostis eriopoda*, *Monachather paradoxus*) are removed by undulate grazers. This results in a more sparsely covered area with older vegetation typically showing signs of stress from grazing when compared with open Mulga shrublands (Beard 1990; Maslin and Reid 2012; Mattiske Consulting 2023b).

The most abundant open Mulga shrublands were A3 and A5. Both community A3 and A5 closely resemble one another in species composition, containing very similar middle and lower-strata species. The point of difference between both occurs within the upper strata, where Mulga species are codominant with *Acacia oswaldii* in A3, while in A5 Mulga is codominant with *Acacia quadrimarginea*. Both community A3 and A5 matrix along the survey areas, however community A5 almost exclusively occurs on soils with a much rockier surface lithology. *Acacia quadrimarginea* is commonly associated with stony elevations within the Eastern Murchison region (Beard 1990, WAH 1998–). When larger rocks on the soil surface drop out, so too does *Acacia quadrimarginea*. On these soils, *Acacia quadrimarginea* is replaced by *Acacia oswaldii*. The remaining open Mulga shrubland community is A1, which like community A5 contains *Acacia quadrimarginea* and is found on stony elevated areas. However, unlike the other open Mulga

shrublands delineated within the survey areas, A1 also contains a highly variable mixture of chenopod and salt-tolerant species in the lower stratum. Community A1 is also associated exclusively with the northern areas of Palliards Find, which contained a high number of elevated ironstone ridgelines, which community A1 fringes.

The most abundant sparse Mulga shrubland within the survey areas was community A8. This community is a flood plain community which fringed drainage areas found throughout the survey areas. A constituent member of the A8 community is *Acacia craspedocarpa*, which unlike other Mulga species tends to associate with more wet areas, like drainage areas and floodplains across the Regis Resources tenements, and Eastern Murchison IBRA (Beard 1990; Mattiske Consulting 2009-2023b). As mentioned above, sparse mulga shrublands tend to exhibit greater evidence of grazing by undulate species when compared to open Mulga shrublands. While the average community disturbance rating for A8 was marked as 'good' grazing pressures were evident across the areas delineated. As undulate species seek water within drainage areas, which A8 surrounds, grazing likely occurs at more intense levels than in other areas. Limited new recruits of Mulga and tussock grasses were evident within community A8.

The remaining sparse Mulga shrubland communities, A7 and A10, were delineated across less than 10% of the survey areas. Community A7 was located on stony rises which presented similar signs of disturbance to community A8, discussed above. A7 is distinguished from the other sparse mulga shrublands as it contains *Eremophila galeata*, which occurs on areas of increasing elevation and rockiness across the Regis Resources tenements' (Mattiske Consulting 2009-2023b). Community A10 is marked by heavy grazing of tussock grasses within the lower stratum. Both *Eriachne mucronata* and *Eragrostis eriopoda* are abundant within community A10, but have been heavily grazed. This community was allocated an average disturbance rating of 'poor' due to several sites within the survey areas being so heavily grazed, remnant vegetation was difficult to find within the lower stratum of these areas.

Drainage line communities D1 and D2 intersect the survey areas. D1 occurs exclusively within the Budgerigar area, and is located on clay soils in minor drainage lines. Community D2 is distinguished from D1 as it contains *Acacia burkittii* and occurs on sandy-clay soils in minor drainage lines. *Acacia burkittii* tends to associate with sandy areas across the Eastern Murchison IBRA, and indicates a shift in vegetation between D1 and D2 within the Regis Resources tenements (Beard 1990; Mattiske Consulting 2009-2023a; WAH 1998-).

One ridgeline community, R1, was delineated across the survey areas. This ridgeline community was associated with the ironstone ridges which run in a north-south orientation within the survey areas. The ridgeline community contained many species commonly associated with ironstone and stony ridgelines, including *Eremophila latrobei* and *Eriachne mucronata* (WAH 1998-).

Most communities delineated were evenly distributed across the survey areas. No vegetation communities within the survey areas are spatially restricted. While some communities mapped across the survey areas occur in small proportions, however similar vegetation assemblages are known to be locally (Mattiske Consulting 2009-2023a; OES 2007; MAIA 2013; HGM 1998), and regionally abundant (Beard 1990; Cowan 2001).

The vegetation condition of sites within the survey areas ranged from 'degraded' to 'excellent' based on the vegetation condition scale for the Eremaean and Northern Botanical Regions by Trudgen (1988). Five sites were considered to be in 'degraded' condition, 19 sites in 'poor' condition, 54 sites in 'good', 11 sites in 'very good' condition, and one site in 'excellent' condition. In all five sites (STH014, STH019, STH020, STH075, and STH083) rated as 'degraded', extensive exploration drill works and cattle grazing resulted in few undisturbed areas where remnant vegetation was available to survey. Degraded areas were exclusively associated with chenopod community C5. Outside of the five sites rated as 'degraded', disturbance within the survey areas was limited to the presence of cattle grazing (scat, tracks), the presence of exploration drill tracks, and a number of non-aggressive permitted introduced taxa discussed above (s11 Permitted pursuant to section 22 of the BAM Act (2007); Figure 11, 12).

Communities C5 and A10 had an average disturbance rating of 'poor'. Both communities were associated with areas showing evidence of high levels of undulate grazing activity, and extensive land clearing for both current and historical mining activities. Limited remnant vegetation was available at several

vegetation quadrats, as discussed above. Average vegetation condition mapping for is presented in Figure 12.

7. CONCLUSION AND RECOMMENDATIONS

Flora and vegetation communities identified across the survey areas are largely consistent with historical and regional mapping of the Eastern Murchison IBRA subregion (Beard 1990; Cowan 2001; Shepherd *et. al.* 2001), and more localized mapping (Mattiske Consulting 2009-2023b; OES 2007; MAIA 2013; HGM 1998). Disturbance impacts to the survey areas are associated with exploration drill tracks, impacts of grazing by cattle, and the presence of seven introduced taxa (Appendix H). Five sites were located in degraded areas. These degraded areas were largely affected by extensive exploration drill works and cattle grazing leaving little remnant vegetation available for survey.

Two records of the Priority Four taxon *Eremophila pungens* were recorded within Russels Find (south) project area (WAH 1998–). These records represent 25 individual members of this taxon. *Eremophila pungens* (P4) is known from 37 records over a 400 km × 400 km area intersecting the Murchison, Gascoyne, and Great Victoria Desert IBRA regions (Plate 1; WAH 1998–). Records of *Eremophila pungens* (P4) are located within De La Poer Nature Reserve and Wanjarri Nature Reserve (Plate 1). Given its large distribution, lower Priority status, and location within two nature reserves, there is minimal risk to *Eremophila pungens* (P4) associated with the development of the Russels Find (South) project area.

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9. PERSONNEL

The following Mattiske Consulting personnel were involved in this project:

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S. Ruoss	Senior Botanist	Field work, plant identification, report review	FB62000031-5
K. Tribbeck	Botanist	Field work, plant identification	FB62000467-2
M. Pollock	Botanist	Plant identification, report preparation	FB62000524
K. Smith	Botanist	Report preparation	N/A

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APPENDIX A1: THREATENED AND PRIORITY FLORA DEFINITIONS

Under section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), **threatened flora** are categorised as extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent (Table A1.1).

Table A1.1 Federal definition of threatened flora species

Note: Adapted from section 179 of the EPBC Act.

CODE	CATEGORY	DEFINITION
Ex	Extinct	Species which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
ExW	Extinct in the Wild	Species 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	Species which at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
E	Endangered	Species which is not critically endangered and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.
V	Vulnerable	Species 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.
CD	Conservation Dependent	Species which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

The *Biodiversity Conservation Act 2016* (BC Act) provides for (amongst other things) the protection of flora that is facing an extremely high risk of extinction in the wild in the immediate, near or medium-term future in Western Australia under Part 10 (Division 2).

Threatened flora are listed in the *Wildlife Conservation (Rare Flora) Notice 2018* (under Part 2, Division 1, Subdivision 2 of the BC Act; Department of Biodiversity, Conservation and Attractions (DBCA, 2023a) and are categorised under Schedules 1-3. A flora species is defined as **threatened** if it is facing an extremely high risk of extinction in the wild in the immediate, near or medium-term future, pursuant to sections 20, 21 and 22 of the BC Act. Threatened species are categorised as critically endangered, endangered, and vulnerable (Table A1.2).

Table A1.2 State definition of threatened flora species

Note: Adapted from DBCA (2023a).

CODE	CATEGORY	DEFINITION
CR	Critically endangered	Species considered to be facing an extremely high risk of becoming extinct in the wild (listed under Schedule 1 of the <i>Wildlife Conservation (Rare Flora) Notice 2018</i>).
EN	Endangered	Species considered to be facing a very high risk of becoming extinct in the wild (listed under Schedule 2 of the <i>Wildlife Conservation (Rare Flora) Notice 2018</i>).
VU	Vulnerable	Species considered to be facing a high risk of becoming extinct in the wild (listed under Schedule 3 of the <i>Wildlife Conservation (Rare Flora) Notice 2018</i>).

Priority flora species are defined as “possibly threatened species that do not meet the survey criteria, or are otherwise data deficient” or species that are “adequately known, are rare but not threatened, meet criteria for near threatened or have recently been removed from the threatened species list” for other than taxonomic reasons” (DBCA 2023b). Priority species are not afforded the same level of protection under state or federal legislation as the listed Threatened species, however are considered significant under the Environmental Protection Authority’s *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority 2016a). The Department of Biodiversity, Conservation and Attractions categorises priority flora into four categories: Priority 1; Priority 2, Priority 3 and Priority 4 (Table A1.3).

Table A1.3: State definition of priority flora species

Note: Adapted from DBCA (2023a).

CODE	CATEGORY	DEFINITION
P1	Priority 1: Poorly-known species	Known from one or a few locations (< 5) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation; or are otherwise under threat of habitat destruction or degradation. In urgent need of further survey.
P2	Priority 2: Poorly-known species	Known from one or a few locations (< 5). Some occurrences are on lands managed primarily for nature conservation. In urgent need of further survey.
P3	Priority 3: Poorly-known species	Known from several locations and the species does not appear to be under imminent threat; or from few but widespread locations with either a large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. In need of further survey.
P4	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 do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. c) Other - Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

APPENDIX A2: THREATENED AND PRIORITY ECOLOGICAL COMMUNITY DEFINITIONS

Under section 181 of the EPBC Act, **threatened ecological communities** are categorised as critically endangered, endangered and vulnerable (Table A2.1).

Table A2.1 Federal definition of threatened ecological communities

Note: Adapted from section 181 and section 182 of the EPBC Act.

CATEGORY	DEFINITION
Critically Endangered	If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future.
Endangered	If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future.
Vulnerable	If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future.

Threatened ecological communities (TECs) are listed in the *List of Threatened Ecological Communities endorsed by the Western Australian Minister for Environment (28 June 2018)* (under Part 2, Division 2, Subdivision 1 of the BC Act; DBCA 2023c). An ecological community is defined as **threatened** if it is facing an extremely high risk of collapse in the immediate, near or medium-term future, pursuant to sections 28, 29 and 30 of the BC Act. Threatened ecological communities are categorised as critically endangered, endangered, and vulnerable (Table A2.2).

Currently there is no Western Australian legislation covering the conservation of state listed **threatened ecological communities** (TECs), however, a non-statutory process is in place, whereby the DBCA (and former equivalent departments) have been identifying and informally listing TECs since 1994. Some of these TECs are also endorsed by the Federal Minister as threatened, and some of these are listed under the EPBC Act and therefore afforded legislative protection at the Commonwealth level.

Table A2.2 State definition of threatened ecological communities

Note: Adapted from DBCA (2023a).

CODE	CATEGORY	DEFINITION
CR	Critically Endangered	An ecological community will be listed as CR when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future, meeting any one or more of the following criteria: <ol style="list-style-type: none"> 1. The estimated geographic range and distribution has been reduced by at least 90% and is either continuing to decline with total destruction imminent, or is unlikely to be substantially rehabilitated in the immediate future due to modification; 2. The current distribution is limited i.e., highly restricted, having very few small or isolated occurrences, or covering a small area; or 3. The ecological community is highly modified with potential of being rehabilitated in the immediate future.
EN	Endangered	An ecological community will be listed as EN when it has been adequately surveyed and is not CR, but is facing a very high risk of total destruction in the near future. The ecological community must meet any one or more of the following criteria: <ol style="list-style-type: none"> 1. The estimated geographic range and distribution has been reduced by at least 70% and is either continuing to decline with total destruction imminent in the short term future, or is unlikely to be substantially rehabilitated in the short term future due to modification; 2. The current distribution is limited i.e., highly restricted, having very few small or isolated occurrences, or covering a small area; or 3. The ecological community is highly modified with potential of being rehabilitated in the short term future.
VU	Vulnerable	An ecological community will be listed as VU when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing high risk of total destruction in the medium to long term future. The ecological community must meet any one or more of the following criteria: <ol style="list-style-type: none"> 1. The ecological community exists largely as modified occurrences that are likely to be able to be substantially restored or rehabilitated; 2. The ecological community may already be modified and would be vulnerable to threatening process, and restricted in range or distribution; or 3. The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes.

Priority ecological communities (PECs) are defined as possible threatened ecological communities that do not meet the stringent survey criteria for the assessment of threatened ecological communities, and are listed by the DBCA (2023d) in the *Priority Ecological Communities for Western Australia – Version 34 (21st December 2022)*. Similarly, to priority flora, PECs are not afforded legislative protection, however are considered significant under the Environmental Protection Authority's (2016a) *Environmental Factor Guideline: Flora and Vegetation*. The Department of Biodiversity, Conservation and Attractions categorises priority ecological communities into five categories: Priority 1; Priority 2, Priority 3, Priority 4 and Priority 5 (Table A2.3).

Table A2.3 State definition of priority ecological communities

Note: Adapted from DBCA (2023a).

CODE	CATEGORY	DEFINITION
P1	Priority 1 (Poorly known ecological communities)	Ecological communities that are known from very few, restricted occurrences (generally ≤ 5 occurrences or a total area of ≤ 100 ha). Most of these occurrences are not actively managed for conservation (e.g. located within agricultural or pastoral lands, urban areas, or active mineral leases) and for which immediate threats exist.
P2	Priority 2 (Poorly known ecological communities)	Communities that are known from few small occurrences (generally ≤ 10 occurrences or a total area of ≤ 200 ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation.
P3	Priority 3 (Poorly known ecological communities)	<ol style="list-style-type: none"> Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation; Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat; or Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.
P4	Priority 4 (Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring)	<ol style="list-style-type: none"> Rare – Communities known from few occurrences that are considered to have been adequately surveyed, sufficient knowledge is available, and are considered not to be currently threatened. Near Threatened – Communities considered to have been adequately surveyed and do not qualify for Conservation Dependent, but are close to qualifying for Vulnerable. Communities that have been removed from the list of threatened communities during the past five years.
P5	Priority 5 (Conservation Dependent ecological communities)	Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

APPENDIX A3: CATEGORIES AND CONTROL MEASURES OF DECLARED PEST (PLANT) ORGANISMS IN WESTERN AUSTRALIA

Section 22 of Western Australia's *Biosecurity and Agriculture Management Act 2007* (BAM Act) makes provision for a plant taxon to be listed as a declared pest organism in respect to parts of, or the entire State. According to the BAM Act, a declared pest is defined as a prohibited organism (section 12), or an organism for which a declaration under section 22 (2) of the Act is in force.

Under the *Biosecurity and Agriculture Management Regulations 2013* (WA), declared pest plants are placed in one of three control categories, C1 (exclusion), C2 (eradication) or C3 (management), which determines the measures of control which apply to the declared pest (Table A4.1). The current listing of declared pest organisms and their control category is through the Western Australian Organism List (Department of Primary Industries and Regional Development 2021).

Table A3.1 Categories and control measures of declared pest (plant) organisms

Note: Adapted from *Biosecurity and Agriculture Management Regulations 2013*.

CONTROL CATEGORY	CONTROL MEASURES
<p style="text-align: center;">C1 (Exclusion)</p> <p>'(a) Category 1 (C1) — Exclusion: if in the opinion of the Minister introduction of the declared pest into an area or part of an area for which it is declared should be prevented.'</p> <p>Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.</p>	<p>In relation to a category 1 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.</p>
<p style="text-align: center;">C2 (Eradication)</p> <p>'(b) Category 2 (C2) — Eradication: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is feasible.'</p> <p>Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.</p>	<p>In relation to a category 2 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.</p>
<p style="text-align: center;">C3 (Management)</p> <p>'(c) Category 3 (C3) — Management: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is not feasible but that it is necessary to:</p> <p>(i) alleviate the harmful impact of the declared pest in the area; or</p> <p>(ii) reduce the number or distribution of the declared pest in the area; or</p> <p>(iii) prevent or contain the spread of the declared pest in the area.'</p> <p>Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.</p>	<p>In relation to a category 3 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to:</p> <p>(a) alleviate the harmful impact of the declared pest in the area for which it is declared; or</p> <p>(b) reduce the number or distribution of the declared pest in the area for which it is declared; or</p> <p>(c) prevent or contain the spread of the declared pest in the area for which it is declared.</p>

APPENDIX A4: OTHER DEFINITIONS

Environmentally sensitive areas

Environmentally sensitive areas are declared by the State Minister under section 51B of the *Environmental Protection Act 1986* (EP Act) and are listed in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*, gazetted 8 April 2005. Specific environmentally sensitive areas relevant to this report include: a defined wetland and the area within 50 metres of the wetland; the area covered by vegetation within 50 metres of rare flora; the area covered by a threatened ecological community; a Bush Forever site – further areas and information are described in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*.

Conservation significant flora

Under the *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority 2016a), flora may be considered significant for a range of reasons, including, but not limited to the following:

- being identified as threatened or priority species;
- locally endemic or associated with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems);
- new species or anomalous features that indicate a potential new species;
- representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- unusual species, including restricted subspecies, varieties or naturally occurring hybrids; or
- relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

Conservation significant vegetation

Under the *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority 2016a), vegetation may be considered significant for a range of reasons, including, but not limited to the following:

- being identified as threatened or priority ecological communities;
- restricted distribution;
- degree of historical impact from threatening processes;
- a role as a refuge; or
- providing an important function required to maintain ecological integrity of a significant ecosystem.

APPENDIX A5: DEFINITION OF VEGETATION CONDITION SCALE FOR THE EREMAEAN AND NORTHERN BOTANICAL PROVINCES

Vegetation condition ratings relate to vegetation structure, level of disturbance at each structural layer and the ability of the vegetation unit to regenerate (Table A5.1). Vegetation condition provides complementary information for assessing the significance of potential impacts.

Table A5.1 DEFINITION OF VEGETATION CONDITION SCALE FOR THE EREMAEAN AND NORTHERN BOTANICAL PROVINCES

Vegetation condition ratings relate to vegetation structure, level of disturbance at each structural layer and the ability of the vegetation unit to regenerate (Table A5.1). Vegetation condition provides complementary information for assessing the significance of potential impacts.

Table A6.1 Definition of Vegetation Condition Categories

Note: Adapted from Trudgen (1988).

CATEGORY	DEFINITION
1 (Excellent)	Pristine or nearly so, no obvious sign of damage caused by human activities since European settlement.
2 (Very Good)	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.
3 (Good)	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.
4 (Poor)	Still retains basic vegetation structure or ability to regenerate after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
5 (Degraded)	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 without intensive management. Usually with a number of weed species present including very aggressive species.
6 (Completely Degraded)	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.

APPENDIX A6: NVIS STRUCTURAL FORMATION TERMINOLOGY

Note: Adapted from NVIS Technical Working Group (2017).

COVER CHARACTERISTICS							
Foliage cover*	70-100	30-70	10-30	<10	≈0	0-5	unknown
Crown cover**	>80	50-80	20-50	0.25-20	<0.25	0-5	unknown
% cover***	>80	50-80	20-50	0.25-20	<0.25	0-5	unknown
Cover code	d	c	i	r	bi	bc	unknown

GROWTH FORM	HEIGHT RANGES (m)	STRUCTURAL FORMATION CLASSES						
		closed forest	open forest	woodland	open woodland	isolated trees	isolated clumps of trees	trees
tree, palm	<10, 10-30, >30	closed forest	open forest	woodland	open woodland	isolated trees	isolated clumps of trees	trees
tree mallee	<3, <10, 10-30	closed mallee forest	open mallee forest	mallee woodland	open mallee woodland	isolated mallee trees	isolated clumps of mallee trees	mallee trees
shrub, cycad, grass-tree, tree-fern	<1, 1-2, >2	closed shrubland	shrubland	open shrubland	sparse shrubland	isolated shrubs	isolated clumps of shrubs	shrubs
mallee shrub	<3, <10, 10-30	closed mallee shrubland	mallee shrubland	open mallee shrubland	sparse mallee shrubland	isolated mallee shrubs	isolated clumps of mallee shrubs	mallee shrubs
heath shrub	<1, 1-2, >2	closed heathland	heathland	open heathland	sparse heathland	isolated heath shrubs	isolated clumps of heath shrubs	heath shrubs
chenopod shrub	<1, 1-2, >2	closed chenopod shrubland	chenopod shrubland	open chenopod shrubland	sparse chenopod shrubland	isolated chenopod shrubs	isolated clumps of chenopod shrubs	chenopod shrubs
samphire shrub	<0.5, >0.5	closed samphire shrubland	samphire shrubland	open samphire shrubland	sparse samphire shrubland	isolated samphire shrubs	isolated clumps of samphire shrubs	samphire shrubs
hummock grass	<2, >2	closed hummock grassland	hummock grassland	open hummock grassland	sparse hummock grassland	isolated hummock grasses	isolated clumps of hummock grasses	hummock grasses
tussock grass	<0.5, >0.5	closed tussock grassland	tussock grassland	open tussock grassland	sparse tussock grassland	isolated tussock grasses	isolated clumps of tussock grasses	tussock grasses
other grass	<0.5, >0.5	closed grassland	grassland	open grassland	sparse grassland	isolated grasses	isolated clumps of grasses	other grasses
sedge	<0.5, >0.5	closed sedgeland	sedgeland	open sedgeland	sparse sedgeland	isolated sedges	isolated clumps of sedges	sedges
rush	<0.5, >0.5	closed rushland	rushland	open rushland	sparse rushland	isolated rushes	isolated clumps of rushes	rushes
forb	<0.5, >0.5	closed forbland	forbland	open forbland	sparse forbland	isolated forbs	isolated clumps of forbs	forbs
fern	<1, 1-2, >2	closed fernland	fernland	open fernland	sparse fernland	isolated ferns	isolated clumps of ferns	ferns
bryophyte	<0.5	closed bryophyteland	bryophyteland	open bryophyteland	sparse bryophyteland	isolated bryophytes	isolated clumps of bryophytes	bryophytes
lichen	<0.5	closed lichenland	lichenland	open lichenland	sparse lichenland	isolated lichens	isolated clumps of lichens	lichens
vine	<10, 10-30, >30	closed vineland	vineland	open vineland	sparse vineland	isolated vines	isolated clumps of vines	vines
aquatic	0-0.5, <1	closed aquatic bed	aquatic bed	open aquatic bed	sparse aquatics	isolated aquatics	isolated clumps of aquatics	aquatics
seagrass	0-0.5, <1	closed seagrass bed	seagrass bed	open seagrass bed	sparse seagrasses	isolated seagrasses	isolated clumps of seagrasses	seagrasses

APPENDIX B: VASCULAR PLANT SPECIES POTENTIALLY PRESENT AND RECORDED WITHIN THE REGIS RESOURCES MINING TENEMENT, 1988-2023

Note: * denotes introduced species; T denotes threatened flora and P1-P4 denote priority flora species; A/P denotes annual or perennial; and lifeforms are described as follows H: Herbs, S: Shrubs, C: Climbers, T: Trees, F: Ferns, AS: Aerial Shrubs and G: Grass; (DBC 2022d; Western Australian Herbarium, 1998-; see also Appendix A). Potential survey results from Dandjoo 2023, and Priority species search [Priority] from WA herbarium and TPFL (DBCA2023d;2023f). Field survey results from Halpern Glick Maunsell [HGM 1998], Outback Ecology Services [OES 2007], Maia Ecological Consulting [MAIA 2013], Mattiske Consulting Pty Ltd, 2009-2022b, 2023b (see full reference list).

FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
AMARANTHACEAE (continued)	<i>Ptilotus schwartzii</i> var. <i>georgei</i>	P	S								X	X													
	<i>Ptilotus schwartzii</i> var. <i>schwartzii</i>	P	S							X	X		X			X									
	<i>Ptilotus xerophilus</i>	A/P	H	X																					
	<i>Ptilotus</i> sp.	A	H												X								X		X
	<i>Surreya diandra</i>	P	S				X					X		X	X										
APIACEAE	<i>Daucus glochidiatus</i>	A	H			X																			
APOCYNACEAE	<i>Alyxia buxifolia</i>	P	S												X										
	<i>Leichhardtia australis</i>	P	C	X		X	X	X		X	X		X	X	X	X			X			X	X	X	X
	<i>Vincetoxicum lineare</i>	P	C											X	X	X					X		X		
	Apocynaceae sp.	P	S												X										
ARALIACEAE	<i>Trachymene glaucifolia</i>	A	H	X																					
ASPARAGACEAE	<i>Lomandra leucocephala</i> subsp. <i>robusta</i>	P	H	X																					
ASTERACEAE	<i>Actinobole uliginosum</i>	A	H	X																					
	<i>Angianthus tomentosus</i>	A	H	X							X														
	* <i>Bidens bipinnata</i>	A	H												X										
	<i>Brachyscome ciliaris</i>	A/P	H	X		X	X					X		X	X	X							X		
	<i>Brachyscome</i> sp.	A/P	H												X										
	<i>Calocephalus knappii</i>	A	H	X											X										
	<i>Calocephalus multiflorus</i>	A	H												X										
	<i>Calotis hispidula</i>	A	H	X							X				X	X									
	<i>Centipeda cunninghamii</i>	P	H	X																					
	<i>Centipeda minima</i>	A	H																					X	

APPENDIX B: VASCULAR PLANT SPECIES POTENTIALLY PRESENT AND RECORDED WITHIN THE REGIS RESOURCES MINING TENEMENT, 1988-2023

Note: * denotes introduced species; T denotes threatened flora and P1-P4 denote priority flora species; A/P denotes annual or perennial; and lifeforms are described as follows H: Herbs, S: Shrubs, C: Climbers, T: Trees, F: Ferns, AS: Aerial Shrubs and G: Grass; (DBCA 2022d; Western Australian Herbarium, 1998-; see also Appendix A). Potential survey results from Dandjoo 2023, and Priority species search [Priority] from WA herbarium and TPFL (DBCA2023d;2023f). Field survey results from Halpern Glick Maunsell [HGM 1998], Outback Ecology Services [OES 2007], Maia Ecological Consulting [MAIA 2013], Mattiske Consulting Pty Ltd, 2009-2022b, 2023b (see full reference list).

FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																		
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b			
ASTERACEAE (continued)	<i>Centipeda thespidioides</i>	A	H			X				X					X	X										X	
	<i>Centipeda</i> sp.	A	H													X											
	<i>Cephalopterum drummondii</i>	A	H													X											
	<i>Chthonocephalus pseudevax</i>	A	H			X																					
	<i>Chthonocephalus viscosus</i>	A	H	X																							
	<i>Cratystylis centralis</i> (P3)	P	S		X																						
	<i>Cratystylis subspinescens</i>	P	S	X		X	X	X	X	X					X	X	X			X						X	X
	<i>Erodiochrysum acanthocephalum</i>	P	H						X																		
	<i>Erymophyllum ?compactum</i>	A	H												X												
	<i>Erymophyllum ?ramosum</i>	A	H								X																
	<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>	A	H													X											
	<i>Gnephosis arachnoidea</i>	A	H	X											X	X											
	<i>Gnephosis macrocephala</i>	A	H	X												X											
	<i>Gnephosis</i> sp.	A	H			X	X									X											
	<i>Gnephosis tenuissima</i>	A	H	X																							
	<i>Hyalosperma glutinosum</i> subsp. <i>venustum</i>	A	H				X																				
	<i>Isoetopsis graminifolia</i>	A	H	X																							
	<i>Ixiochlamys filicifolia</i>	A	H	X																							
	<i>Kippistia suaedifolia</i>	P	S	X																							
	<i>Leucochrysum stipitatum</i>	A	H	X																							
	<i>Myriocephalus rudallii</i>	A	H	X												X											
	<i>Olearia calcarea</i>	P	S				X	X																			
	<i>Olearia decurrens</i>	P	S					X																			
	<i>Olearia humilis</i>	P	S						X							X											
	<i>Olearia incana</i>	P	S					X																			
	<i>Olearia mucronata</i> (P3)	P	S			X																					
<i>Olearia muelleri</i>	P	S												X	X												

APPENDIX B: VASCULAR PLANT SPECIES POTENTIALLY PRESENT AND RECORDED WITHIN THE REGIS RESOURCES MINING TENEMENT, 1988-2023

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FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																				
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b					
ASTERACEAE (continued)	<i>Olearia pimeleoides</i>	P	S	X																									
	<i>Olearia stuartii</i>	P	S																X										
	<i>Ozothamnus cassiope</i>	P	S	X																									
	<i>Panaetia lessonii</i>	A	H									X																	
	<i>Pluchea dentex</i>	P	H				X								X					X			X				X		
	<i>Pluchea</i> sp.	A/P	H																		X								
	<i>Pogonolepis stricta</i>	A	H												X	X													
	<i>Rhodanthe battii</i>	A	H	X																									
	<i>Rhodanthe charsleyae</i>	A	H													X													
	<i>Rhodanthe floribunda</i>	A	H									X																	
	<i>Rhodanthe laevis</i>	A	H	X								X																	
	<i>Rhodanthe maryonii</i>	A	H	X								X																	
	<i>Rhodanthe propinqua</i>	A	H										X		X	X													
	<i>Rhodanthe</i> sp.	A	H									X			X														
	<i>Schoenia cassiniana</i>	A	H	X																									
	<i>Senecio glossanthus</i>	A	H	X																									
	<i>Senecio lacustrinus</i>	A	H												X														
	<i>Senecio magnificus</i>	P	H	X											X	X													
	<i>Siemssenia capillaris</i>	A	H	X			X									X													
	* <i>Sonchus oleraceus</i>	A	H	X											X		X												
	<i>Streptoglossa cylindriceps</i>	A	H												X	X	X												
	<i>Streptoglossa liatroides</i>	P	H	X								X			X			X											
	<i>Trichanthodium skirrophorum</i>	A	H	X																									
	<i>Vittadinia cervicalis</i> var. <i>oldfieldii</i> (P1)	A	H			X																							
	<i>Vittadinia humerata</i>	A	H										X																
	<i>Vittadinia sulcata</i>	A	H								X																X		
	<i>Vittadinia</i> sp.	A	H												X	X													

APPENDIX B: VASCULAR PLANT SPECIES POTENTIALLY PRESENT AND RECORDED WITHIN THE REGIS RESOURCES MINING TENEMENT, 1988-2023

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FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
ASTERACEAE (continued)	<i>Waitzia acuminata</i>	A	H	X																					
	<i>Waitzia fitzgibbonii</i>	A	H			X																			
	<i>Walshia kendallii</i>	A	H	X										X	X										
	Asteraceae sp.	A	H								X		X	X	X	X								X	
BORAGINACEAE	<i>Euploca moorei</i>	A	H					X										X		X					
	<i>Halgania cyanea</i>	P	S				X																		
	<i>Halgania erecta</i>	P	S	X			X																		
	<i>Halgania</i> sp.	A	H												X										
BRASSICACEAE	<i>Lepidium oxytrichum</i>	A	H	X																					
	<i>Lepidium phlebopetalum</i>	A/P	H	X																					
	<i>Lepidium platypetalum</i>	P	S									X	X		X	X	X								
	<i>Menkea sphaerocarpa</i>	A	H	X																					
	<i>Stenopetalum sphaerocarpum</i>	A	H	X												X									
	Brassicaceae sp.	A	H													X									
CAMPANULACEAE	<i>Lithotoma petraea</i>	P	S										X		X					X					
	<i>Lobelia gibbosa</i>	A	H	X																					
	<i>Lobelia heterophylla</i>	A	H	X																					
	<i>Lobelia</i> sp.	A/P	H	X																					
	<i>Wahlenbergia preissii</i>	A	H	X											X		X								
	<i>Wahlenbergia tumidifruca</i>	A	H	X								X			X										
	<i>Wahlenbergia</i> sp.	A	H				X	X				X				X				X			X	X	
CARYOPHYLLACEAE	* <i>Sagina apetala</i>	A	H										X												

APPENDIX B: VASCULAR PLANT SPECIES POTENTIALLY PRESENT AND RECORDED WITHIN THE REGIS RESOURCES MINING TENEMENT, 1988-2023

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									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
CHENOPODIACEAE (continued)	<i>Einadia nutans</i>	A	H	X																					
	<i>Einadia nutans subsp. eremaea</i>	P	H												X										
	<i>Einadia nutans subsp. nutans</i> (P3)	P	H													X									
	<i>Enchylaena lanata</i>	P	S												X						X	X		X	
	<i>Enchylaena tomentosa</i>	P	S	X		X									X		X						X		
	<i>Enchylaena tomentosa var. tomentosa</i>	P	S					X	X	X	X	X	X	X	X	X	X							X	
	<i>Enchylaena sp.</i>	P	S									X											X		
	<i>Eriochiton sclerolaenoides</i>	P	S								X				X									X	
	<i>Maireana aff. tomentosa</i>	P	S			X																			
	<i>Maireana amoena</i>	P	S	X											X										
	<i>Maireana appressa</i>	P	S			X									X				X					X	
	<i>Maireana carnosia</i>	P	H	X								X	X	X	X	X	X							X	X
	<i>Maireana convexa</i>	P	S			X	X							X	X	X					X			X	
	<i>Maireana georgei</i>	P	S	X		X	X			X	X				X	X							X		X
	<i>Maireana glomerifolia</i>	P	S			X									X	X			X	X			X		X
	<i>Maireana pentatropis</i>	P	S			X																			
	<i>Maireana planifolia</i>	P	S	X		X					X														
	<i>Maireana platycarpa</i>	P	S			X										X									X
	<i>Maireana pyramidata</i>	P	S	X		X	X	X			X	X	X		X	X			X						
	<i>Maireana sedifolia</i>	P	S			X			X									X							X
	<i>Maireana thesioides</i>	P	S			X	X																		
	<i>Maireana tomentosa</i>	P	S			X	X																		
	<i>Maireana tomentosa subsp. tomentosa</i>	P	S			X	X	X	X	X	X					X									
<i>Maireana trichoptera</i>	P	S			X	X	X	X						X											
<i>Maireana triptera</i>	P	S	X		X	X	X	X	X	X				X	X	X		X	X	X			X	X	
<i>Maireana villosa</i>	P	S			X									X	X							X	X	X	
<i>Maireana sp.</i>	P	S								X	X	X		X	X	X					X	X	X	X	

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									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b		
CHENOPODIACEAE (continued)	<i>Tecticornia doliiformis</i>	P	S			X	X																			
	<i>Tecticornia ?halocnemoides</i>	P	S			X																				
	<i>Tecticornia indica</i>	P	S	X																						
	<i>Tecticornia indica</i> subsp. <i>leiostachya</i>	P	S	X																						
	<i>Tecticornia mellarium</i> (P1)	P	S		X																					
	<i>Tecticornia pergranulata</i>	P	S			X	X			X	X	X											X	X		
	<i>Tecticornia pruinosa</i>	P	S	X																						
	<i>Tecticornia</i> sp. Lake Way (P. Armstrong 05/961) (P1)	P	S		X				X																	
	<i>Tecticornia</i> sp.	P	S						X					X	X	X									X	
	Chenopodiaceae sp.	A	H											X	X	X			X					X		
CLEOMACEAE	<i>Arivela viscosa</i>	P	S															X								
CONVOLVULACEAE	<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i>	P	H					X																		
	<i>Convolvulus remotus</i>	P	C	X																						
	<i>Duperreya commixta</i>	P	C					X		X		X		X	X			X		X		X	X	X	X	
	<i>Duperreya sericea</i>	P	C			X	X		X													X	X			
	<i>Duperreya</i> sp.	P	C													X										
Convolvulaceae sp.	A	H											X	X												
CRASSULACEAE	<i>Crassula colorata</i>	A	H	X		X																				
	<i>Crassula exserta</i>	A	H	X																						
CUCURBITACEAE	* <i>Citrullus amarus</i>	A	C																						X	
	<i>Cucumis</i> sp.	A	C																					X		
CUPRESSACEAE	<i>Callitris columellaris</i>	P	T	X																						
	<i>Callitris preissii</i>	P	S/T	X																						

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FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
FABACEAE (continued)	<i>Acacia resinosa</i>	P	T									X													
	<i>Acacia rigens</i>	P	S			X								X	X					X					
	<i>Acacia sibina</i>	P	S	X											X								X		
	<i>Acacia sibirica</i>	P	T			X		X				X													
	<i>Acacia tetragonophylla</i>	P	S	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	<i>Acacia victoriae</i>	P	S			X								X	X								X		
	<i>Acacia victoriae</i> subsp. <i>victoriae</i>	P	S	X							X	X	X											X	
	<i>Acacia websteri</i> (P1)	P	S		X							X	X	X											
	<i>Acacia</i> section Juliflorae	P	S												X	X	X	X							
	<i>Acacia</i> sp.	P	S	X			X						X	X	X		X							X	
	<i>Bossiaea eremaea</i> (P3)	P	S		X																				X
	<i>Daviesia grahamii</i>	P	S	X																					
	<i>Glycine canescens</i>	P	C										X						X	X	X				X
	<i>Glycine</i> sp.	P	C																X						
	<i>Indigofera georgei</i>	P	S	X					X						X	X							X	X	
	<i>Indigofera</i> sp.	P	S								X														X
	<i>Kennedia prorepens</i>	P	S	X			X					X													X
	<i>Leptosema chambersii</i>	P	S	X			X																		
	<i>Mirbelia microphylla</i>	P	S						X																
	<i>Mirbelia rhagodioides</i>	P	S				X	X				X	X				X	X							
	<i>Mirbelia stipitata</i> (P3)	P	S		X																				
	<i>Mirbelia</i> sp.	P	S												X								X		
	<i>Phyllota humilis</i>	P	S	X																					
<i>Senna artemisioides</i>	P	S										X		X	X	X	X	X	X	X	X	X	X	X	
<i>Senna artemisioides</i> subsp. <i>filifolia</i>	P	S	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Senna artemisioides</i> subsp. <i>helmsii</i>	P	S				X								X						X				X	
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	P	S													X										

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									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b		
FABACEAE (continued)	<i>Senna artemisioides</i> subsp. <i>oligophylla</i> × <i>helmsii</i>	P	S					X															X			
	<i>Senna artemisioides</i> subsp. × <i>artemisioides</i>	P	S			X	X	X		X	X	X		X	X	X	X						X	X	X	
	<i>Senna artemisioides</i> ?subsp. × <i>coriacea</i>	P	S	X																			X			
	<i>Senna artemisioides</i> subsp. × <i>petiolaris</i>	P	S										X			X			X					X		
	<i>Senna artemisioides</i> subsp. × <i>sturtii</i>	P	S				X					X		X		X		X	X				X	X	X	
	<i>Senna cardiosperma</i>	P	S			X	X	X				X		X		X		X	X				X	X	X	
	<i>Senna charlesiana</i>	P	S					X		X				X	X	X								X	X	
	<i>Senna glaucifolia</i>	P	S				X			X				X	X	X			X					X		
	<i>Senna glutinosa</i>	P	S	X																						
	<i>Senna glutinosa</i> subsp. <i>chatelainiana</i>	P	S	X						X														X		X
	<i>Senna</i> ? <i>glutinosa</i> subsp. × <i>luerssenii</i>	P	S												X											
	<i>Senna pleurocarpa</i>	P	S	X																						
	<i>Senna stowardii</i>	P	S												X				X		X					X
	<i>Senna</i> ? <i>symonii</i>	P	S												X				X		X					
	<i>Senna</i> ?sp. Billabong (J.D. Alonzo 721)	P	S													X										
	<i>Senna</i> sp. Meekatharra (E. Bailey 1-26)	P	S			X	X	X				X	X		X			X	X	X	X	X	X			
	<i>Senna</i> sp.	P	S			X						X			X	X		X	X	X	X	X				
	<i>Swainsona kingii</i>	A/P	H	X												X								X		
	<i>Swainsona oroboides</i>	P	H	X																						
	<i>Templetonia incrassata</i>	P	S												X			X								
Fabaceae sp.	P	S												X							X				X	
FRANKENIACEAE	<i>Frankenia cinerea</i>	P	S	X		X																				
	<i>Frankenia desertorum</i>	P	S	X																						
	<i>Frankenia fecunda</i>	P	S	X		X	X	X						X	X	X		X					X	X		
	<i>Frankenia georgei</i> (P1)	P	S								X															
	<i>Frankenia glomerata</i> (P4)	P	S		X																					

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									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b			
FRANKENIACEAE	<i>Frankenia interioris</i> var. <i>parviflora</i>	P	S																X		X						
	<i>Frankenia laxiflora</i>	P	S												X												
	<i>Frankenia pauciflora</i>	P	S	X			X																				
	<i>Frankenia setosa</i>	P	S	X		X	X			X					X	X							X				
	<i>Frankenia</i> sp.	P	S			X									X				X				X			X	
GENTIANACEAE	<i>Schenkia australis</i>	A	H											X													
GERANIACEAE	<i>Erodium cygnorum</i>	A/P	H	X					X								X								X		
	<i>Erodium</i> sp.	A	H												X					X				X			
	Geraniaceae sp.	A/P	H																		X						
GOODENIACEAE	<i>Brunonia australis</i>	P	H																								
	<i>Goodenia centralis</i>	A	H	X																							
	<i>Goodenia lyrata</i> (P3)	A	H		X																						
	<i>Goodenia maideniana</i>	A	H										X		X												
GOODENIACEAE (continued)	<i>Goodenia mimuloides</i>	A	H																X	X							
	<i>Goodenia mueckeana</i>	P	H	X																							
	<i>Goodenia peacockiana</i>	A	H	X			X																				
	<i>Goodenia pinnatifida</i>	A	H	X						X																	
	<i>Goodenia quasilibera</i>	P	H																						X		
	<i>Goodenia rosea</i>	A	H	X															X								
	<i>Goodenia stellata</i>	A	H	X																							
	<i>Goodenia xanthosperma</i>	P	H	X																							
	<i>Goodenia</i> sp.	A	H												X	X	X										
	<i>Lechenaultia aphylla</i> (P1)	P	S		X																						

APPENDIX B: VASCULAR PLANT SPECIES POTENTIALLY PRESENT AND RECORDED WITHIN THE REGIS RESOURCES MINING TENEMENT, 1988-2023

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FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																	
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b		
GOODENIACEAE (continued)	<i>Scaevola spinescens</i>	P	S	X		X	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	
	Goodeniaceae sp.	A	H												X				X		X					
GYROSTEMONACEAE	<i>Codonocarpus cotinifolius</i>	P	S/T			X																				
HALORAGACEAE	<i>Haloragis trigonocarpa</i>	A	H	X			X																			
HEMEROCALLIDACEAE	<i>Dianella revoluta</i>	P	H			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	<i>Dianella revoluta</i> var. <i>divaricata</i>	P	H					X																		
ISOETACEAE	<i>Isoetes muelleri</i>	P	H	X																						
JUNCACEAE	<i>Juncus aridicola</i>	P	H			X								X									X	X		
JUNCAGINACEAE	<i>Triglochin centrocarpa</i>	A	H	X																						
LAMIACEAE	<i>Dicrastylis doranii</i>	P	S	X																						
	<i>Dicrastylis exsuccosa</i>	P	S	X																						
	<i>Hemigenia exilis</i> (P4)	P	S		X																					
	<i>Hemigenia</i> sp.	P	S				X																			
	<i>Microcorys macredieanus</i>	P	S	X			X																			
	<i>Newcastelia hexarrhena</i>	P	S	X			X																			
	<i>Prostanthera althoferi</i> subsp. <i>althoferi</i>	P	S				X	X				X			X			X								
	<i>Prostanthera wilkieana</i>	P	S	X			X																			
	<i>Teucrium teucriiflorum</i>	P	S			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	<i>Teucrium</i> sp.	P	S																X	X	X					

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FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
LAMIACEAE (continued)	<i>Westringia rigida</i>	P	S	X																					
	Lamiaceae sp.	P	S												X		X								
LAURACEAE	<i>Cassytha</i> sp.	P	C												X										
LORANTHACEAE	<i>Amyema fitzgeraldii</i>	P	AS	X						X															
	<i>Amyema gibberula</i>	P	AS	X							X														
	<i>Amyema gibberula</i> var. <i>gibberula</i>	P	AS																					X	
	<i>Amyema gibberula</i> var. <i>tatei</i>	P	AS	X																					X
	<i>Amyema maidenii</i>	P	AS			X																			
	<i>Amyema miquelii</i>	P	AS	X																			X		
	<i>Amyema miraculosa</i> subsp. <i>boormanii</i>	P	AS	X																				X	
	<i>Amyema nestor</i>	P	AS	X																				X	
	<i>Amyema preissii</i>	P	AS	X		X																		X	X
	<i>Amyema</i> sp.	P	AS									X		X										X	X
	<i>Lysiana casuarinae</i>	P	AS			X				X	X				X	X	X		X			X		X	
	<i>Lysiana exocarpi</i> subsp. <i>exocarpi</i>	P	S												X	X								X	
	<i>Lysiana murrayi</i>	P	AS									X			X									X	
	<i>Lysiana</i> sp.	P	S												X										
MALVACEAE	<i>Abutilon cryptopetalum</i>	P	S	X			X			X	X				X	X		X	X	X				X	
	<i>Abutilon fraseri</i>	P	S	X							X				X									X	
	<i>Abutilon oxycarpum</i>	P	S			X		X																X	
	<i>Abutilon oxycarpum</i> subsp. <i>frustrale</i> (A.A. Mitchell 1964)	P	S					X																X	
	<i>Abutilon</i> sp.	P	S								X	X			X			X	X	X			X	X	
	<i>Alyogyne pinoniana</i>	P	S				X																	X	
	<i>Brachychiton gregorii</i>	P	T				X	X											X						

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FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																	
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b		
MONTIACEAE	<i>Calandrinia creethae</i>	A	H	X																						
	<i>Calandrinia ?crispisepala</i>	P	H												X											
	<i>Calandrinia eremaea</i>	A	H	X			X																	X	X	
	<i>Calandrinia polyandra</i>	A	H	X																						
	<i>Calandrinia primuliflora</i>	A	H	X																						
	<i>Calandrinia Ptychosperma</i>	A	H	X																						
	<i>Calandrinia pumila</i>	A	H							X						X										
	<i>Calandrinia reticulata</i>	A	H	X																						
	<i>Calandrinia translucens</i>	A/P	H												X	X										
	<i>Calandrinia sp.</i>	A	H				X								X	X				X					X	
MYRTACEAE	<i>Aluta maisonneuvei</i> subsp. <i>auriculata</i>	P	S				X																			
	<i>Baeckea sp.</i>	P	S																X							
	<i>Calytrix carinata</i>	P	S	X																						
	<i>Calytrix hislopii</i> (P3)	P	S		X																					
	<i>Calytrix praecipua</i> (P3)	P	S		X									X					X							
	<i>Calytrix uncinata</i>	P	S												X											
	<i>Enekbatus eremaeus</i>	P	S				X																			
	<i>Eucalyptus camaldulensis</i>	P	T																	X						
	<i>Eucalyptus camaldulensis</i> subsp. <i>arida</i>	P	T																						X	
	<i>Eucalyptus carnei</i>	P	T	X																						
	<i>Eucalyptus clelandiorum</i>	P	T			X									X											
	<i>Eucalyptus concinna</i>	P	T																					X		
	<i>Eucalyptus eremicola</i>	P	T				X																			
	<i>Eucalyptus eremicola</i> subsp. <i>peeneri</i>	P	T	X																						
	<i>Eucalyptus glomerosa</i>	P	T	X																						
	<i>Eucalyptus gongylocarpa</i>	P	T	X				X																		

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FAMILY	SPECIES	A/P	LIFEFORM	DANDJOO	PRIORITY	HGM 1998	OES 2007	MEC 2013	MPCL FIELD SURVEYS																
									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
MYRTACEAE (continued)	<i>Eucalyptus gypsophila</i>	P	T	X																					
	<i>Eucalyptus horistes</i>	P	T							X															
	<i>Eucalyptus kingsmillii</i>	P	T				X													X					
	<i>Eucalyptus lucasii</i>	P	T			X				X													X		
	<i>Eucalyptus oleosa</i>	P	T			X																			
	<i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>	P	T									X											X		
	<i>Eucalyptus ?platycorys</i>	P	T													X									
	<i>Eucalyptus plumula</i>	P	T					X																	
	<i>Eucalyptus rigidula</i>	P	T	X																					
	<i>Eucalyptus striaticalyx</i>	P	T	X																					
	<i>Eucalyptus trivalva</i>	P	T	X																					
	<i>Eucalyptus youngiana</i>	P	T	X																					
	<i>Homalocalyx thryptomenoides</i>	P	S	X																					
	<i>Hysterobaeckea occlusa</i>	P	S	X			X	X	X		X		X								X		X		
	<i>Melaleuca apostiba</i> (P3)	P	S		X																				
	<i>Melaleuca hamata</i>	P	S/T	X																					
	<i>Melaleuca interioris</i>	P	S	X				X																	
	<i>Melaleuca leiocarpa</i>	P	S						X		X														
	<i>Melaleuca uncinata</i>	P	S/T	X																			X		
	<i>Melaleuca xerophila</i>	P	S/T					X																	
	<i>Melaleuca</i> sp.	P	S								X														
	<i>Micromyrtus flaviflora</i>	P	S	X																					
	<i>Micromyrtus hymenonema</i>	P	S	X																					
<i>Thryptomene nealensis</i> (P3)	P	S			X																				
NYCTAGINACEAE	<i>Boerhavia coccinea</i>	A	H																					X	

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									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
POACEAE (continued)	<i>Themeda triandra</i>	P	G			X		X					X						X			X	X		
	<i>Thyridolepis mitchelliana</i>	P	G					X							X								X	X	
	<i>Thyridolepis multiculmis</i>	P	G				X																		
	<i>Thyridolepis ?xerophila</i>	P	G											X											
	<i>Tragus australianus</i>	A	G															X		X					
	<i>Triodia basedowii</i>	P	G	X		X	X	X	X	X				X				X	X						
	<i>Triodia melvillei</i>	P	G	X			X							X											
	<i>Triodia scariosa</i>	P	G	X							X									X					
	<i>Triodia schinzii</i>	P	G			X								X											
	<i>Triodia</i> sp.	P	G											X								X	X		
	<i>Tripogonella loliiiformis</i>	P	G						X						X									X	X
	Poaceae sp.	A/P	G								X			X	X	X		X		X	X	X	X	X	X
	POLYGALACEAE	<i>Comesperma viscidulum</i> (P4)	P	S		X																			
<i>Polygala glaucifolia</i>		A	H	X									X												
<i>Polygala isingii</i>		A	H	X								X													
POLYGONACEAE	<i>Duma florulenta</i>	P	S			X	X																		
PORTULACACEAE	* <i>Portulaca oleracea</i>	A	H	X				X			X				X									X	
	<i>Portulaca</i> sp.	A	H														X		X						
PRIMULACEAE	* <i>Lysimachia arvensis</i>	A	H											X											
PROTEACEAE	<i>Conospermum toddii</i> (P4)	P	S		X																				
	<i>Grevillea acuaria</i>	P	S			X							X												
	<i>Grevillea berryana</i>	P	S			X		X			X	X	X	X	X	X	X	X				X	X		

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									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
PROTEACEAE (continued)	<i>Grevillea deflexa</i>	P	S	X								X		X										X	
	<i>Grevillea ?excelsior</i>	P	S												X										
	<i>Grevillea extorris</i>	P	S	X																					X
	<i>Grevillea juncifolia</i>	P	S/T			X	X																		
	<i>Grevillea juncifolia</i> subsp. <i>temulenta</i>	P	S/T	X																					
	<i>Grevillea nematophylla</i> subsp. <i>supraplana</i>	P	S	X			X			X	X											X			
	<i>Grevillea pterosperma</i>	P	S			X																			
	<i>Grevillea sarissa</i>	P	S	X		X	X																		
	<i>Grevillea sarissa</i> subsp. <i>sarissa</i>	P	S								X										X	X	X		X
	<i>Grevillea stenobotrya</i>	P	S/T	X																		X		X	
	<i>Grevillea</i> sp.	P	S							X				X							X	X	X	X	
	<i>Hakea kippistiana</i>	P	S												X		X				X				
	<i>Hakea leucoptera</i>	P	S																						X
	<i>Hakea leucoptera</i> subsp. <i>sericipes</i>	P	S																		X		X		
	<i>Hakea lorea</i>	P	S			X				X	X				X									X	
	<i>Hakea lorea</i> subsp. <i>lorea</i>	P	S/T	X			X														X	X			
	<i>Hakea minyma</i>	P	S	X			X																		
PROTEACEAE (continued)	<i>Hakea preissii</i>	P	S	X		X	X	X		X	X	X		X	X	X		X	X		X	X	X	X	
	<i>Hakea recurva</i>	P	S			X	X								X										
	<i>Hakea recurva</i> subsp. <i>arida</i>	P	S	X										X											
	<i>Hakea</i> sp.	P	S											X										X	
PTERIDACEAE	<i>Cheilanthes austrotenuifolia</i>	P	F			X	X																		
	<i>Cheilanthes lasiophylla</i>	P	F			X				X					X										
	<i>Cheilanthes sieberi</i>	P	F												X						X				
	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	P	F					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

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									2009	2010	2012a	2012b	2013	2015	2016	2017	2018a	2018b	2021a	2021b	2021c	2022a	2022b	2023b	
SCROPHULARIACEAE (continued)	<i>Eremophila spectabilis</i>	P	S						X	X				X						X	X				
	<i>Eremophila spectabilis</i> subsp. <i>brevis</i>	P	S				X						X		X	X									
	<i>Eremophila subfloccosa</i>	P	S	X																					
	<i>Eremophila ?youngii</i>	P	S											X											
	<i>Eremophila youngii</i> subsp. <i>youngii</i>	P	S			X	X				X	X		X	X								X	X	
	<i>Eremophila</i> sp.	P	S	X			X				X	X	X	X				X		X	X	X	X	X	
	Scrophulariaceae sp.	P	S											X											
SOLANACEAE	<i>Anthotroche pannosa</i>	P	S	X																					
	<i>Duboisia hopwoodii</i>	P	S	X																					
	<i>Lycium australe</i>	P	S	X																					
	<i>Nicotiana obliqua</i>	P	H															X			X				
	<i>Nicotiana occidentalis</i>	A	H											X	X										
	<i>Nicotiana rosulata</i>	A	H	X																					
	<i>Nicotiana</i> sp.	A	H											X							X				
	<i>Solanum ferocissimum</i>	P	S				X	X	X	X					X	X		X							
	<i>Solanum lasiophyllum</i>	P	S			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	* <i>Solanum nigrum</i>	P	S	X																					
	<i>Solanum orbiculatum</i>	P	S								X														
	<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>	P	S				X																		
<i>Solanum</i> sp.	P	S											X				X	X			X	X			
THYMELAEACEAE	<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	P	S							X															
	<i>Pimelea</i> sp.	P	S											X											

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

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TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Frankenia georgei</i>	P1	-	Habit: Small shrub Flower colour: Pink Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Rocky slopes; flat red-orange clay-loam IBRA Distribution: MUR Florabase records: 7	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly unlikely</p> <p>The nearest taxon record is over 100 km west of the survey area near Lake Darlot, based on ALA (2023) records. Although this record occurs on the same pre-European vegetation unit as that of the survey area, the land systems units differ.</p> <p>References: ALA (2023) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Lechenaultia aphylla</i>	P1	-	Habit: Small tangled shrub, 0.5m high, appears leafless but has minute, scattered leaves Flower colour: Insufficient information Flowering period (indicated in green): Flowers sporadically following rainfall <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Red sandy slopes and drainage lines IBRA Distribution: GVD Florabase records: 4	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest taxon record is approximately 30 km south-east of the survey area. The taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. Aerial and topographical imagery where the nearest taxon record is located, do not occur within the survey area. It is likely that <i>Lechenaultia aphylla</i> will occur in areas that have recently experienced a disturbance by fire or road grading.</p> <p>References: Morrison (1992) Sage (2003) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

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TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Philotheca linearis</i>	P1	-	Habit: Shrub, 2m high Flower colour: White, cream Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Yellow sands at base of granite outcrops IBRA Distribution: CR, GVD Florabase records: 1	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest record of the taxon is 62 km south-east of the survey area. Taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. Additionally, aerial and topographical imagery where the nearest taxon record is located, do not occur within the survey area.</p> <p>References: WAH (1998-); Hollister, C. & Thiele, K.R. (2020) Wilson (1998)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Philotheca tubiflora</i>	P1	-	Habit: Compact, multi-branched shrub, 0.2–0.6m high Flower colour: Pink-white Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Rocky rises/hills and outcrops IBRA Distribution: GVD, MUR Florabase records: 14	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest record of the taxon is 30 km south-east of the survey area. Taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. Additionally, aerial and topographical imagery where the nearest taxon record is located, do not occur within the survey area.</p> <p>References: WAH (1998-); Hollister, C. & Thiele, K.R. (2020) George (1971)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

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TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Vittadinia cervicalis</i> var. <i>oldfieldii</i>	P1	-	<p>Habit: Annual herb, 0.1–0.3m high; stiff spreading, branched stems</p> <p>Flower colour: White-blue-purple</p> <p>Flowering period (indicated in green):</p> <table border="1" style="margin-left: 40px;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> <p>Soils: Alluvium</p> <p>IBRA Distribution: AVW, MUR</p> <p>Florabase records: 2</p>	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest record of the taxon is 52 km south of the survey area. Taxon record occurs on the same pre-European vegetation but different land system units to those common to the survey area.</p> <p>References: Burbidge (1982) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Austrostipa vickeryana</i>	P3	-	<p>Habit: Tufted annual or perennial grass, to 0.45m high</p> <p>Flower colour: Green</p> <p>Flowering period (indicated in green):</p> <table border="1" style="margin-left: 40px;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> <p>Soils: Red calcareous loams; saline areas</p> <p>IBRA Distribution: COO, MAL, MUR, NUL</p> <p>Florabase records: 6</p>	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The taxon has disjunct records of occurrence from Coolgardie, across the Nullarbor into South Australia. The nearest record of the taxon is 35 km south-west of the survey area. Taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. Additionally, aerial and topographical imagery appears to differ between the nearest taxon record and the survey area.</p> <p>References: Jacobs & Everett (1996) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

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TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Bossiaea eremaea</i>	P3	-	<p>Habit: Divaricately branched spreading shrub, to 1.2m high</p> <p>Flower colour: Red-yellow-purple-brown</p> <p>Flowering period (indicated in green):</p> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> <p>Soils: Deep red sands</p> <p>IBRA Distribution: GVD, MUR</p> <p>Florabase records: 18</p>	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>Occurs in the eastern portion of the Austin Botanical District and the extreme western portion of the Helms Botanical District from west of Sandstone in the north-west, south-eastwards to east of Laverton. The nearest record of the taxon is 54 km north-east of the survey area. Taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. Additionally, aerial and topographical imagery appears to differ between the nearest taxon record and the survey area, with deep red sandy soils unlikely to occur within the survey area.</p> <p>References: Ross (2006) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Calytrix hislopii</i>	P3	-	<p>Habit: Shrub, 0.1–1m high; young stems glabrous</p> <p>Flower colour: Yellow</p> <p>Flowering period (indicated in green):</p> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> <p>Soils: Sandstone; lateritic ridge, breakaways; granite</p> <p>IBRA Distribution: COO, GVD, MUR, YAL</p> <p>Florabase records: 8</p>	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>Recorded distribution in sandstone between Laverton and Leonora. The nearest record of the taxon is 56 km south-east of the survey area. Taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. Additionally, aerial and topographical imagery appears to differ between the nearest taxon record and the survey area, with sandstone soils unlikely to occur within the survey area.</p> <p>References: Rye (2013) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

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TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Calytrix praecipua</i>	P3	-	Habit: Shrub, 0.2-0.7 m high Flower colour: Pink-white Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Skeletal sand over granite breakaways, outcrops IBRA Distribution: GAS, GVD, LSD, MUR Florabase records: 28	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly likely</p> <p>The nearest record of the taxon is 36 km south of the survey area. Taxon records occur across multiple pre-European and land system units. Several records occur on the same Laverton pre-European system unit as that of the survey area. Land systems units from taxon records differed to those found within the survey area. Aerial and topographical imagery indicate similar land surfaces between taxon record locations and that of the survey area. The taxon may likely be found within the area, given previous records of <i>Calytrix praecipua</i> within the Moolart Well Expansion survey area (Mattiske Consulting 2021a) and the Russels project area (Mattiske Consulting 2015).</p> <p>References: Craven (1987) Mattiske Consulting (2015, 2021a) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Einadia nutans</i> subsp. <i>nutans</i>	P3	-	Habit: Scrambling perennial herb, 0.3–1m high Flower colour: Insufficient information Flowering period (indicated in green): Insufficient information <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Red sand, clay; rocky hillsides, saline plains IBRA Distribution: COO Florabase records: 1	J	F	M	A	M	J	J	A	S	O	N	D	<p>Likely</p> <p>Insufficient biological and ecological information is available for the taxa. The nearest record of the taxon is more than 450 km south of the survey area, 180 km south-east of Kalgoorlie. Taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. The taxon has previously been recorded by Mattiske Consulting during surveys in the Petra area. Florabase records indicate a potential lack of records of the taxon and as such there is a potential for <i>Einadia nutans</i> subsp. <i>nutans</i> to occur.</p> <p>References: Mattiske Consulting (2017) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

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TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Eremophila annosicaulis</i>	P3	-	Habit: Low shrub, to 0.8m high Flower colour: Purple-lilac-violet; inside of floral tube purplish spots Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Stony hills, low IBRA Distribution: COO, GAS, MUR Florabase records: 5	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>Taxon is known from several disjunct populations surrounding Laverton, Lake Carnegie, and south of Lake Lefroy (south of the township of Coolgardie). The nearest record of the taxon is 73 km south-west of the survey area. Several records occur on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon records differed to those found within the survey area. Aerial and topographical imagery indicate similar land surfaces between taxon record locations and that of the survey area.</p> <p>References: ALA (2023) Chinnock (2007) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Eremophila shonae</i> subsp. <i>diffusa</i>	P3	-	Habit: Erect, open, straggly shrub, to 0.4m Flower colour: Purple Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Red-brown clay loams; stony yellow or red sandy soils IBRA Distribution: GAS, MUR Florabase records: 9	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>Disjunct population distribution from Lake Irwin/Darlot in the south (north of Leonora), north in the Meekatharra surrounds. The nearest record of the taxon is 75 km south-west of the survey area. Several records occur on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon records differed to those found within the survey area. Aerial and topographical imagery indicate similar land surfaces between taxon record locations and that of the survey area.</p> <p>References: Chinnock (2007) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

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	DBCA / BC ACT	EPBC ACT														
<i>Goodenia lyrata</i>	P3	-	Habit: Prostrate herb, with lyrate leaves; to 0.2m Flower colour: Yellow Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td style="background-color: #d9ead3;">A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Red sandy loams; near claypans IBRA Distribution: GAS, GIB, GVD, MUR, PIL Florabase records: 18	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest record of the taxon is 60 km south-west of the survey area. Several records occur on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon records differed to those found within the survey area. Aerial and topographical imagery indicate similar land surfaces between taxon record locations and that of the survey area.</p> <p>References: Carolin (1990) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Lysiandra baeckeoides</i>	P3	-	Habit: Shrub, to 1.5m high Flower colour: White-cream, yellow Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td style="background-color: #d9ead3;">M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td style="background-color: #d9ead3;">S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Insufficient information IBRA Distribution: GVD, MUR Florabase records: 31	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly Likely</p> <p>The nearest record of the taxon is in an adjacent survey area. Several records occur on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon records differed to those found within the survey area; but the taxon occurs on variable land system units. Aerial and topographical imagery indicate similar land surfaces between taxon record locations and that of the survey area. Furthermore, the taxon has previously been recorded within Regis Gold Tenements; including, Tenements M38/339 and M38/968 (Maia Environmental Consulting 2013), Moolart Well/Dogbolter/Erlstoun (Outback Ecology Services 2007), and Russels (Mattiske Consulting 2015).</p> <p>References: Bouman <i>et al.</i> (2022) Maia Environmental Consulting (2013) Mattiske Consulting (2015) Outback Ecology Services (2007) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

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TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Melaleuca apostiba</i>	P3	-	<p>Habit: Tomentose, spreading shrub, to 2m high; grey fissured bark and dull green leaves</p> <p>Flower colour: Red</p> <p>Flowering period (indicated in green):</p> <table border="1" style="margin-left: 40px;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> <p>Soils: Red sandy loams; near claypans, surrounding of playas</p> <p>IBRA Distribution: GVD, MUR</p> <p>Florabase records: 13</p>	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest record of the taxon is 67 km north-east of the survey area. The record occurs on different pre-European and land systems units to those found within the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area with red sandy loams less to occur within the survey area.</p> <p>References: Cowley <i>et al.</i> (1990) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Mirbelia stipitata</i>	P3	-	<p>Habit: Spiny shrub, to 0.6m high</p> <p>Flower colour: Yellow-orange</p> <p>Flowering period (indicated in green):</p> <table border="1" style="margin-left: 40px;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> <p>Soils: Red sandy loams</p> <p>IBRA Distribution: MUR</p> <p>Florabase records: 2</p>	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>Only two records of the taxon, north-east of Bandy Homestead. The nearest record of the taxon is 66 km north of the survey area. The taxon record occurs on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon record differs to those found within the survey area. Aerial and topographical imagery indicate similar land surfaces between taxon record locations and that of the survey area.</p> <p>References: Crisp & Taylor (1987) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: Refer to Appendix A for DBCA listings / BC Act and EPBC Act conservation code definitions. Refer to Appendix B for species list and taxa records across databases accessed, including previous records within the Regis Resources' Tenement(s). IBRA Distribution: AVW – Avon Wheatbelt; CR – Central Ranges; COO – Coolgardie; CAR – Carnarvon; GAS – Gascoyne; GES – Geraldton Sandplains; GIB – Gibson Desert; GSD – Great Sandy Desert; GVD – Great Victoria Desert; LSD – Little Sandy Desert; MAL – Mallee; MUR – Murchison; NUL – Nullarbor; PIL – Pilbara; YAL – Yalgoo. Included are taxa which occur within an 80 km buffer.

TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Olearia mucronata</i>	P3	-	Habit: Densely branched, unpleasantly aromatic shrub, to 1m high Flower colour: White, yellow Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td></tr></table> Soils: Schistose hills, along drainage channels, edges of playas IBRA Distribution: MUR, PIL Florabase records: 14	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest record of the taxon is 76 km south of the survey area. The taxon record occurs on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon record differs to those found within the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area. It is unlikely that playa lake systems will occur within the survey area.</p> <p>References: Lander (1990) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Tecticornia cymbiformis</i>	P3	-	Habit: Erect, perennial shrub, 0.3–0.5m high Flower colour: Non-descript Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td></tr></table> Soils: Saline floodways, edge of creeklines IBRA Distribution: GAS, MUR, YAL Florabase records: 16	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly unlikely</p> <p>The nearest record of the taxon is 74 km south of the survey area. The taxon record occurs on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon record differs to those found within the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area. It is unlikely that saline systems will occur within the survey area.</p> <p>References: Shepherd (2007) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: Refer to Appendix A for DBCA listings / BC Act and EPBC Act conservation code definitions. Refer to Appendix B for species list and taxa records across databases accessed, including previous records within the Regis Resources' Tenement(s). IBRA Distribution: AVW – Avon Wheatbelt; CR – Central Ranges; COO – Coolgardie; CAR – Carnarvon; GAS – Gascoyne; GES – Geraldton Sandplains; GIB – Gibson Desert; GSD – Great Sandy Desert; GVD – Great Victoria Desert; LSD – Little Sandy Desert; MAL – Mallee; MUR – Murchison; NUL – Nullarbor; PIL – Pilbara; YAL – Yalgoo. Included are taxa which occur within an 80 km buffer.

TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Thryptomene nealensis</i>	P3	-	Habit: Shrub, to 0.3m high Flower colour: Pink Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Laterite breakaways IBRA Distribution: GVD, MUR Florabase records: 12	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest record of the taxon is 30 km south-east of the survey area. Land systems and pre-European units for taxon records differ to those found within the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area.</p> <p>References: Green (1980) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Comesperma viscidulum</i>	P4	-	Habit: Perennial viscid shrub, to 0.7m high Flower colour: Yellow Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Orange-red-yellow sandplains IBRA Distribution: CR, GSD, GVD, LSD, MUR Florabase records: 21	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly unlikely</p> <p>The nearest record of the taxon is 77 km north-east of the survey area, off the Great Central Road. Land systems and pre-European units for taxon records differ to those found within the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area. It is unlikely that sandplains will occur within the survey area.</p> <p>References: WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: Refer to Appendix A for DBCA listings / BC Act and EPBC Act conservation code definitions. Refer to Appendix B for species list and taxa records across databases accessed, including previous records within the Regis Resources' Tenement(s). IBRA Distribution: AVW – Avon Wheatbelt; CR – Central Ranges; COO – Coolgardie; CAR – Carnarvon; GAS – Gascoyne; GES – Geraldton Sandplains; GIB – Gibson Desert; GSD – Great Sandy Desert; GVD – Great Victoria Desert; LSD – Little Sandy Desert; MAL – Mallee; MUR – Murchison; NUL – Nullarbor; PIL – Pilbara; YAL – Yalgoo. Included are taxa which occur within an 80 km buffer.

TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Conospermum toddii</i>	P4	-	Habit: Spreading shrub, 1.2-2m high Flower colour: White/white-yellow Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Yellow sand, sand dunes IBRA Distribution: COO, GVD, MUR Florabase records: 56	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly unlikely</p> <p>The nearest record of the taxon is 33 km east of the survey area, off the Cosmo-Duketon Road. Land systems and pre-European units for taxon records differ to those found within the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area. It is unlikely that sandplains will occur within the survey area.</p> <p>References: WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Eremophila pungens</i>	P4	-	Habit: Erect, viscid shrub, 0.5-1.5m high Flower colour: Purple-violet Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Sandy loam, clayey sand over laterite; plains, ridges, and breakaways IBRA Distribution: GAS, GVD, MUR Florabase records: 45	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly likely</p> <p>The nearest record of the taxon is 52 km north of the survey area. Several records occur on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon records differed to those found within the survey area; but the taxon occurs on variable land system units. Aerial and topographical imagery indicate similar land surfaces between taxon record locations and that of the survey area. Furthermore, the taxon has previously been recorded within Regis Gold Tenements; including, Moolart Well/Dogbolter/Erlistoun (Outback Ecology Services 2007), previous survey work conducted by Mattiske Consulting (see below for reference).</p> <p>References: Chinnock (2007) Mattiske Consulting (2010, 2012a, 2012b, 2015, 2016, 2017, 2018a, 2018b, 2021a, 2021b, 2022a, 2022b) Outback Ecology Services (2007) WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: Refer to Appendix A for DBCA listings / BC Act and EPBC Act conservation code definitions. Refer to Appendix B for species list and taxa records across databases accessed, including previous records within the Regis Resources' Tenement(s). IBRA Distribution: AVW – Avon Wheatbelt; CR – Central Ranges; COO – Coolgardie; CAR – Carnarvon; GAS – Gascoyne; GES – Geraldton Sandplains; GIB – Gibson Desert; GSD – Great Sandy Desert; GVD – Great Victoria Desert; LSD – Little Sandy Desert; MAL – Mallee; MUR – Murchison; NUL – Nullarbor; PIL – Pilbara; YAL – Yalgoo. Included are taxa which occur within an 80 km buffer.

TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Frankenia glomerata</i>	P4	-	Habit: Prostrate shrub Flower colour: Pink-white Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td style="background-color: #90EE90;">N</td><td>D</td> </tr> </table> Soils: White sand IBRA Distribution: AVW, CAR, COO, GAS, GES, GVD, LSD, MAL Florabase records: 69	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly unlikely</p> <p>The nearest record of the taxon is 64 km south-east of the survey area. Land systems and pre-European units for taxon records differ to those found within the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area. It is unlikely that white sands will occur within the survey area.</p> <p>References: WAH (1998-)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Acacia websteri</i>	P1	-	Habit: Shrub Flower colour: Yellow Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Red sand, Red clay IBRA Distribution: AVW, COO, MUR Florabase records: 21	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>While suitable habitat may for this taxon may be located within the survey areas, it is unlikely to occur as the nearest know record occurs greater than 70 km outside the survey areas.</p> <p>References: WAH (1998-); World Wide Wattle (2023)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: Refer to Appendix A for DBCA listings / BC Act and EPBC Act conservation code definitions. Refer to Appendix B for species list and taxa records across databases accessed, including previous records within the Regis Resources' Tenement(s). IBRA Distribution: AVW – Avon Wheatbelt; CR – Central Ranges; COO – Coolgardie; CAR – Carnarvon; GAS – Gascoyne; GES – Geraldton Sandplains; GIB – Gibson Desert; GSD – Great Sandy Desert; GVD – Great Victoria Desert; LSD – Little Sandy Desert; MAL – Mallee; MUR – Murchison; NUL – Nullarbor; PIL – Pilbara; YAL – Yalgoo. Included are taxa which occur within an 80 km buffer.

TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Cratystylis centralis</i>	P3	-	Habit: Shrub to 1 m Flower colour: White Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Breakaways IBRA Distribution: COO, MUR Florabase records: 13	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly unlikely</p> <p>The nearest taxon record is over 70 km southwest of the survey area near Lake Carey. Specimen of this taxon are generally located on breakaways and sharply eroded areas. These landforms do not occur within the survey areas.</p> <p>References: WAH (1998-) Wilson and Albrecht (2002)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Hemigenia exilis</i>	P4	-	Habit: Erect, multi-stemmed shrub to 2 m Flower colour: Blue-purple, white Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Breakaways and slopes IBRA Distribution: MUR Florabase records: 44	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly Unlikely</p> <p>The nearest taxon record located over 70 km south-east of the survey area near Lake Carey. This taxon occurs on soils and landforms that differ from the current survey areas. This taxon occurs on a differing Pre-European vegetation type.</p> <p>References: WAH (1998-)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Neurachne langiera</i>	P1	-	Habit: Tufted, perennial grass to 0.3 m Flower colour: Green Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Lateritic rocky outcrops IBRA Distribution: CR, GIB, GVD, MUR Florabase records: 17	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly Unlikely</p> <p>The nearest record of the taxon is approximately 80 km north of the survey area. Taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. Additionally, aerial and topographical imagery where the nearest taxon record is located, do not occur within the survey area.</p> <p>References: WAH (1998-)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

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TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Pigea</i> sp. <i>Chloroxantha</i>	P3	-	Habit: Multi-stemmed shrub growing to 0.7 m Flower colour: blue, white Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Rocky areas in deep red soils near drainage areas IBRA Distribution: MUR Florabase records: 26	J	F	M	A	M	J	J	A	S	O	N	D	<p>Unlikely</p> <p>The nearest record of the taxon is over 60 km south east of the survey area. Taxon record occurs on pre-European vegetation and land system units that differ to those common to the survey area. Additionally, aerial and topographical imagery where the nearest taxon record is located, do not occur within the survey area.</p> <p>References: WAH (1998-); Western Botanical (2017)</p>
J	F	M	A	M	J	J	A	S	O	N	D					
<i>Tecticornia mellarium</i>	P1	-	Habit: Annual herb, 0.1–0.3m high; stiff spreading, branched stems Flower colour: Non-descript Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Saline flats near salt lakes IBRA Distribution: COO, MUR Florabase records: 20	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly unlikely</p> <p>The nearest record of the taxon is 74 km south of the survey area. This taxon occurs on the same Laverton pre-European system unit as that of the survey area. Land systems units for taxon record differs to those found within the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area. It is unlikely that saline systems will occur within the survey area.</p> <p>References: Shepherd (2007) WAH (1998-)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE PALLIARDS FIND, BEDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: Refer to Appendix A for DBCA listings / BC Act and EPBC Act conservation code definitions. Refer to Appendix B for species list and taxa records across databases accessed, including previous records within the Regis Resources' Tenement(s). IBRA Distribution: AVW – Avon Wheatbelt; CR – Central Ranges; COO – Coolgardie; CAR – Carnarvon; GAS – Gascoyne; GES – Geraldton Sandplains; GIB – Gibson Desert; GSD – Great Sandy Desert; GVD – Great Victoria Desert; LSD – Little Sandy Desert; MAL – Mallee; MUR – Murchison; NUL – Nullarbor; PIL – Pilbara; YAL – Yalgoo. Included are taxa which occur within an 80 km buffer.

TAXON	CONSERVATION STATUS		DESCRIPTION AND HABITAT	POTENTIAL TO OCCUR WITHIN THE SURVEY AREA												
	DBCA / BC ACT	EPBC ACT														
<i>Tecticornia</i> sp. Lake Way	P1	-	Habit: Small shrub Flower colour: Non-descript Flowering period (indicated in green): <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>O</td><td>N</td><td>D</td> </tr> </table> Soils: Saline flats near slat lakes IBRA Distribution: MUR Florabase records: 8	J	F	M	A	M	J	J	A	S	O	N	D	<p>Highly unlikely</p> <p>The nearest record of the taxon is over 70 km south of the survey area. Aerial and topographical imagery indicate differences in land surfaces between taxon record locations and that of the survey area. It is unlikely that saline systems will occur within the survey area.</p> <p>References: WAH (1998–)</p>
J	F	M	A	M	J	J	A	S	O	N	D					

**APPENDIX D: GEOGRAPHIC LOCATION OF SURVEY QUADRATS
WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

SITE	LOCATION (GDA94 Z51J)	
	EASTING (mE)	NORTHING (mN)
STH001	437470	6892811
STH002	437805	6894546
STH003	438294	6894504
STH004	438370	6903953
STH005	437686	6896342
STH006	437634	6896475
STH007	433685	6895593
STH008	433565	6895718
STH009	433628	6895922
STH010	433801	6895754
STH011	433512	6896354
STH012	433502	6896559
STH013	438165	6892959
STH014	438652	6893231
STH015	438035	6893775
STH016	437876	6893338
STH017	438158	6893324
STH018	438253	6893602
STH019	438424	6893452
STH020	438593	6893696
STH021	438479	6892941
STH022	438610	6894946
STH023	437333	6894657
STH024	438620	6904179
STH025	438090	6897028
STH026	437628	6897060
STH027	437851	6896801
STH028	437962	6896716
STH029	433216	6897589
STH030	432986	6897658
STH031	433011	6897537
STH032	433255	6897353
STH033	433472	6897261
STH034	433289	6897053
STH035	433165	6897153
STH036	437394	6893849
STH037	438374	6895887
STH038	438442	6895782
STH039	438305	6895552
STH040	438048	6895146
STH041	438738	6896059
STH042	437725	6895034
STH043	437660	6894774
STH044	438675	6894768
STH045	433827	6895121
STH046	433914	6895274
STH047	433741	6895439
STH048	434118	6895693
STH049	433377	6896271
STH050	433881	6896340
STH051	433350	6896634
STH052	437839	6892819
STH053	438182	6892776
STH054	438875	6893210

**APPENDIX D: GEOGRAPHIC LOCATION OF SURVEY QUADRATS
WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

SITE	LOCATION (GDA94 Z51J)	
	EASTING (mE)	NORTHING (mN)
STH055	438159	6894052
STH056	438149	6894195
STH057	438644	6894278
STH058	438818	6894095
STH059	438740	6892860
STH060	437391	6893174
STH061	437942	6894524
STH062	438594	6894571
STH063	437348	6895256
STH064	437279	6895837
STH065	438502	6904116
STH066	437873	6896201
STH067	437983	6896368
STH068	438532	6896417
STH069	438261	6896098
STH070	437335	6896400
STH071	433399	6897950
STH072	433111	6897858
STH073	433285	6897803
STH074	433510	6897653
STH075	433610	6897008
STH076	433606	6896824
STH077	437745	6893758
STH078	437418	6894109
STH079	437656	6895907
STH080	437656	6895907
STH081	438027	6895500
STH082	438775	6895619
STH083	438790	6895373
STH084	437962	6894733
STH085	438307	6894842
STH086	437355	6895049
STH087	438714	6897044
STH088	438509	6896823
STH089	438230	6896682
STH090	437293	6896937

**APPENDIX E: VASCULAR PLANT SPECIES RECORDED WITHIN
PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

Note: * denotes introduced species

FAMILY	SPECIES
AIZOACEAE	* <i>Mesembryanthemum crystallinum</i> <i>Trianthema glossostigmum</i>
AMARANTHACEAE	<i>Alternanthera nodiflora</i> <i>Ptilotus aevoides</i> <i>Ptilotus exaltatus</i> <i>Ptilotus helipteroides</i> <i>Ptilotus obovatus</i> <i>Ptilotus schwartzii</i>
APOCYNACEAE	<i>Leichhardtia australis</i>
ARALIACEAE	<i>Trachymene</i> sp.
ASPHODELACEAE	<i>Bulbine semibarbata</i>
ASTERACEAE	* <i>Bidens bipinnata</i> <i>Brachyscome</i> sp. <i>Calotis hispidula</i> <i>Calotis multicaulis</i> <i>Centipeda thespidioides</i> <i>Cephalopterum drummondii</i> <i>Chthonocephalus pseudevax</i> <i>Cratystylis subspinescens</i> <i>Myriocephalus guerinae</i> <i>Olearia ?magniflora</i> <i>Olearia pimeleoides</i> <i>Panaetia lessonii</i> <i>Pluchea dentex</i> <i>Rhodanthe charsleyae</i> <i>Rhodanthe maryonii</i> <i>Siemssenia capillaris</i> * <i>Sonchus oleraceus</i> <i>Streptoglossa liatroides</i> <i>Streptoglossa</i> sp. <i>Vittadinia dissecta</i> Asteraceae sp.
BORAGINACEAE	<i>Euploca cunninghamii</i>
BRASSICACEAE	<i>Lepidium muelleri-ferdinandii</i> <i>Lepidium platypetalum</i>
CAMPANULACEAE	<i>Lithotoma petraea</i> <i>Wahlenbergia tumidifructa</i> <i>Wahlenbergia</i> sp.
CHENOPODIACEAE	<i>Atriplex codonocarpa</i> <i>Atriplex</i> sp. <i>Dysphania kalpari</i> <i>Dysphania melanocarpa</i> <i>Dysphania glomulifera</i> subsp. <i>eremaea</i> <i>Eriochiton sclerolaenoides</i> <i>Maireana carnosae</i> <i>Maireana georgei</i> <i>Maireana glomerifolia</i>

**APPENDIX E: VASCULAR PLANT SPECIES RECORDED WITHIN
PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

Note: * denotes introduced species

FAMILY	SPECIES
CHENOPODIACEAE (continued)	<i>Maireana planifolia</i> <i>Maireana platycarpa</i> <i>Maireana pyramidata</i> <i>Maireana sedifolia</i> <i>Maireana trichoptera</i> <i>Maireana triptera</i> <i>Maireana tomentosa</i> <i>Maireana villosa</i> <i>Maireana</i> sp. <i>Rhagodia drummondii</i> <i>Rhagodia eremaea</i> <i>Sclerolaena cuneata</i> <i>Sclerolaena eriacantha</i> <i>Sclerolaena eurotioides</i> <i>Sclerolaena lanicuspis</i> <i>Sclerolaena</i> sp. <i>Tecticornia pergranulata</i> Chenopodiaceae sp.
CONVOLVULACEAE	<i>Convolvulus clementii</i> <i>Duperreya commixta</i>
CUCURBITACEAE	* <i>Cucumis myriocarpus</i> <i>Cucumis</i> sp.
CYPERACEAE	<i>Bulbostylis barbata</i>
EUPHORBIACEAE	<i>Euphorbia boophthona</i> <i>Euphorbia drummondii</i>
FABACEAE	<i>Acacia aneura</i> <i>Acacia aptaneura</i> <i>Acacia burkittii</i> <i>Acacia caesaneura</i> <i>Acacia craspedocarpa</i> <i>Acacia fuscaneura</i> <i>Acacia incurvaneura</i> <i>Acacia macraneura</i> <i>Acacia minyura</i> <i>Acacia oswaldii</i> <i>Acacia paraneura</i> <i>Acacia pteraneura</i> <i>Acacia quadrimarginea</i> <i>Acacia sibina</i> <i>Acacia tetragonophylla</i> <i>Acacia</i> sp. <i>Glycine</i> sp. <i>Glycine canescens</i> <i>Indigofera georgei</i> <i>Indigofera</i> sp. <i>Mirbelia rhagodioides</i> <i>Senna artemisioides</i> <i>Senna artemisioides</i> subsp. <i>×coriacea</i> <i>Senna artemisioides</i> subsp. <i>×petiolaris</i> <i>Senna cardiosperma</i> <i>Senna glutinosa</i> subsp. <i>chatelainiana</i>

**APPENDIX E: VASCULAR PLANT SPECIES RECORDED WITHIN
PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

Note: * denotes introduced species

FAMILY	SPECIES
FABACEAE (continued)	<i>Senna</i> sp. <i>Senna artemisioides</i> subsp. <i>×artemisioides</i> <i>Senna artemisioides</i> subsp. <i>×petiolaris</i> <i>Senna artemisioides</i> subsp. <i>×sturtii</i> <i>Senna artemisioides</i> subsp. <i>filifolia</i> <i>Senna artemisioides</i> subsp. <i>helmsii</i> <i>Senna artemisioides</i> subsp. <i>oligophylla</i> <i>Senna symonii</i> <i>Swainsona kingii</i> <i>Swainsona</i> sp.
FRANKENIACEAE	<i>Frankenia fecunda</i> <i>Frankenia</i> sp.
GERANIACEAE	<i>Erodium cygnorum</i>
GOODENIACEAE	<i>Goodenia occidentalis</i> <i>Goodenia peacockiana</i> <i>Goodenia pinnatifida</i> <i>Goodenia quasilibera</i> <i>Goodenia</i> sp. <i>Scaevola spinescens</i>
HALORAGACEAE	<i>Haloragis odontocarpa</i>
HEMEROCALLIDACEAE	<i>Dianella revoluta</i>
JUNCACEAE	<i>Juncus aridicola</i>
LAMIACEAE	<i>Teucrium teucriiflorum</i>
LAURACEAE	<i>Cassytha</i> sp.
MALVACEAE	<i>Abutilon cryptopetalum</i> <i>Abutilon oxycarpum</i> <i>Abutilon oxycarpum</i> subsp. <i>prostrata</i> <i>Abutilon</i> sp. <i>Abutilon fraseri</i> <i>Hibiscus burtonii</i> * <i>Malvastrum americanum</i> <i>Sida ectogama</i> <i>Sida fibulifera</i> <i>Sida</i> sp. Golden calyces glabrous <i>Sida calyxhymania</i> <i>Sida</i> sp. Malvaceae sp.
MARSILEACEAE	<i>Marsilea hirsuta</i>
MONTIACEAE	<i>Calandrinia eremaea</i> <i>Calandrinia</i> sp.
MYRTACEAE	<i>Hysterobaeckea occlusa</i>

**APPENDIX E: VASCULAR PLANT SPECIES RECORDED WITHIN
PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

Note: * denotes introduced species

FAMILY	SPECIES
PHYLLANTHACEAE	<i>Dendrophyllanthus erwinii</i>
PLANTAGINACEAE	<i>Plantago drummondii</i> <i>Plantago debilis</i>
POACEAE	<i>Aristida contorta</i> <i>Aristida obscura</i> <i>Austrostipa elegantissima</i> <i>Cymbopogon obtectus</i> <i>Dactyloctenium radulans</i> <i>Digitaria brownii</i> <i>Enneapogon polyphyllus</i> <i>Enneapogon caerulescens</i> <i>Enteropogon ramosus</i> <i>Eragrostis dielsii</i> <i>Eragrostis eriopoda</i> <i>Eragrostis falcata</i> <i>Eragrostis leptocarpa</i> <i>Eragrostis tenellula</i> <i>Eriachne flaccida</i> <i>Eriachne mucronata</i> <i>Eriachne pulchella</i> <i>Monachather paradoxus</i> <i>Paspalidium basicladum</i> <i>Paspalidium clementii</i> <i>Sporobolus australasicus</i> <i>Thyridolepis multiculmis</i> <i>Tripogonella loliiformis</i>
PORTULACACEAE	<i>Portulaca</i> sp. <i>Portulaca oleracea</i>
PRIMULACEAE	* <i>Lysimachia arvensis</i>
PROTEACEAE	<i>Grevillea nematophylla</i> <i>Grevillea berryana</i> <i>Hakea recurva</i> subsp. <i>recurva</i> <i>Hakea leucoptera</i> <i>Hakea lorea</i> <i>Hakea preissii</i> <i>Lamiaceae</i> sp.
PTERIDACEAE	<i>Cheilanthes sieberi</i>
RUBIACEAE	<i>Psydrax latifolia</i> <i>Psydrax rigidula</i> <i>Psydrax suaveolens</i>
SANTALACEAE	<i>Exocarpos aphyllus</i> <i>Santalum lanceolatum</i> <i>Santalum spicatum</i> <i>Santalum</i> sp.

**APPENDIX E: VASCULAR PLANT SPECIES RECORDED WITHIN
PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

Note: * denotes introduced species

FAMILY	SPECIES
SAPINDACEAE	<i>Dodonaea rigida</i> <i>Dodonaea viscosa</i>
SCROPHULARIACEAE	<i>Eremophila decipiens</i> <i>Eremophila forrestii</i> <i>Eremophila forrestii</i> subsp. <i>forrestii</i> <i>Eremophila galeata</i> <i>Eremophila ?gilesii</i> <i>Eremophila gilesii</i> subsp. <i>variabilis</i> <i>Eremophila glutinosa</i> <i>Eremophila homoplastica</i> <i>Eremophila latrobei</i> <i>Eremophila latrobei</i> subsp. <i>filiformis</i> <i>Eremophila latrobei</i> subsp. <i>latrobei</i> <i>Eremophila platycalyx</i> <i>Eremophila pungens</i> (P4)
SOLANACEAE	<i>Nicotiana cavicola</i> <i>Solanum lasiophyllum</i> * <i>Solanum nigrum</i> <i>Solanum piceum</i>
ZYGOPHYLLACEAE	<i>Roepera iodocarpa</i> <i>Roepera ovata</i> <i>Roepera</i> sp. <i>Tribulus occidentalis</i>

APPENDIX F: VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITES WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: * denotes introduced species

SPECIES	SURVEY SITES																								
	STH001	STH002	STH003	STH004	STH005	STH006	STH007	STH008	STH009	STH010	STH011	STH012	STH013	STH014	STH015	STH016	STH017	STH018	STH019	STH020	STH021	STH022	STH023	STH024	STH025
<i>Abutilon cryptopetalum</i>																									
<i>Abutilon oxycarpum</i>												X	X	X											
<i>Abutilon oxycarpum</i> subsp. <i>prostrata</i>																									
<i>Abutilon fraseri</i>			X														X								
<i>Abutilon</i> sp.																									
<i>Acacia aneura</i>	X	X	X	X	X	X		X	X			X	X			X					X	X		X	X
<i>Acacia aptaneura</i>		X	X	X	X		X	X	X			X	X	X		X	X		X	X	X	X	X	X	X
<i>Acacia burkittii</i>			X		X					X							X					X			
<i>Acacia caesaneura</i>	X		X		X	X										X					X		X		
<i>Acacia fuscaeneura</i>																									
<i>Acacia incurvaneura</i>																									
<i>Acacia macraneura</i>					X																				
<i>Acacia minyura</i>																									
<i>Acacia oswaldii</i>		X																				X			
<i>Acacia paraneura</i>										X															
<i>Acacia pteraneura</i>																									
<i>Acacia quadrimarginea</i>				X												X	X						X	X	X
<i>Acacia sibina</i>																						X			
<i>Acacia craspedocarpa</i>			X		X																				
<i>Acacia tetragonophylla</i>	X		X	X	X	X	X	X					X			X	X			X	X	X	X	X	X
<i>Acacia</i> sp.										X													X	X	
<i>Alternanthera nodiflora</i>																									
<i>Aristida contorta</i>					X												X	X							
<i>Aristida obscura</i>																	X								
Asteraceae sp.																									
<i>Atriplex codonocarpa</i>												X													
<i>Atriplex</i> sp.			X			X	X		X		X	X		X	X			X	X	X	X	X			
<i>Austrostipa elegantissima</i>																X									
* <i>Bidens bipinnata</i>																									
<i>Brachyscome</i> sp.																									
<i>Bulbine semibarbata</i>																									
<i>Bulbostylis barbata</i>																						X			

APPENDIX F: VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITES WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: * denotes introduced species

SPECIES	SURVEY SITES																									
	STH001	STH002	STH003	STH004	STH005	STH006	STH007	STH008	STH009	STH010	STH011	STH012	STH013	STH014	STH015	STH016	STH017	STH018	STH019	STH020	STH021	STH022	STH023	STH024	STH025	
<i>Eragrostis tenellula</i>																										
<i>Eremophila decipiens</i>																										
<i>Eremophila galeata</i>	X															X								X		
<i>Eremophila ?gilesii</i>																								X		
<i>Eremophila gilesii</i> subsp. <i>variabilis</i>																							X			
<i>Eremophila glutinosa</i>																										
<i>Eremophila forrestii</i>																										
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>		X	X																							
<i>Eremophila homoplastica</i>																										
<i>Eremophila latrobei</i>	X					X						X	X											X	X	
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>																X										
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>																										
<i>Eremophila platycalyx</i>		X		X			X	X							X						X	X				
<i>Eriachne flaccida</i>					X								X	X												
<i>Eriachne mucronata</i>	X			X		X						X	X						X					X	X	
<i>Eriachne pulchella</i>					X				X				X													
<i>Eriochiton sclerolaenoides</i>																										
<i>Erodium cygnorum</i>																					X					
<i>Euphorbia boopthona</i>																										
<i>Euphorbia drummondii</i>			X		X																					
<i>Euploca cunninghamii</i>																										
<i>Exocarpos aphyllus</i>							X	X			X	X		X					X						X	
<i>Frankenia fecunda</i>																										
<i>Frankenia</i> sp.																										
<i>Glycine</i> sp.																										
<i>Glycine canescens</i>																										
<i>Goodenia occidentalis</i>																							X			
<i>Goodenia peacockiana</i>																										
<i>Goodenia pinnatifida</i>			X		X										X											
<i>Goodenia quasilibera</i>																										
<i>Goodenia</i> sp.																						X				

APPENDIX F: VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITES WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: * denotes introduced species

SPECIES	SURVEY SITES																								
	STH026	STH027	STH028	STH029	STH030	STH031	STH032	STH033	STH034	STH035	STH036	STH037	STH038	STH039	STH040	STH041	STH042	STH043	STH044	STH045	STH046	STH047	STH048	STH049	STH050
<i>Grevillea nematophylla</i>																									
<i>Grevillea berryana</i>	X														X										
<i>Hakea recurva</i> subsp. <i>recurva</i>																									
<i>Hakea leucoptera</i>																									
<i>Hakea lorea</i>							X																		
<i>Hakea preissii</i>										X							X		X	X			X		X
<i>Haloragis odontocarpa</i>																									
<i>Hibiscus burtonii</i>		X			X		X	X																	
<i>Hysterobaeckea occlusa</i>	X																								
<i>Indigofera georgei</i>																									
<i>Indigofera</i> sp.																									
<i>Juncus aridicola</i>																									
<i>Lamiaceae</i> sp.																									
<i>Leichhardtia australis</i>		X			X		X	X	X		X		X	X	X								X		X
<i>Lepidium muelleri-ferdinandii</i>																									
<i>Lepidium platypetalum</i>					X																				
<i>Lithotoma petraea</i>															X										
* <i>Lysimachia arvensis</i>																									
<i>Maireana carnosa</i>							X													X					
<i>Maireana pyramidata</i>					X	X	X		X	X				X					X	X					
<i>Maireana sedifolia</i>																									
<i>Maireana trichoptera</i>																									
<i>Maireana triptera</i>			X	X		X			X	X	X						X			X	X	X	X		X
<i>Maireana villosa</i>														X											
<i>Maireana georgei</i>									X																
<i>Maireana glomerifolia</i>																			X						
<i>Maireana planifolia</i>										X	X	X					X		X						
<i>Maireana platycarpa</i>										X							X			X	X	X	X	X	
<i>Maireana tomentosa</i>										X															
<i>Maireana</i> sp.		X		X																					
<i>Malvaceae</i> sp.																						X			

APPENDIX F: VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITES WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: * denotes introduced species

SPECIES	SURVEY SITES																								
	STH026	STH027	STH028	STH029	STH030	STH031	STH032	STH033	STH034	STH035	STH036	STH037	STH038	STH039	STH040	STH041	STH042	STH043	STH044	STH045	STH046	STH047	STH048	STH049	STH050
<i>*Malvastrum americanum</i>								X																	
<i>Marsilea hirsuta</i>																									
<i>*Mesembryanthemum crystallinum</i>				X	X																				
<i>Mirbelia rhagodioides</i>																									
<i>Monachather paradoxus</i>		X																							
<i>Myriocephalus gueriniae</i>		X																							
<i>Nicotiana cavicola</i>		X					X	X				X													
<i>Olearia ?magniflora</i>																									
<i>Olearia pimeleoides</i>																									
<i>Panaetia lessonii</i>																									
<i>Paspalidium basicladum</i>					X		X							X											
<i>Paspalidium clementii</i>																									
<i>Plantago drummondii</i>							X																		
<i>Plantago debilis</i>		X						X																	
<i>Pluchea dentex</i>																									
<i>Portulaca sp.</i>																									
<i>Portulaca oleracea</i>					X		X	X	X														X		
<i>Psydrax rigidula</i>																									
<i>Psydrax suaveolens</i>		X										X	X	X		X						X		X	
<i>Psydrax latifolia</i>									X																
<i>Ptilotus aervoides</i>		X			X		X	X			X			X			X								
<i>Ptilotus helipteroides</i>		X									X			X									X		
<i>Ptilotus obovatus</i>	X		X	X	X		X		X		X			X	X		X			X	X	X	X	X	X
<i>Ptilotus exaltatus</i>																					X				
<i>Ptilotus schwartzii</i>	X												X	X		X									
<i>Rhagodia drummondii</i>																									
<i>Rhagodia eremaea</i>																	X				X	X			
<i>Rhodanthe charsleyae</i>																									
<i>Rhodanthe maryonii</i>																							X	X	X
<i>Roepera iodocarpa</i>			X	X																					
<i>Roepera ovata</i>																				X					

APPENDIX F: VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITES WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: * denotes introduced species

SPECIES	SURVEY SITES																								
	STH051	STH052	STH053	STH054	STH055	STH056	STH057	STH058	STH059	STH060	STH061	STH062	STH063	STH064	STH065	STH066	STH067	STH068	STH069	STH070	STH071	STH072	STH073	STH074	STH075
<i>Eragrostis tenellula</i>					X																		X		
<i>Eremophila decipiens</i>							X																		
<i>Eremophila galeata</i>			X								X		X												
<i>Eremophila ?gilesii</i>							X																		
<i>Eremophila gilesii</i> subsp. <i>variabilis</i>																									
<i>Eremophila glutinosa</i>															X										
<i>Eremophila forrestii</i>					X		X		X		X			X							X			X	
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>																									
<i>Eremophila homoplastica</i>										X															
<i>Eremophila latrobei</i>														X				X		X					
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>																									
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>		X	X							X			X		X									X	
<i>Eremophila platycalyx</i>																	X		X			X		X	
<i>Eriachne flaccida</i>														X											
<i>Eriachne mucronata</i>	X	X	X	X	X		X				X		X		X	X	X	X	X	X	X				
<i>Eriachne pulchella</i>														X											
<i>Eriochiton sclerolaenoides</i>																									
<i>Erodium cygnorum</i>				X					X													X		X	
<i>Euphorbia boopthona</i>							X	X						X										X	
<i>Euphorbia drummondii</i>				X			X	X	X					X										X	
<i>Euploca cunninghamii</i>																									
<i>Exocarpos aphyllus</i>																			X		X				
<i>Frankenia fecunda</i>												X						X	X						
<i>Frankenia</i> sp.																						X			
<i>Glycine</i> sp.																							X		
<i>Glycine canescens</i>																									
<i>Goodenia occidentalis</i>				X	X		X		X	X				X											
<i>Goodenia peacockiana</i>																									
<i>Goodenia pinnatifida</i>																									
<i>Goodenia quasilibera</i>																									
<i>Goodenia</i> sp.																						X			

APPENDIX F: VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITES WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: * denotes introduced species

SPECIES	SURVEY SITES														
	STH076	STH077	STH078	STH079	STH080	STH081	STH082	STH083	STH084	STH085	STH086	STH087	STH088	STH089	STH090
<i>*Malvastrum americanum</i>															
<i>Marsilea hirsuta</i>													X	X	
<i>*Mesembryanthemum crystallinum</i>														X	
<i>Mirbelia rhagodioides</i>														X	
<i>Monachather paradoxus</i>															
<i>Myriocephalus gueriniae</i>															
<i>Nicotiana cavicola</i>			X								X		X		
<i>Olearia ? magniflora</i>															
<i>Olearia pimeleoides</i>															
<i>Panaetia lessonii</i>															
<i>Paspalidium basicladum</i>			X		X										X
<i>Paspalidium clementii</i>															
<i>Plantago drummondii</i>															
<i>Plantago debilis</i>															
<i>Plucheia dentex</i>															
<i>Portulaca sp.</i>													X	X	
<i>Portulaca oleracea</i>															
<i>Psydrax rigidula</i>															
<i>Psydrax suaveolens</i>			X			X				X		X			X
<i>Psydrax latifolia</i>											X				
<i>Ptilotus aervoides</i>	X								X				X		
<i>Ptilotus helipteroides</i>	X								X		X				
<i>Ptilotus obovatus</i>	X	X		X	X	X	X		X	X		X	X		X
<i>Ptilotus exaltatus</i>									X						
<i>Ptilotus schwartzii</i>															X
<i>Rhagodia drummondii</i>															
<i>Rhagodia eremaea</i>						X	X					X			
<i>Rhodanthe charsleyae</i>			X												
<i>Rhodanthe maryonii</i>					X										
<i>Roepera iodocarpa</i>		X							X						
<i>Roepera ovata</i>									X						

APPENDIX F: VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITES WITHIN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

Note: * denotes introduced species

SPECIES	SURVEY SITES														
	STH076	STH077	STH078	STH079	STH080	STH081	STH082	STH083	STH084	STH085	STH086	STH087	STH088	STH089	STH090
<i>*Sonchus oleraceus</i>															
<i>Sporobolus australasicus</i>															
<i>Streptoglossa liatroides</i>															
<i>Streptoglossa</i> sp.															
<i>Swainsona kingii</i>													X	X	
<i>Swainsona</i> sp.									X						
<i>Tecticornia pergranulata</i>								X							
<i>Teucrium teucriiflorum</i>															
<i>Thyridolepis multiculmis</i>															
<i>Trachymene</i> sp.															
<i>Trianthema glossostigmum</i>														X	
<i>Tribulus occidentalis</i>															
<i>Tripogonella loliformis</i>	X	X		X							X				
<i>Vittadinia dissecta</i>															
<i>Wahlenbergia tumidifructa</i>			X												
<i>Wahlenbergia</i> sp.												X			

**APPENDIX G: GEOGRAPHIC LOCATIONS OF CONSERVATION
SIGNIFICANT TAXA RECORDED IN THE PALLIARDS FIND,
BUDGERIGAR, AND RUSSELS FIND (SOUTH) PROJECT AREAS**

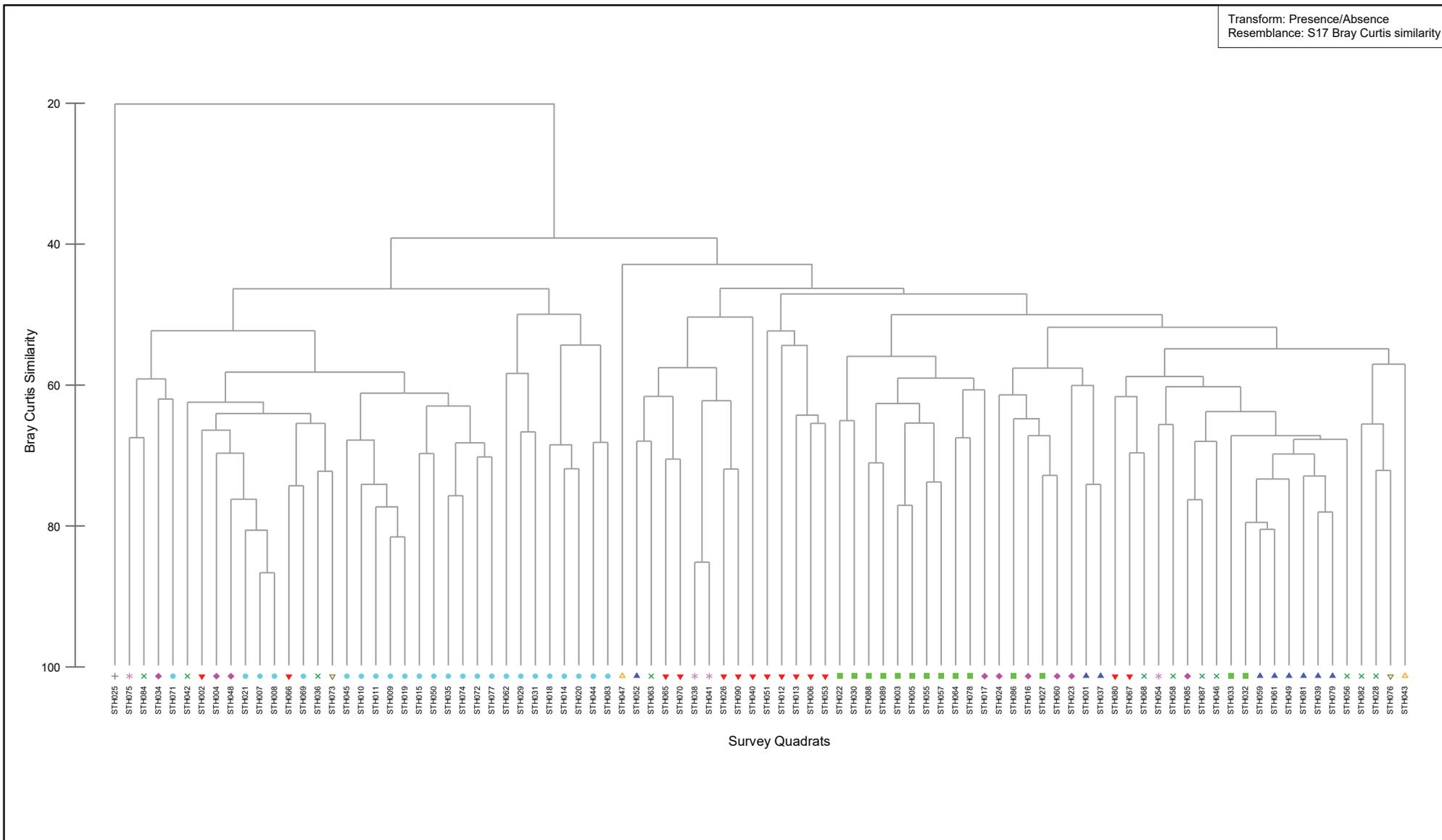
Note: CC refers to conservation code (State/Federal); P4 designates Priority 4 taxa (DBCA 2023a, DCCEEW 2023c)

SPECIES	CC	NUMBER OF INDIVIDUALS	LOCATION (GDA94 Z51)	
			EASTING (mE)	NORTHING (mN)
<i>Eremophila pungens</i>	P4	20	438465	6903986
<i>Eremophila pungens</i>	P4	5	438503	6904046

**APPENDIX H: GEOGRAPHIC LOCATIONS OF INTRODUCED FLORA
TAXA RECORDED IN THE PALLIARDS FIND, BUDGERIGAR
AND RUSSELLS FIND (SOUTH) PROJECT AREAS**

Note: s11 is s11 (permitted organism) (BAM 2007)

SPECIES	BAM 2007 STATUS	COMMUNITY CODE	LOCATION (GDA94 Z51)	
			EASTING (mE)	NORTHING (mN)
<i>*Bidens bipinnata</i>	s11	D2	433255	6897353
<i>*Cucumis myriocarpus</i>	s11	D2	437686	6896342
<i>*Lysimachia arvensis</i>	s11	D2	437279	6895837
<i>*Lysimachia arvensis</i>	s11	D2	437686	6896342
<i>*Malvastrum americanum</i>	s11	D2	433472	6897261
<i>*Mesembryanthemum crystallinum</i>	s11	C5	433216	6897589
<i>*Mesembryanthemum crystallinum</i>	s11	C5	438253	6893602
<i>*Mesembryanthemum crystallinum</i>	s11	C5	438593	6893696
<i>*Mesembryanthemum crystallinum</i>	s11	D2	437279	6895837
<i>*Mesembryanthemum crystallinum</i>	s11	D2	432986	6897658
<i>*Solanum nigrum</i>	s11	D2	433255	6897353
<i>*Sonchus oleraceus</i>	s11	D2	438159	6894052
<i>*Sonchus oleraceus</i>	s11	D2	437279	6895837



- ▲ A3 ▼ R1 ■ D2 ◆ A5 ● C5
- + A1 × A8 * A10 ▲ A7 ▼ D1

Client:

 CAD Ref: g2501_Dend_F04_02_Pall
 Date: Nov 2023 | Rev: A | A4

 **Mattiske** Consulting Pty Ltd
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 Drawn: CAD Resources - Tel: (08) 9246 3242
 www.cadresources.com.au

Palliards Prospect
Hierarchical Cluster of Floristic Community Types
Group Average

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: A1			
Community Description:			
<i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) and <i>Acacia quadrimarginea</i> tall open shrubland, over mid-sparse shrubland of <i>Psyrax rigidula</i> , <i>Senna artemisioides</i> , and <i>Acacia tetragonophylla</i> over low sparse shrubland of <i>Frankenia fecunda</i> , <i>Ptilotus obovatus</i> , and <i>Ptilotus schwartzii</i> on undulating red clay flats with ironstone and quartz pebbling			
Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Acacia quadrimarginea</i>	<i>Psyrax rigidula</i>	<i>Acacia tetragonophylla</i>
<i>Frankenia fecunda</i>	<i>Ptilotus obovatus</i>	<i>Ptilotus schwartzii</i>	
Soil and Landform:	Gently undulating red clay flats	Surface Rocks:	Quartz and ironstone pebbling
Outcropping:	Not present	Vegetation Condition:	Very good
Community Area:	40.787 ha	Proportion of Survey Areas:	4.931%
Total No. Quadrats:	1	Average Spp. Richness:	12
REPRESENTATIVE PHOTOGRAPH: [SITE STH025]			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: A3			
Community Description:			
<i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i> , <i>Acacia aptaneura</i> , and <i>Acacia caesaneura</i>) and <i>Acacia oswaldii</i> tall-open shrubland over mid-sparse shrubland of <i>Acacia tetragonophylla</i> , <i>Acacia craspedocarpa</i> , and <i>Psyrax suaveolens</i> over low-sparse shrubland of <i>Sida ectogama</i> , <i>Ptilotus obovatus</i> , and <i>Cheilanthes sieberi</i> on undulating red clay flats with ironstone and quartz pebbling			
Statistically Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Acacia oswaldii</i>	<i>Acacia tetragonophylla</i>	<i>Acacia craspedocarpa</i>
<i>Psyrax suaveolens</i>	<i>Sida ectogama</i>	<i>Ptilotus obovatus</i>	<i>Cheilanthes sieberi</i>
Occasional Species:			
<i>Dianella revoluta</i>	<i>Solanum lasiophyllum</i>	<i>Leichhardtia australis</i>	<i>Eremophila latrobei</i>
Soil and Landform:	Gently undulating red clay flats	Surface Rocks:	Quartz and ironstone pebbling
Outcropping:	Not present	Vegetation Condition:	Good
Community Area:	132.924 ha	Proportion of Survey Areas:	16.071%
Total No. Quadrats:	9	Average Spp. Richness:	7.111
REPRESENTATIVE PHOTOGRAPH [SITE STH061]:			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: A5			
Community Description:			
<i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) and <i>Acacia quadrimagrinea</i> tall-open shrubland over mid-sparse shrubland of <i>Acacia tetragonophylla</i> , <i>Senna artemisioides</i> , and <i>Psydrax suaveolens</i> over low-sparse shrubland of <i>Sida ectogama</i> , <i>Ptilotus obovatus</i> , and <i>Cheilanthes sieberi</i> on undulating red clay flats with ironstone and quartz pebbling			
Statistically Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Acacia quadrimagrinea</i>	<i>Acacia tetragonophylla</i>	<i>Psydrax suaveolens</i>
<i>Senna artemisioides</i>	<i>Ptilotus obovatus</i>	<i>Cheilanthes sieberi</i>	<i>Sida ectogama</i>
Occasional Species:			
<i>Eremophila galeata</i>	<i>Solanum lasiophyllum</i>	<i>Eriachne mucronata</i>	<i>Eremophila forrestii</i>
Soil and Landform:	Gently undulating red clay flats	Surface Rocks:	Quartz and ironstone pebbling
Outcropping:	Not present	Vegetation Condition:	Good
Community Area:	116.658 ha	Proportion of Survey Areas:	14.104%
Total No. Quadrats:	9	Average Spp. Richness:	77
REPRESENTATIVE PHOTOGRAPH: [SITE STH016]			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: A7			
Community Description:			
<p><i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aptaneura</i>) tall-sparse shrubland over mid-sparse shrubland of <i>Senna artemisioides</i>, <i>Psyrax suaveolens</i>, and <i>Eremophila galeata</i> over low-sparse shrubland of <i>Ptilotus obovatus</i>, <i>Sida ectogama</i>, and <i>Cheilanthes sieberi</i> on undulating red clay flats with ironstone and quartz pebbling</p>			
Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Psyrax suaveolens</i>	<i>Eremophila galeata</i>	<i>Senna artemisioides</i>
<i>Ptilotus obovatus</i>	<i>Sida ectogama</i>	<i>Cheilanthes sieberi</i>	
Soil and Landform:	Gently undulating red clay flats	Surface Rocks:	Quartz and ironstone pebbling
Outcropping:	Not present	Vegetation Condition:	Good
Community Area:	14.175 ha	Proportion of Survey Areas:	1.714%
Total No. Quadrats:	2	Average Spp. Richness:	11
REPRESENTATIVE PHOTOGRAPH: [SITE STH047]			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: A8			
Community Description:			
<i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) tall-sparse shrubland over mid-sparse shrubland of <i>Acacia tetragonophylla</i> , <i>Senna artemisioides</i> , and <i>Acacia craspedocarpa</i> over low-sparse shrubland of <i>Sida ectogama</i> , <i>Ptilotus obovatus</i> , and <i>Rhagodia eremaea</i> on undulating red clay flats with ironstone and quartz pebbling			
Statistically Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Acacia tetragonophylla</i>	<i>Senna artemisioides</i>	<i>Acacia craspedocarpa</i>
<i>Sida ectogama</i> ,	<i>Ptilotus obovatus</i>	<i>Rhagodia eremaea</i>	
Occasional Species:			
<i>Eremophila latrobei</i>	<i>Hakea preissii</i>	<i>Ptilotus schwartzii</i>	<i>Scaevola spinescens</i>
Soil and Landform:	Gently undulating red clay flats	Surface Rocks:	Quartz and ironstone pebbling
Outcropping:	Not present	Vegetation Condition:	Good
Community Area:	136.891 ha	Proportion of Survey Areas:	16.551%
Total No. Quadrats:	11	Average Spp. Richness:	6.364
REPRESENTATIVE PHOTOGRAPH: [SITE STH082]			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: A10			
Community Description:			
<i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i> , <i>Acacia aptaneura</i> , and <i>Acacia incurvaneura</i>) tall-sparse shrubland over mid-sparse shrubland of <i>Eremophila latrobei</i> and <i>Psydrax suaveolens</i> over low-sparse tussock grassland of <i>Eriachne mucronata</i> , <i>Eragrostis eriopoda</i> , and <i>Ptilotus obovatus</i> on undulating red clay flats with ironstone and quartz pebbling			
Statistically Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Eremophila latrobei</i>	<i>Psydrax suaveolens</i>	<i>Eriachne mucronata</i>
<i>Eragrostis eriopoda</i>	<i>Ptilotus obovatus</i>		
Occasional Species:			
<i>Duperreya commixta</i>	<i>Sida fibulifera</i>	<i>Cheilanthes sieberi</i>	<i>Ptilotus schwartzii</i>
Soil and Landform:	Gently undulating red clay flats	Surface Rocks:	Quartz and ironstone pebbling
Outcropping:	Not present	Vegetation Condition:	Poor
Community Area:	61.120 ha	Proportion of Survey Areas:	7.390%
Total No. Quadrats:	4	Average Spp. Richness:	7.5
REPRESENTATIVE PHOTOGRAPH: [SITE STH054]			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: C5			
Community Description:			
<i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) tall-sparse shrubland over mid-sparse shrubland of <i>Hakea preissii</i> , <i>Senna artemisioides</i> , and <i>Eremophila platycalyx</i> over low-sparse chenopod shrubland of <i>Maireana triptera</i> , <i>Sclerolaena eriacantha</i> , and <i>Maireana pyramidata</i> on undulating red-orange, sandy-clay flats with quartz pebbling			
Statistically Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Senna artemisioides</i>	<i>Hakea preissii</i>	<i>Eremophila platycalyx</i>
<i>Maireana triptera</i>	<i>Sclerolaena eriacantha</i>	<i>Maireana pyramidata</i>	
Occasional Species:			
<i>Maireana villosa</i>	<i>Maireana glomerifolia</i>	<i>Cratystylis subspinescens</i>	<i>Tecticornia pergranulata</i>
Soil and Landform:	Gently undulating red-orange sandy clay flats	Surface Rocks:	Quartz pebbling
Outcropping:	Not present	Vegetation Condition:	Poor
Community Area:	216.470 ha	Proportion of Survey Areas:	26.172%
Total No. Quadrats:	24	Average Spp. Richness:	3.708
REPRESENTATIVE PHOTOGRAPH: [SITE STH018]			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: D1			
Community Description: <i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i>) and <i>Acacia craspedocarpa</i> tall-open shrubland over mid-open shrubland of <i>Acacia tetragonophylla</i> , and <i>Senna artemisioides</i> over low-open shrubland of <i>Sida ectogama</i> , <i>Ptilotus obovatus</i> , and <i>Cheilathes sieberi</i> on red clay soils in minor drainage lines			
Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Acacia craspedocarpa</i>	<i>Acacia tetragonophylla</i>	<i>Senna artemisioides</i>
<i>Sida ectogama</i>	<i>Ptilotus obovatus</i>	<i>Cheilathes sieberi</i>	
Soil and Landform:	Red clay soils in minor drainage lines	Surface Rocks:	Not typically present
Outcropping:	Not present	Vegetation Condition:	Good
Community Area:	12.125 ha	Proportion of Survey Areas:	1.466%
Total No. Quadrats:	2	Average Spp. Richness:	18
REPRESENTATIVE PHOTOGRAPH: [SITE STH076]			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: D2			
Community Description:			
<i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i> , <i>Acacia aptaneura</i> , and <i>Acacia caesaneura</i>) and <i>Acacia craspedocarpa</i> tall-open shrubland over mid -open shrubland of <i>Acacia burkittii</i> , <i>Acacia tetragonophylla</i> , and <i>Senna artemisioides</i> over low-open shrubland of <i>Sida ectogama</i> , <i>Cheilanthes sieberi</i> , and <i>Solanum lasiophyllum</i> on red clay soils in minor drainage lines			
Statistically Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Acacia craspedocarpa</i>	<i>Acacia burkittii</i>	<i>Acacia tetragonophylla</i>
<i>Senna artemisioides</i>	<i>Sida ectogama</i>	<i>Cheilanthes sieberi</i>	<i>Solanum lasiophyllum</i>
Occasional Species:			
<i>Dianella revoluta</i>	<i>Duperreya commixta</i>	<i>Teucrium teucriflorum</i>	<i>Leichhardtia australis</i>
Soil and Landform:	Red clay soils in minor drainage lines	Surface Rocks:	Not present
Outcropping:	Not present	Vegetation Condition:	Good
Community Area:	73.608 ha	Proportion of Survey Areas:	8.899%
Total No. Quadrats:	14	Average Spp. Richness:	10.286
REPRESENTATIVE PHOTOGRAPH: [SITE STH055]			
			

APPENDIX J: SUMMARY OF VEGETATION COMMUNITIES DEFINED IN THE PALLIARDS FIND, BUDGERIGAR, AND RUSSELLS FIND (SOUTH) PROJECT AREAS

VEGETATION COMMUNITY DESCRIPTION			
Community Code: R1			
Community Description:			
<i>Acacia</i> section <i>Juliflorae</i> (<i>Acacia aneura</i> and <i>Acacia aptaneura</i>) tall-sparse shrubland over mid-sparse shrubland of <i>Senna artemisioides</i> , <i>Eremophila latrobei</i> , and <i>Psyrax suaveolens</i> over low-sparse shrubland of <i>Ptilotus obovatus</i> , <i>Eriachne mucronata</i> , and <i>Cheilanthes sieberi</i> on skeletal clay soils on ironstone ridgelines			
Statistically Associated Species:			
<i>Acacia</i> section <i>Juliflorae</i>	<i>Senna artemisioides</i>	<i>Eremophila latrobei</i>	<i>Psyrax suaveolens</i>
<i>Ptilotus obovatus</i>	<i>Eriachne mucronata</i>	<i>Cheilanthes sieberi</i>	
Occasional Species:			
<i>Ptilotus schwartzii</i>	<i>Leichhardtia australis</i>	<i>Acacia quadrimaginea</i>	<i>Acacia oswaldii</i>
Soil and Landform:	Skeletal red clay soils on ironstone ridgelines	Surface Rocks:	Ironstone and occasional rocks quartz
Outcropping:	Ironstone and occasionally quartz	Vegetation Condition:	Very good
Community Area:	21.850 ha	Proportion of Survey Areas:	2.642%
Total No. Quadrats:	14	Average Spp. Richness:	6.786
REPRESENTATIVE PHOTOGRAPH: [SITE STH006]			
			

**APPENDIX K: VACULAR PLANT SPECIES RECORDED WITHIN VEGETATION COMMUNITIES
COMMUNITIES IDENTIFIED WITHIN PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

Note: * denotes introduced species

SPECIES	VEGETATION COMMUNITY									
	A1	A3	A5	A7	A8	A10	C5	D1	D2	R1
<i>Abutilon cryptopetalum</i>									X	
<i>Abutilon oxycarpum</i>					X		X			X
<i>Abutilon oxycarpum</i> subsp. <i>prostrata</i>							X	X	X	
<i>Abutilon fraseri</i>			X						X	
<i>Abutilon</i> sp.		X			X				X	X
<i>Acacia aneura</i>	X	X	X		X	X	X		X	X
<i>Acacia aptaneura</i>	X	X	X	X	X	X	X	X	X	X
<i>Acacia burkittii</i>			X		X		X		X	X
<i>Acacia caesaneura</i>		X	X		X		X		X	X
<i>Acacia craspedocarpa</i>		X	X		X			X	X	X
<i>Acacia fuscaneura</i>		X			X					
<i>Acacia incurvaneura</i>						X				
<i>Acacia macraneura</i>									X	
<i>Acacia minyura</i>		X				X	X		X	X
<i>Acacia oswaldii</i>		X		X	X				X	X
<i>Acacia paraneura</i>							X			
<i>Acacia pteraneura</i>			X						X	
<i>Acacia quadrimarginea</i>	X		X						X	X
<i>Acacia sibina</i>			X	X						
<i>Acacia tetragonophylla</i>	X	X	X		X	X	X	X	X	X
<i>Acacia</i> sp.		X	X	X	X	X	X		X	X
<i>Alternanthera nodiflora</i>									X	
<i>Aristida contorta</i>		X	X	X	X	X	X	X	X	X
<i>Aristida obscura</i>		X	X						X	X
Asteraceae sp.							X		X	X
<i>Atriplex codonocarpa</i>										X
<i>Atriplex</i> sp.		X	X		X		X	X	X	X
<i>Austrostipa elegantissima</i>			X							
<i>Bidens bipinnata</i> *									X	
<i>Brachyscome</i> sp.									X	
<i>Bulbine semibarbata</i>									X	
<i>Bulbostylis barbata</i>									X	
<i>Calandrinia eremaea</i>			X				X	X	X	
<i>Calandrinia</i> sp.									X	
<i>Calotis hispidula</i>							X		X	
<i>Calotis multicaulis</i>					X			X	X	
<i>Cassylia</i> sp.		X								
<i>Centipeda thespidioides</i>									X	
<i>Cephalopterum drummondii</i>							X			
<i>Cheilanthes sieberi</i>	X	X	X	X	X	X			X	X
Chenopodiaceae sp.									X	
<i>Chthonocephalus pseudevax</i>							X			X
<i>Convolvulus clementii</i>								X	X	
<i>Cratystylis subspinescens</i>							X			
<i>Cucumis myriocarpus</i> *									X	
<i>Cucumis</i> sp.									X	
<i>Cymbopogon obtectus</i>										X
<i>Dactyloctenium radulans</i>			X				X	X	X	
<i>Dendrophyllanthus erwinii</i>		X							X	
<i>Dianella revoluta</i>		X								
<i>Digitaria brownii</i>					X				X	X
<i>Dodonaea rigida</i>									X	X
<i>Dodonaea viscosa</i>			X						X	X
<i>Duperreya commixta</i>		X	X		X	X	X		X	X
<i>Dysphania kalpari</i>										X
<i>Dysphania melanocarpa</i>									X	X
<i>Dysphania glomulifera</i> subsp. <i>eremaea</i>									X	
<i>Enneapogon polyphyllus</i>		X	X	X	X		X	X	X	X
<i>Enneapogon caerulescens</i>			X		X	X	X	X	X	X
<i>Enteropogon ramosus</i>		X	X		X		X	X	X	X
<i>Eragrostis dielsii</i>							X		X	
<i>Eragrostis eriopoda</i>		X	X		X	X	X			X
<i>Eragrostis falcata</i>								X	X	X
<i>Eragrostis leptocarpa</i>							X		X	

**APPENDIX K: VACULAR PLANT SPECIES RECORDED WITHIN VEGETATION COMMUNITIES
COMMUNITIES IDENTIFIED WITHIN PALLIARDS FIND, BUDGERIGAR, AND
RUSSELLS FIND (SOUTH) PROJECT AREAS**

Note: * denotes introduced species

SPECIES	VEGETATION COMMUNITY									
	A1	A3	A5	A7	A8	A10	C5	D1	D2	R1
<i>Eragrostis tenellula</i>								X	X	
<i>Eremophila decipiens</i>									X	
<i>Eremophila forrestii</i>		X	X				X		X	
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>									X	X
<i>Eremophila galeata</i>		X	X	X	X					X
<i>Eremophila ?gilesii</i>									X	
<i>Eremophila gilesii</i> subsp. <i>variabilis</i>			X							
<i>Eremophila glutinosa</i>										X
<i>Eremophila homoplastica</i>			X							
<i>Eremophila latrobei</i>	X	X	X		X	X			X	X
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>			X							
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>		X	X		X					X
<i>Eremophila platycalyx</i>		X	X		X		X		X	X
<i>Eriachne flaccida</i>									X	X
<i>Eriachne mucronata</i>	X	X	X		X	X	X		X	X
<i>Eriachne pulchella</i>							X		X	X
<i>Eriochiton sclerolaenoides</i>		X			X		X	X		
<i>Erodium cygnorum</i>		X				X	X	X	X	
<i>Euphorbia boophona</i>		X		X	X				X	
<i>Euphorbia drummondii</i>		X			X	X	X	X	X	
<i>Euploca cunninghamii</i>									X	
<i>Exocarpos aphyllus</i>							X			
<i>Frankenia fecunda</i>	X		X		X		X			X
<i>Frankenia</i> sp.		X					X			
<i>Glycine</i> sp.								X		
<i>Glycine canescens</i>									X	
<i>Goodenia occidentalis</i>		X	X			X			X	
<i>Goodenia peacockiana</i>									X	
<i>Goodenia pinnatifida</i>			X						X	
<i>Goodenia quasilibera</i>		X							X	
<i>Goodenia</i> sp.							X		X	
<i>Grevillea nematophylla</i>										X
<i>Grevillea berryana</i>			X						X	X
<i>Hakea recurva</i> subsp. <i>recurva</i>							X		X	X
<i>Hakea leucoptera</i>						X				
<i>Hakea lorea</i>									X	
<i>Hakea preissii</i>			X		X		X		X	X
<i>Haloragis odontocarpa</i>			X		X		X		X	X
<i>Hibiscus burtonii</i>									X	
<i>Hysterobaeckea occlusa</i>										X
<i>Indigofera georgei</i>									X	
<i>Indigofera</i> sp.									X	
<i>Juncus aridicola</i>									X	
Lamiaceae sp.									X	
<i>Leichhardtia australis</i>		X	X	X	X	X	X	X	X	X
<i>Lepidium muelleri-ferdinandii</i>							X			X
<i>Lepidium platypetalum</i>							X		X	
<i>Lithotoma petraea</i>										X
<i>Lysimachia arvensis</i> *									X	
<i>Maireana camosa</i>					X		X			X
<i>Maireana georgei</i>			X							
<i>Maireana glomerifolia</i>							X			
<i>Maireana planifolia</i>		X	X		X	X	X		X	
<i>Maireana platycarpa</i>		X	X	X	X	X	X		X	
<i>Maireana pyramidata</i>		X	X		X	X	X	X	X	X
<i>Maireana sedifolia</i>										X
<i>Maireana tomentosa</i>							X			
<i>Maireana trichoptera</i>										X
<i>Maireana triptera</i>			X	X	X		X	X	X	X
<i>Maireana villosa</i>		X	X		X	X	X	X	X	X
<i>Maireana</i> sp.		X	X		X	X	X	X	X	X
Malvaceae sp.					X		X			
<i>Malvastrum americanum</i> *									X	
<i>Marsilea hirsuta</i>									X	

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Note: * denotes introduced species

SPECIES	VEGETATION COMMUNITY									
	A1	A3	A5	A7	A8	A10	C5	D1	D2	R1
<i>Mesembryanthemum crystallinum</i> *							X		X	
<i>Mirbelia rhagodioides</i>									X	
<i>Monachather paradoxus</i>									X	
<i>Myriocephalus gueriniae</i>									X	
<i>Nicotiana cavicola</i>		X							X	
<i>Olearia ?magniflora</i>										X
<i>Olearia pimeleoides</i>										X
<i>Panaetia lessonii</i>			X							
<i>Paspalidium basicladum</i>		X							X	X
<i>Paspalidium clementii</i>									X	X
<i>Plantago drummondii</i>									X	
<i>Plantago debilis</i>									X	
<i>Pluchea dentex</i>									X	
<i>Portulaca</i> sp.		X		X	X		X	X	X	
<i>Portulaca oleracea</i>			X						X	
<i>Psyrax rigidula</i>	X		X							
<i>Psyrax suaveolens</i>		X	X	X	X	X			X	X
<i>Psyrax latifolia</i>			X						X	
<i>Ptilotus aevroides</i>		X			X		X	X	X	
<i>Ptilotus helipteroides</i>		X	X	X	X	X	X	X	X	X
<i>Ptilotus exaltatus</i>					X		X	X	X	X
<i>Ptilotus obovatus</i>	X	X	X	X	X	X	X	X	X	X
<i>Ptilotus schwartzii</i>	X	X	X		X	X				X
<i>Rhagodia drummondii</i>		X	X				X			
<i>Rhagodia eremaea</i>		X		X	X		X			
<i>Rhodanthe charsleyae</i>									X	
<i>Rhodanthe maryonii</i>										X
<i>Roepera iodocarpa</i>			X		X		X		X	X
<i>Roepera ovata</i>					X		X			X
<i>Roepera</i> sp.					X		X		X	
<i>Santalum lanceolatum</i>		X	X		X		X			X
<i>Santalum spicatum</i>									X	X
<i>Santalum</i> sp.			X							X
<i>Scaevola spinescens</i>					X		X			X
<i>Sclerolaena cuneata</i>		X			X		X	X	X	X
<i>Sclerolaena eriacantha</i>		X	X		X		X	X	X	X
<i>Sclerolaena eurotioides</i>			X				X			X
<i>Sclerolaena lanicuspis</i>							X			X
<i>Sclerolaena</i> sp.			X							
<i>Senna artemisioides</i>		X	X		X		X		X	X
<i>Senna artemisioides</i> subsp. <i>xcoriacea</i>							X		X	X
<i>Senna artemisioides</i> subsp. <i>xpetiolaris</i>					X					
<i>Senna cardiosperma</i>									X	
<i>Senna glutinosa</i> subsp. <i>chatelainiana</i>			X				X			X
<i>Senna artemisioides</i> subsp. <i>xartemisioides</i>					X		X	X	X	X
<i>Senna artemisioides</i> subsp. <i>xpetiolaris</i>		X					X			
<i>Senna artemisioides</i> subsp. <i>xsturtii</i>		X	X	X	X		X		X	X
<i>Senna artemisioides</i> subsp. <i>filifolia</i>					X	X	X	X	X	X
<i>Senna artemisioides</i> subsp. <i>helmsii</i>	X		X				X	X	X	X
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>		X	X	X			X		X	X
<i>Senna symonii</i>										X
<i>Senna</i> sp.									X	
<i>Sida ectogama</i>		X	X	X	X	X	X	X	X	X
<i>Sida fibulifera</i>						X	X		X	X
<i>Sida</i> sp. Golden calyces glabrous			X						X	X
<i>Sida calyxhymenia</i>			X						X	
<i>Sida</i> sp.		X	X		X	X	X	X	X	X
<i>Siemssenia capillaris</i>									X	
<i>Solanum lasiophyllum</i>		X	X		X	X	X		X	X
<i>Solanum nigrum</i> *									X	
<i>Solanum piceum</i>									X	
<i>Sonchus oleraceus</i> *									X	
<i>Sporobolus australasicus</i>				X					X	

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Note: * denotes introduced species

SPECIES	VEGETATION COMMUNITY									
	A1	A3	A5	A7	A8	A10	C5	D1	D2	R1
<i>Streptoglossa liatroides</i>									X	
<i>Streptoglossa</i> sp.									X	
<i>Swainsona kingii</i>					X		X		X	
<i>Swainsona</i> sp.					X					
<i>Tecticornia pergranulata</i>							X			
<i>Teucrium teucriiflorum</i>		X	X		X				X	X
<i>Thyridolepis multiculmis</i>		X					X			
<i>Trachymene</i> sp.									X	
<i>Trianthera glossostigmum</i>									X	
<i>Tribulus occidentalis</i>							X			
<i>Tripogonella loliiformis</i>		X	X	X	X	X	X	X	X	X
<i>Vittadinia dissecta</i>									X	
<i>Wahlenbergia tumidifruca</i>									X	
<i>Wahlenbergia</i> sp.									X	

7.4 Basic Vertebrate Fauna Survey and Risk Assessment - Palliard's Project Area (Terrestrial Ecosystems 2023)

Basic Vertebrate Fauna Survey and Risk Assessment

Palliards Project Area

Prepared for: Regis Resources

Version 1. November, 2023



RECORD OF DISTRIBUTION

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EXECUTIVE SUMMARY

The Palliards project area (~716.8ha) is ~60km north of Laverton, south of the Garden Well mine and north of the King of Creation mining area.

This Basic vertebrate fauna survey and risk assessment report provides an indication of the vertebrate species potentially in the project area and surrounds and describes the potential impacts and consequences of exploration and mining in the area. The project area contains a single fauna habitat: sparsely vegetated open mulga woodland. Large sections of the project area are sparsely vegetated with many patches of bare ground, with areas degraded by historical exploration and cattle grazing.

The fauna habitats in the project area are like that in adjacent areas, with the consequence that a loss of this habitat is unlikely to have a significant impact on the vertebrate fauna in a bioregional context. Malleefowl tracks and a Long-tailed Dunnart have been recorded in the region in 2022/2023, however both records were of vagrants, and therefore unlikely to be residents in the project area. The Southern Whiteface has been recorded to the north of the project area, and in other surveys in nearby areas, however, as this bird will readily move due to vegetation clearing into adjacent similar habitat, and any impacts are unlikely to be significant. There are no vertebrate species listed under the *Environment Protection and Biodiversity Conservation Act 1999* or the *Biodiversity Conservation Act 2016* that will potentially be significantly impacted by vegetation clearing or mining operations.

Potential impacts on vertebrate fauna in the project area include death/injury of fauna during vegetation clearing, development and mining operations, habitat fragmentation, cumulative loss of habitat, introduction of weeds and feral and pest fauna, impacts with vehicles, and anthropogenic activity such as noise, vibrations and artificial light negatively impacting of native fauna in adjacent areas. Overall, the potential impact of vegetation clearing, development and mining operations will be low.

Recommendations:

- implement an induction program that includes a component on managing vertebrate fauna for staff and contractors working in the project area;
- the impact of dust on adjacent vegetation and fauna habitat is managed; and
- continue to implement an annual feral predator reduction program.

1. INTRODUCTION

1.1 BACKGROUND

The Palliards project area (~716.8ha) is ~60km north of Laverton, south of the Garden Well mine and north of the King of Creation mining area. Regis Resources is planning further exploration and mining activity in this area around the Victory and Queen Margaret prospects.

1.2 PROJECT OBJECTIVES AND SCOPE OF WORKS

Terrestrial Ecosystems was commissioned by Regis to undertake a Basic vertebrate fauna risk assessment of the project area to support a mining application. The methodology broadly follows that described in the Environmental Protection Authority's (EPA; 2020) *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. A Basic fauna assessment involves undertaking a desktop review and reconnaissance site visit. The objectives of this fauna assessment were to:

- provide an indication of the vertebrate fauna assemblage (reptiles, amphibians, mammals and birds) in and near the project area, so that potential impacts on the fauna and fauna assemblage might be adequately assessed; and
- describe the major vertebrate fauna habitats present.

To achieve these objectives, Terrestrial Ecosystems:

- reviewed Terrestrial Ecosystems' database [includes Atlas of Living Australia] to identify potential vertebrate fauna within the areas;
- searched the Commonwealth Governments database of fauna of national environmental significance to identify species potentially occurring within the areas that are protected under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* or international migratory bird agreements (JAMBA/CAMBA);
- undertook a site reconnaissance survey and mapped fauna habitats;
- reviewed previous fauna surveys conducted near the project area in similar habitat types; and
- discussed the likelihood of *EPBC Act 1999* and *Biodiversity Conservation (BC) Act 2016* listed species being present in the project area.

2. EXISTING ENVIRONMENT

2.1 LOCATION OF PROJECT AREA

The project area is within the Eastern Murchison (MUR1) Interim Biogeographic Regionalisation of Australia (IBRA) subregion. This subregion is characterised by its internal drainage and extensive areas of elevated red desert sandplains with minimal dune development, broad plains of red-brown soils and breakaway complexes (Cowan 2001). The vegetation is dominated by Mulga woodlands, hummock grasslands, saltbush and Halosarcia shrublands (Cowan 2001).

2.2 LAND USE HISTORY

The dominant land uses in the IBRA subregion are native pasture, unallocated crown land and Crown Reserves, mining and conservation reserves (Cowan 2001).

2.3 CLIMATE

The project area is characterised as semi-arid. Laverton, which is approximately 60km to the south has an annual rainfall of approximately 236mm, although this varies considerably from year-to-year. The highest mean maximum and minimum temperatures in Laverton are in December to February (Bureau of Meteorology 2021). The lowest mean daily maximum and minimum temperatures occur in July (Chart 1). Rainfall predominantly occurs between January and March from low pressure cells moving in from the north-west.

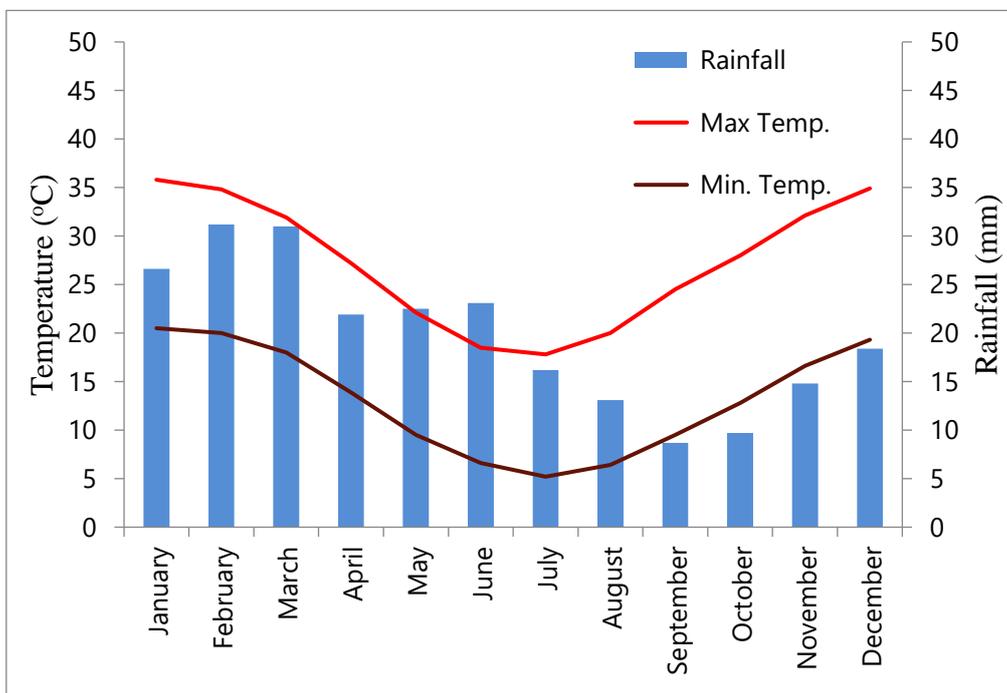


Chart 1. Climatic averages for Laverton

2.4 REGIONAL BIOLOGICAL FAUNA CONTEXT OF PROJECT AREA

The frogs, reptiles, mammals and birds in the vicinity of the project area have been surveyed for other environmental assessments and research purposes and are therefore known. Fauna surveys and assessments undertaken in the vicinity of the project area that have been reviewed for this assessment include:

- Biota Environmental Sciences (2004) *Cosmos Nickel Mine Extension Fauna Survey*. Unpublished report for Sir Samuel Mines NL and URS, Perth.
- Biota Environmental Sciences (2007) *Bannockburn Fauna Habitat and Assemblage Survey*. Unpublished report for Jubilee Mines NL, Perth.
- Coffey Environments (2008) *Level 2 Fauna Assessment for the Duketon Gold Project*. Unpublished report for Regis Resources, Perth.
- Dell, J. and How, R. A. (1988) Vertebrate fauna. In: The biological survey of the Eastern Goldfields of Western Australia, Part 5, Edjudina - Menzies Study Area. *Records of the Western Australian Museum*, Supplement No 31, 38-77.
- Dunlop, J.N. and Payne, W. (1999) *A vertebrate fauna survey of the North Lake Carey region*, Unpublished report for Placer (Granny Smith) and Homestake.
- ENV Australia (2008) *Agnew Prospects Fauna Assessment*. Unpublished report for Agnew Gold Mining Company Pty Limited, Perth.
- Halpern Glick Maunsell (1999) *Rosemont Gold Project Biological Assessment Survey - Phases 1 & 2*, Unpublished report for Johnson's Well Mining NL, Perth.
- How, R. A. and Dell, J. (1992) Vertebrate fauna. In: The Biological Survey of the Eastern Goldfields of Western Australia Part 7. Duketon - Sir Samuel Study Area. *Records of the Western Australian Museum*; Supplement 40, 90-109.
- McKenzie, N. L., J. K. Rolfe, and K. Youngson. (1994) Vertebrate fauna In: The Biological Survey of the Eastern Goldfields of Western Australia Part 10, Sandstone-Sir Samuel and Laverton-Leonora Study Areas. *Records of the Western Australian Museum* Supplement No. 47:51-85.
- Ninnox Wildlife Consulting (1998) *A Vertebrate Fauna Survey of the Murrin Murrin Expansion Project*, Unpublished report for Anaconda Nickel Ltd, Perth.
- Terrestrial Ecosystems (2011a) *Level 2 Fauna Risk Assessment for Granny Deeps Project Area*. Unpublished report for Barrick Gold Corporation, Perth.
- Terrestrial Ecosystems (2010) *Level 2 Fauna Risk Assessment for the Garden Well Project Area*, Unpublished report for Regis Resources, Perth.
- Terrestrial Ecosystems (2023a) *Basic and Detailed Vertebrate Fauna Survey and Assessment for the northern project areas*, Unpublished report for Regis Resources Ltd, Perth.
- Western Wildlife (2013) *Ben Hur (M38/339): Level 1 Vertebrate Fauna Survey April 2013*. Unpublished report for Regis Resources, Perth.

The most useful fauna survey report is the recent Terrestrial Ecosystems' (2023a) *Basic and Detailed Vertebrate Fauna Survey and Assessment for the northern project areas* as this survey is recent and includes similar sparsely vegetated mulga woodland habitat, and the trapping, camera trapping and bird observation sites were nearby. The Terrestrial Ecosystems' (2010) two phase survey of the Garden Well project area is approximately 15km to the north of the project area. This survey was undertaken in similar open Mulga woodland with a sparse understorey of shrubs and grasses. Multiple other Basic vertebrate fauna surveys have been undertaken in the area by Terrestrial Ecosystems since 2010 (Terrestrial Ecosystems 2008, 2010, 2012b, f, d, c, e, a, 2013, 2015, 2016e, a, d, b, c, 2017a, b, 2018b, c, a, 2019, 2021a, b, 2022, 2023k, a, b, c, j, d, g, h, f, e, i).

2.4.1 Fauna species at risk

An outdated report by Cowan (2001) indicated the following vertebrate species at risk in the IBRA subregion: *Macrotis lagotis* (Bilby), *Notoryctes typhlops* (Southern Marsupial Mole), *Dasyercus cristicauda* (Mulgara), *Leipoa ocellata* (Malleefowl), *Polytelis alexandrae* (Princess Parrot), *Acanthiza iredalei* (Slender-billed Thornbill), *Egernia*

kintorei (Great Desert Skink) and *Falco peregrinus* (Peregrine Falcon). Since 2003, the conservation significant Night Parrot (*Pezoporus occidentalis*) has been rediscovered in Western Australia and the Southern Whiteface (*Aphelocephala leucopsis*) has been added to the Commonwealth governments list of vulnerable species.

3. METHODOLOGY

3.1 DATABASE SEARCHES

A search of the *EPBC Act* online database of matters of national environmental significance (MNES) to extract a list of conservation significant species that could potentially be in the project area (Appendix A). In addition, a desktop search of the Terrestrial Ecosystems' fauna survey database was used to develop an appreciation of the vertebrate fauna assemblages in relevant sections of the bioregion near the project area.

Other more general texts were also used to provide supplementary information on vertebrate fauna in the bioregion, including Tyler et al. (2000) for frogs; Storr et al. (1983, 1990, 1999, 2002) and Thompson and Thompson (2006) for reptiles; Johnstone and Storr (1998, 2004) for birds; and Van Dyck and Strahan (2008) for mammals.

Collectively these sources of information were used to create lists of species expected to utilise the project area and broader subregion. It should be noted that these lists will include species that have been recorded in the general region but are possibly vagrants and they will not generally be found in the project area due to a lack of suitable habitat (e.g. wetland and shore birds). Vagrants can be recorded almost anywhere. Many of the records are historical and some of the species are no longer present in the areas (e.g. Bilby). Many of the bird, mammal, reptile and amphibian species have specific habitat requirements that may be present in the general area but not in the project area. Also, the ecology of many of these species is often not well understood and it can sometimes be difficult to indicate those species whose specific habitat requirements are not present in the project area. Therefore, many species will be included in the lists produced from database searches but will not be present in the actual project area.

There are errors in most databases, including Atlas of Living Australia and the WA Museum collection. These errors occur because of a misidentification of individuals, taxonomic name changes and incorrect coordinates being entered into the database. Terrestrial Ecosystems was unable to verify the primary records, so it has used the information provided. Obvious errors have been removed but readers should appreciate that species lists, and fauna surveys reported in the appendices may include these errors.

3.2 SITE INSPECTION AND FAUNA HABITAT ASSESSMENT

The project area was assessed on between 10-11 June 2023 and the purpose of the assessment was to record fauna habitat types and condition in the project area. This information included a description of the habitat structure, habitat condition, landform, soils and vegetation and time since last fire.

The fauna habitat assessment had two foci:

- assessing fauna habitat types and their condition; and
- assessing the possible presence of and recording evidence of conservation significant fauna.

This information included a description of the habitat structure, habitat condition, landform, soils and vegetation and time since last fire. The data in Table 1 were assessed at each location as part of the habitat assessment:

Table 1. Habitat assessment variables

Observer's Name:	
Coordinates of the location as UTM (GDA94):	
Fire history – options	
<input type="checkbox"/> > 5 years	
<input type="checkbox"/> 1-5 years	
<input type="checkbox"/> < 1 year	
Landform – options	
<input type="checkbox"/> Beach	<input type="checkbox"/> Lower slope
<input type="checkbox"/> Clay plain	<input type="checkbox"/> Mid slope
<input type="checkbox"/> Cliff	<input type="checkbox"/> Ridge
<input type="checkbox"/> Creek line	<input type="checkbox"/> River
<input type="checkbox"/> Dam	<input type="checkbox"/> Rocky outcrop / breakaway
<input type="checkbox"/> Drainage line	<input type="checkbox"/> Salt lake
<input type="checkbox"/> Dune crest	<input type="checkbox"/> Sand dune
<input type="checkbox"/> Dune slope	<input type="checkbox"/> Sand plain
<input type="checkbox"/> Dune swale	<input type="checkbox"/> Stony plain
<input type="checkbox"/> Escarpment	<input type="checkbox"/> Swamp
<input type="checkbox"/> Flat	<input type="checkbox"/> Undulating
<input type="checkbox"/> Gorge	<input type="checkbox"/> Upper slope
<input type="checkbox"/> Gully	<input type="checkbox"/> Wetland
<input type="checkbox"/> Intertidal / mangrove	<input type="checkbox"/> Water hole
<input type="checkbox"/> Lake / lake edge	
Habitat quality – options	
<input type="checkbox"/> <i>High quality fauna habitat</i> – These areas closely approximate the vegetation mix and quality that would have been in the area prior to any disturbance. The habitat has connectivity with other habitats and is likely to contain the most natural vertebrate fauna assemblage.	
<input type="checkbox"/> <i>Very good fauna habitat</i> - These areas show minimal signs of disturbance (e.g. grazing, clearing, fragmentation, weeds) and generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be minimally effected by disturbance.	
<input type="checkbox"/> <i>Good fauna habitat</i> – These areas showed signs of disturbance (e.g. grazing, clearing, fragmentation, weeds) but generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be affected by disturbance.	
<input type="checkbox"/> <i>Disturbed fauna habitat</i> – These areas showed signs of significant disturbance. Many of the trees, shrubs and undergrowth are cleared. These areas may be in the early succession and regeneration stages. Areas may show signs of significant grazing, containing weeds or have been damaged by vehicle or machinery. Habitats are fragmented or have limited connectivity with other fauna habitats. Fauna assemblages in these areas are likely to differ significantly from what might be expected in the area had the disturbance not occurred.	
<input type="checkbox"/> <i>Highly degraded fauna habitat</i> – These areas often have a significant loss of vegetation, an abundance of weeds, and a large number of vehicle tracks or are completely cleared. Limited or no fauna habitat connectivity. Fauna	

assemblages in these areas are likely to be significantly different to what might have been in the area pre-disturbance.	
Soil colour - options	
<input type="checkbox"/> Black	<input type="checkbox"/> Red
<input type="checkbox"/> Brown	<input type="checkbox"/> White
<input type="checkbox"/> Grey	<input type="checkbox"/> Yellow
<input type="checkbox"/> Orange	
Surface stones – options	
<input type="checkbox"/> None	<input type="checkbox"/> Boulders (>250mm)
<input type="checkbox"/> Pebbles (0-50mm)	<input type="checkbox"/> Rocks
<input type="checkbox"/> Cobbles (51-250)	

Tom Raymond and Brody Altus undertook the site investigation and fauna habitat assessment. Dr Graham Thompson drafted this report and Dr Scott Thompson reviewed this report before it was sent to the client. Fauna habitat mapping of the broader areas provided by Matiske Consulting (2020) was used to assist with preparing the fauna habitat mapping. Senior scientists have appropriate relevant post-graduate qualifications, extensive experience in conducting fauna assessments in the Goldfields, have published research articles on biodiversity, fauna assemblages, conservation significant species, trapping techniques and temporal variations in trapped fauna assemblages and are therefore appropriately trained and experienced for the task of preparing this assessment. Dr Scott Thompson is a Certified Environmental Practitioner (CEnvP; Ecology Specialist).

3.3 TAXONOMY AND NOMENCLATURE

Taxonomy and nomenclature for fauna species used in this report are generally based on the WA Museum species list. Terrestrial Ecosystems has presumed that the identifications referred to in the appendices or in reports used to provide local and regional comparative data are correct and we have only corrected obvious records where the nomenclature was known to be incorrect.

3.4 LIMITATIONS

This Basic vertebrate fauna risk assessment is based on information contained in the Commonwealth Government database and other published and unpublished fauna survey data for the bioregion and a site visit. It is acknowledged that multiple surveys conducted in different seasons, repeated over several years are necessary to fully appreciate the fauna assemblage in the project area.

The EPA's (2020) *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment* suggested that fauna surveys may be limited by many variables. Limitations associated with each of these variables are assessed in Table 2.

Table 2. Fauna survey limitations and constraints

Possible limitations	Constraint (yes/no); significant, moderate or negligible	Comment
Availability of data and information	Yes, negligible	There are vertebrate fauna survey data available for similar habitats near the project area. Terrestrial Ecosystems (2023a) undertook a detailed vertebrate fauna survey of the Regis northern tenements and Terrestrial Ecosystems' (2010) undertook a two phase vertebrate fauna survey of the Garden Well project area which is approximately 15km to the north of the project area, so there are adequate fauna data available to characterise the vertebrate fauna assemblage.
Competency/experience of the survey team, including experience in the bioregion surveyed	No	The authors of this report have appropriate graduate and post-graduate qualifications, have undertaken multiple surveys and assessments in the Goldfields and around the Regis sites, have published a book and multiple refereed journal articles based on fauna surveys in the region and are familiar with the vertebrate fauna in this bioregion.
Scope of the survey, e.g. where faunal groups were excluded from the survey	N/A	Although no trapping surveys were undertaken during the site assessment, fauna survey data from the Terrestrial Ecosystems (2023a) detailed survey of the Regis northern tenements and the Terrestrial Ecosystems' (2010) two phase vertebrate fauna survey of the Garden Well project area reports are adequate to represent the vertebrate fauna in the project area.
Timing, weather and season	No	Weather was suitable for a site visit.
Disturbance that may have affected results, e.g. fire, flood	No	Disturbances in the project area have been factored into this assessment.
The proportion of fauna identified, recorded or collected	N/A	
Adequacy of the survey intensity and proportion of survey achieved, e.g. the extent to which the area was surveyed	No	Basic survey requirements were met.
Access problems	No	The site was accessible.
Problems with data and analysis, including sampling biases	N/A	

4. RESULTS

4.1 FAUNA HABITAT

One hundred and eighteen habitat assessments were completed in the project area (Figure 2). There is one broad fauna habitat type in the project area; sparse open mulga woodland excluding the historically cleared and disturbed areas (e.g. roads, tracks, exploration areas, etc). This fauna habitat has multiple variations including many areas of bare ground, areas with few trees, ephemeral creek lines and small areas of rocky outcropping. The substrate is variable from red sandy-clay, to areas with an abundance of stones and a few small areas of low rocky outcrops.

Plates 1–8 provide a visual indication of the fauna habitats and disturbed areas in the project area.



Plate 1. Mulga woodlands



Plate 2. Mulga woodlands



Plate 3. Mulga woodlands



Plate 4. Mulga woodlands



Plate 5. Rocky outcropping



Plate 6. Rocky outcropping



Plate 7. Disturbed



Plate 8. Disturbed

The condition of the fauna habitat varied from completely degraded to good. The completely degraded areas included historical and recent anthropogenic activity, new and existing drill lines, access tracks, cattle and pest species.

Detailed data from the fauna habitat assessment at 118 locations are provided in Appendix D.

4.1.1 Feral and pest fauna

There was evidence (e.g. scats and tracks) to indicate of rabbits, wild dogs and feral cats in the project area.

4.2 BIOREGIONAL VERTEBRATE FAUNA ASSEMBLAGE

Appendix B provides a summary of the fauna survey data that are available near the project area. There are appreciable differences in the recorded fauna assemblages within and among fauna surveys shown in Appendix B. These differences are partially due to the varying survey effort deployed by some of the surveys and they also reflect variations in soils and vegetation as well as temporal variations in the fauna assemblages.

Tables 3-6 provide a list of vertebrate species potentially found near the project area that have been compiled based on the fauna survey report results shown in Appendix B.

Table 3. Birds potentially found near the project area

Family	Species	Common Name
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu
Anatidae	<i>Cygnus atratus</i>	Black Swan
	<i>Tadorna tadornoides</i>	Australian Shelduck
Anatidae	<i>Chenonetta jubata</i>	Australian Wood Duck
	<i>Anas superciliosa</i>	Pacific Black Duck
	<i>Anas gracilis</i>	Grey Teal
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck
	<i>Aythya australis</i>	Hardhead
	<i>Biziura lobata</i>	Musk Duck
Megapodiidae	<i>Leipoa ocellata</i>	Malleefowl
Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe
	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing
	<i>Ocyphaps lophotes</i>	Crested Pigeon
	<i>Geophaps plumifera</i>	Spinifex Pigeon
	<i>Geopelia cuneata</i>	Diamond Dove
Cuculidae	<i>Chrysococcyx basalis</i>	Horsfield's Bronze-Cuckoo
	<i>Chrysococcyx osculans</i>	Black-eared Cuckoo
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar
	<i>Apus pacificus</i>	Pacific Swift
Rallidae	<i>Tribonyx ventralis</i>	Black-tailed Nativehen
	<i>Fulica atra</i>	Eurasian Coot
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt
	<i>Himantopus leucocephalus</i>	Pied Stilt
	<i>Cladorhynchus leucocephalus</i>	Banded Stilt
Recurvirostridae	<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet

Family	Species	Common Name
Charadriidae	<i>Vanellus tricolor</i>	Banded Lapwing
	<i>Charadrius ruficapillus</i>	Red-capped Plover
	<i>Erythrogonys cinctus</i>	Red-kneed Dotterel
	<i>Elseyornis melanops</i>	Black-fronted Dotterel
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper
Turnicidae	<i>Turnix velox</i>	Little Buttonquail
Laridae	<i>Chlidonias hybrida</i>	Whiskered Tern
Otididae	<i>Ardeotis australis</i>	Australian Bustard
Ardeidae	<i>Ardea pacifica</i>	White-necked Heron
	<i>Egretta novaehollandiae</i>	White-faced Heron
Anhingidae	<i>Anhinga melanogaster</i>	Australasian Darter
Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant
Accipitridae	<i>Hamirostra melanosternon</i>	Black-breasted Buzzard
	<i>Hieraetus morphnoides</i>	Little Eagle
	<i>Aquila audax</i>	Wedge-tailed Eagle
	<i>Circus assimilis</i>	Spotted Harrier
	<i>Accipiter fasciatus</i>	Brown Goshawk
	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk
	<i>Milvus migrans</i>	Black Kite
	<i>Haliastur sphenurus</i>	Whistling Kite
Cuculidae	<i>Heteroscenes pallidus</i>	Pallid Cuckoo
Strigidae	<i>Ninox boobook</i>	Southern Boobook
Alcedinidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel
	<i>Falco longipennis</i>	Australian Hobby
	<i>Falco berigora</i>	Brown Falcon
	<i>Falco peregrinus</i>	Peregrine Falcon
Megaluridae	<i>Poodytes carteri</i>	Spinifexbird
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah
	<i>Cacatua sanguinea</i>	Little Corella

Family	Species	Common Name
	<i>Nymphicus hollandicus</i>	Cockatiel
Psittaculidae	<i>Neopsephotus bourkii</i>	Bourke's Parrot
	<i>Barnardius zonarius</i>	Australian Ringneck
	<i>Psephotus varius</i>	Mulga Parrot
	<i>Melopsittacus undulatus</i>	Budgerigar
Ptilonorhynchidae	<i>Chlamydera guttata</i>	Western Bowerbird
	<i>Ptilonorhynchus maculata</i>	Spotted Bowerbird
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper
	<i>Climacteris rufus</i>	Rufous Treecreeper
Maluridae	<i>Amytornis striatus</i>	Striated Grasswren
	<i>Stipiturus ruficeps</i>	Rufous-crowned Emuwren
	<i>Malurus assimilis</i>	Purple-backed Fairywren
	<i>Malurus lamberti</i>	Variiegated Fairywren
	<i>Malurus splendens</i>	Splendid Fairywren
	<i>Malurus leucopterus</i>	White-winged Fairywren
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater
	<i>Purnella albifrons</i>	White-fronted Honeyeater
	<i>Manorina flavigula</i>	Yellow-throated Miner
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater
	<i>Anthochaera carunculata</i>	Red Wattlebird
	<i>Gavicalis virescens</i>	Singing Honeyeater
	<i>Ptilotula penicillata</i>	White-plumed Honeyeater
	<i>Ptilotula keartlandi</i>	Grey-headed Honeyeater
	<i>Ptilotula plumula</i>	Grey-fronted Honeyeater
	<i>Epthianura tricolor</i>	Crimson Chat
	<i>Epthianura aurifrons</i>	Orange Chat
	<i>Sugomel nigrum</i>	Black Honeyeater
Meliphagidae	<i>Lichmera indistincta</i>	Brown Honeyeater
	<i>Nesoptilotis flavicollis</i>	Yellow-throated Honeyeater
Pardalotidae	<i>Pardalotus rubricatus</i>	Red-browed Pardalote
	<i>Pardalotus striatus</i>	Striated Pardalote
Acanthizidae	<i>Pyrrholaemus brunneus</i>	Redthroat

Family	Species	Common Name
	<i>Acanthiza apicalis</i>	Inland Thornbill
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill
	<i>Smicrornis brevirostris</i>	Weebill
	<i>Gerygone fusca</i>	Western Gerygone
	<i>Aphelocephala leucopsis</i>	Southern Whiteface
	<i>Aphelocephala nigricincta</i>	Banded Whiteface
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey-crowned Babbler
	<i>Pomatostomus superciliosus</i>	White-browed Babbler
Cinclosomatidae	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush
Cinclosoma	<i>Cinclosoma cinnamomeum</i>	Cinnamon Quail-thrush
Campephagidae	<i>Coracina maxima</i>	Ground Cuckooshrike
	<i>Coracina novaehollandiae</i>	Black-faced Cuckooshrike
	<i>Lalage tricolor</i>	White-winged Triller
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella
Oreoicidae	<i>Oreoica gutturalis</i>	Crested Bellbird
Pachycephalidae	<i>Colluricincla harmonica</i>	Grey Shrikethrush
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow
	<i>Artamus superciliosus</i>	White-browed Woodswallow
	<i>Artamus cinereus</i>	Black-faced Woodswallow
	<i>Artamus cyanopterus</i>	Dusky Woodswallow
	<i>Artamus minor</i>	Little Woodswallow
Artamidae	<i>Cracticus torquatus</i>	Grey Butcherbird
	<i>Cracticus nigrogularis</i>	Pied Butcherbird
	<i>Gymnorhina tibicen</i>	Australian Magpie
	<i>Strepera versicolor</i>	Grey Currawong
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail
	<i>Rhipidura albiscapa</i>	Grey Fantail

Family	Species	Common Name
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark
Corvidae	<i>Corvus orru</i>	Torresian Crow
	<i>Corvus bennetti</i>	Little Crow
Petroicidae	<i>Microeca fascinans</i>	Jacky Winter
	<i>Petroica goodenovii</i>	Red-capped Robin
	<i>Melanodryas cucullata</i>	Hooded Robin
Alaudidae	<i>Mirafra javanica</i>	Australasian Bushlark
Locustellidae	<i>Cincloramphus cruralis</i>	Brown Songlark
Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow

Family	Species	Common Name
	<i>Hirundo neoxena</i>	Welcome Swallow
	<i>Petrochelidon ariel</i>	Fairy Martin
	<i>Petrochelidon nigricans</i>	Tree Martin
	<i>Cheramoeca leucosterna</i>	White-backed Swallow
Dicaeidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird
Estrildidae	<i>Emblema pictum</i>	Painted Finch
	<i>Taeniopygia guttata</i>	Zebra Finch
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit

Table 4. Amphibians potentially found near the project area

Family	Species	Common Name
Limnodynastidae	<i>Neobatrachus kunapalari</i>	Wheatbelt Frog
	<i>Neobatrachus sudelli</i>	Sudell's Frog
	<i>Neobatrachus sutor</i>	Shoemaker Frog
	<i>Neobatrachus wilsmorei</i>	Plonking Frog
	<i>Notaden nichollsi</i>	Desert Spadefoot

Family	Species	Common Name
	<i>Platyplectrum spenceri</i>	Spencer's Burrowing Frog
Myobatrachidae	<i>Pseudophryne occidentalis</i>	Western Toadlet
Pelodyridae	<i>Cyclorana maini</i>	Main's Frog
	<i>Cyclorana occidentalis</i>	Western Water-holding Frog
	<i>Litoria rubella</i>	Desert Tree Frog

Table 5. Mammals potentially found near the project area

Family	Species	Common Name
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna
Bovidae	<i>Bos taurus</i>	Cow
	<i>Capra hircus</i>	Goat
Camelidae	<i>Camelus dromedarius</i>	Dromedary
	<i>Canis lupus</i>	Dingo
	<i>Vulpes vulpes</i>	Red Fox
Felidae	<i>Felis catus</i>	Cat
Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail Bat
Molossidae	<i>Austronomus australis</i>	White-striped Freetail Bat
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat
	<i>Chalinolobus morio</i>	Chocolate Wattled Bat
	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat

Family	Species	Common Name
	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat
	<i>Vespadelus finlaysoni</i>	Finlayson's Cave Bat
Dasyuridae	<i>Antechinomys laniger</i>	Kultarr
	<i>Antechinomys longicaudatus</i>	Long-tailed Dunnart
	<i>Dasyercus blythi</i>	Brush-tailed Mulgara
	<i>Dasykaluta rosamondae</i>	Kaluta
	<i>Ningai ridei</i>	Wongai Ningai
	<i>Ningai yvonneae</i>	Mallee Ningai
	<i>Pseudantechinus macdonnellensis</i>	Fat-tailed False Antechinus
	<i>Pseudantechinus woolleyae</i>	Woolley's False Antechinus
	<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart

Family	Species	Common Name
	<i>Sminthopsis hirtipes</i>	Hairy-footed Dunnart
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart
	<i>Sminthopsis ooldea</i>	Ooldea Dunnart
	<i>Sminthopsis youngsoni</i>	Lesser Hairy-footed Dunnart

Family	Species	Common Name
Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo
	<i>Osphranter robustus</i>	Euro
	<i>Osphranter rufus</i>	Red Kangaroo
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit
Equidae	<i>Equus asinus</i>	Donkey

Table 6. Reptiles potentially found near the project area

Family	Species	Common Name
Agamidae	<i>Ctenophorus fordi</i>	Mallee Dragon
	<i>Ctenophorus inermis</i>	Military Dragon
	<i>Ctenophorus isolepis</i>	Central Military Dragon
	<i>Ctenophorus nuchalis</i>	Central Netted Dragon
	<i>Ctenophorus reticulatus</i>	Western Netted Dragon
	<i>Ctenophorus salinarum</i>	Saltpan Dragon
	<i>Ctenophorus scutulatus</i>	Lozenge-marked Dragon
	<i>Diporiphora amphiboluroides</i>	Mulga Dragon
	<i>Diporiphora valens</i>	Southern Pilbara Tree Dragon
	<i>Gowidon longirostris</i>	Long-nosed Dragon
	<i>Moloch horridus</i>	Thorny Devil
	<i>Pogona minor</i>	Western Bearded Dragon
	<i>Tympanocryptis pseudopsephos</i>	Goldfields Pebble-mimic Dragon
Carphodactylidae	<i>Nephrurus laevisimus</i>	Smooth Knob-tail
	<i>Nephrurus levis</i>	Three-lined Knob-tail
	<i>Nephrurus vertebralis</i>	Midline Knob-tail
	<i>Underwoodisaurus milii</i>	Barking Gecko
Diplodactylidae	<i>Diplodactylus conspicillatus</i>	Fat-tailed Gecko
	<i>Diplodactylus granariensis</i>	Wheatbelt Stone Gecko
	<i>Diplodactylus pulcher</i>	Beautiful Gecko
	<i>Lucasium bungabinna</i>	Southern Sandplain Gecko
	<i>Lucasium damaeum</i>	Beaded Gecko

Family	Species	Common Name
	<i>Lucasium squarrosus</i>	Mottled Ground Gecko
	<i>Lucasium stenodactylum</i>	Crowned Gecko
	<i>Rhynchoedura ornata</i>	Beaked Gecko
	<i>Strophurus assimilis</i>	Goldfields Spiny-tailed Gecko
	<i>Strophurus ciliaris</i>	Spiny-tailed Gecko
	<i>Strophurus elderi</i>	Jewelled Gecko
	<i>Strophurus strophurus</i>	Western Spiny-tailed Gecko
	<i>Strophurus wellingtonae</i>	Western Shield Spiny-tailed Gecko
Elapidae	<i>Brachyuropis fasciolatus</i>	Narrow-banded Burrowing Snake
	<i>Brachyuropis semifasciata</i>	Half-girdled Snake
	<i>Demansia psammophis</i>	Yellow-faced Whipsnake
	<i>Demansia rufescens</i>	Rufous Whipsnake
	<i>Furina ornata</i>	Orange-naped Snake
	<i>Suta monachus</i>	Hooded Snake
	<i>Pseudechis australis</i>	Mulga Snake
	<i>Pseudechis butleri</i>	Spotted Mulga Snake
	<i>Pseudonaja mengdeni</i>	Western Brown Snake
	<i>Pseudonaja modesta</i>	Ringed Brown Snake
	<i>Simoselaps anomalus</i>	Desert Banded Snake
	<i>Simoselaps bertholdi</i>	Jan's Banded Snake
	<i>Suta fasciata</i>	Rosen's Snake
Gekkonidae	<i>Christinus marmoratus</i>	Marbled Gecko

Family	Species	Common Name
	<i>Gehyra punctata</i>	Spotted Dtella
	<i>Gehyra purpurascens</i>	Purplish Dtella
	<i>Gehyra variegata</i>	Variiegated Gehyra
	<i>Heteronotia binoei</i>	Bynoe's Gecko
Pygopodidae	<i>Delma butleri</i>	Unbanded Delma
	<i>Delma fraseri</i>	Fraser's Delma
	<i>Delma nasuta</i>	Sharp-snouted Delma
	<i>Delma pax</i>	Peace Delma
	<i>Lialis burtonis</i>	Burton's Legless Lizard
	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot
Pythonidae	<i>Antaresia stimsoni</i>	Stimson's Python
Scincidae	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink
	<i>Ctenotus ariadnae</i>	Ariadna's Ctenotus
	<i>Ctenotus atlas</i>	Southern Mallee Ctenotus
	<i>Ctenotus brooksi</i>	Wedgesnout Ctenotus
	<i>Ctenotus calurus</i>	Blue-tailed Finesnout Ctenotus
	<i>Ctenotus dux</i>	Fine Side-lined Ctenotus
	<i>Ctenotus grandis</i>	Grand Ctenotus
	<i>Ctenotus greeri</i>	Spotted-necked Ctenotus
	<i>Ctenotus hanloni</i>	Nimble Ctenotus
	<i>Ctenotus helenae</i>	Clay-soil Ctenotus
	<i>Ctenotus leae</i>	Orange-tailed Finesnout Ctenotus
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus
	<i>Ctenotus nasutus</i>	Nasute Finesnout Ctenotus
	<i>Ctenotus pantherinus</i>	Leopard Ctenotus
	<i>Ctenotus piankai</i>	Coarse Sands Ctenotus
	<i>Ctenotus quattuordecimlineatus</i>	Fourteen-lined Ctenotus
	<i>Ctenotus schomburgkii</i>	Barred Wedgesnout Ctenotus
	<i>Ctenotus severus</i>	Stern Ctenotus

Family	Species	Common Name
	<i>Ctenotus uber</i>	Spotted Ctenotus
	<i>Egernia depressa</i>	Southern Pygmy Spiny-tailed Skink
	<i>Egernia formosa</i>	Goldfields Crevice Skink
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand-swimmer
	<i>Lerista amicorum</i>	Fortescue Slider
	<i>Lerista bipes</i>	North-western Sandslider
	<i>Lerista desertorum</i>	Central Desert Robust Slider
	<i>Lerista distinguenda</i>	South-western Orange-tailed Slider
	<i>Lerista ips</i>	Robust Duneslider
	<i>Lerista kingi</i>	King's Slider
	<i>Lerista macropisthopus</i>	Unpatterned Robust Slider
	<i>Lerista timida</i>	Timid Slider
	<i>Liopholis inornata</i>	Desert Skink
	<i>Liopholis kintorei</i>	Great Desert Skink
	<i>Liopholis striata</i>	Nocturnal Desert Skink
	<i>Menetia greyii</i>	Common Dwarf Skink
	<i>Morethia butleri</i>	Woodland Morethia Skink
	<i>Morethia ruficauda</i>	Lined Fire-tailed Skink
	<i>Proablepharus reginae</i>	Western Soil-crevice Skink
	<i>Tiliqua multifasciata</i>	Central Blue-tongue
	<i>Tiliqua occipitalis</i>	Western Blue-tongued Lizard
Typhlopidae	<i>Anilius australis</i>	Austral Blind Snake
	<i>Anilius bicolor</i>	Dark-spined Blind Snake
	<i>Anilius grypus</i>	Long-beaked Blind Snake
	<i>Anilius hamatus</i>	Pale-headed Blind Snake
	<i>Anilius waitii</i>	Waite's Blind Snake
Varanidae	<i>Varanus brevicauda</i>	Short-tailed Pygmy Monitor
	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor

Family	Species	Common Name
	<i>Varanus eremius</i>	Pygmy Desert Monitor
	<i>Varanus giganteus</i>	Perentie
	<i>Varanus gouldii</i>	Gould's Goanna

Family	Species	Common Name
	<i>Varanus panoptes</i>	Yellow-spotted Monitor
	<i>Varanus tristis</i>	Black-headed Monitor

4.3 CONSERVATION SIGNIFICANT FAUNA

Conservation significant fauna are protected by the Commonwealth *EPBC Act 1999*, and this list includes species covered by international treaties such as the Japan-Australia Migratory Bird Agreement (JAMBA) and China-Australia Migratory Bird Agreement (CAMBA) and the Western Australia (WA) *BC Act 2016*. The *BC Act 2016* provides for the publishing of the *Wildlife Conservation (Specially Protected Fauna) Notice* that lists species under multiple categories. In addition, DBCA maintains a list of fauna that require monitoring under four priorities based on the current knowledge of their distribution, abundance and threatening processes. The *EPBC Act 1999* and *BC Act 2016* imply legislative requirements for the management of anthropogenic impacts to minimise the effects of disturbances on species and their habitats. Priority species have no statutory protection, other than the DBCA wishes to monitor potential impacts on these species. Environmental consultants and proponents of developments are encouraged to avoid and minimise impacts on these species. Definitions of the significant fauna under the *BC Act 2016* are provided in Appendix C.

The fauna species that have special status in either State or Commonwealth government legislation or are on the DBCA Priority species list and are potentially present in the vicinity of the project area are listed in Table 7. Although they were recorded in the search of the MNES online database, migratory waders and shorebirds that typically would be found around the edge of salt lakes, clay pans, estuaries and marshes have been excluded from Table 7 as there is no suitable habitat nearby.

Three threatened species of fauna and one migratory species of bird listed under the *EPBC Act 1999* may potentially occur in the project area or surrounds, and one species listed on the DBCA's Threatened and Priority Fauna List may potentially occur in the project area or surrounds. The following is an assessment of the likelihood of each of the species listed in Table 7 being found in the project area.

Table 7. Assessment of the potential presence of a conservation significant fauna species in the project area

Species	DBCAs Schedule / Priority	Status under Commonwealth EPBC Act	Comment on the potential presence of a species
Night Parrot <i>Pezoporus occidentalis</i>	Critically Endangered	Endangered	Not present in the project area due to a lack of suitable habitat.
Sandhill Dunnart <i>Sminthopsis psammophila</i>	Endangered	Endangered	Not present in the project area due to a lack of suitable habitat.
Grey Falcon <i>Falco hypoleucos</i>	Vulnerable	Vulnerable	Highly unlikely to be present.
Malleefowl <i>Leipoa ocellata</i>	Vulnerable	Vulnerable	Very low probability of being present in the project area, as tracks for a single individual was recorded in the recent Regis surveys (50km north west).
Chuditch <i>Dasyurus geoffroii</i>	Vulnerable	Vulnerable	Locally extinct
Princess Parrot <i>Polytelis alexandrae</i>	Vulnerable	Vulnerable	May occasionally be seen in the region.

Species	DBCA Schedule / Priority	Status under Commonwealth EPBC Act	Comment on the potential presence of a species
Great Desert Skink <i>Liopholis kintorei</i>	Vulnerable	Vulnerable	Not present in the project area due to a lack of suitable habitat.
Southern Whiteface <i>Aphelocephala leucopsis</i>	Vulnerable	Vulnerable	Potentially in the project area, but it will readily move, so any impacts are unlikely to be significant.
Fork-tailed Swift <i>Apus pacificus</i>	Migratory	Migratory	May infrequently be seen flying in the region.
Grey Wagtail <i>Motacilla cinerea</i>	Migratory	Migratory	Highly unlikely to be seen in the project area.
Yellow Wagtail <i>Motacilla flava</i>	Migratory	Migratory	Highly unlikely to be seen in the project area.
Peregrine Falcon <i>Falco peregrinus</i>	OS		May occasionally be seen in the region.
Long-tailed Dunnart <i>Antechinomys longicaudatus</i>	P4		Very low probability of being present in the rocky outcrop areas, as a single individual was caught in the recent Regis surveys (50km north west). The rocky outcropping in the project area appear too small to support a population of Long-tailed Dunnarts.
Brush-tailed Mulgara <i>Dasyercus blythi</i>	P4		Highly unlikely to be seen in the project area.

Results of the Commonwealth *EPBC Act 1999* protected matters database search are provided in Appendix A.

Night Parrot (*Pezoporus occidentalis*) - Critically Endangered under the *BC Act 2016* and Endangered under the *EPBC Act 1999*

The Night Parrot is a small, arid-adapted, nocturnal, ground-feeding parrot (Johnstone and Storr 1998, Threatened Species Scientific Committee 2016). Its length is 22-25cm with a body mass of approximately 104g (Threatened Species Scientific Committee 2016), although it was suggested that they were semi-nomadic, the Night Parrots in south-western Queensland appear to be sedentary (Murphy 2015).

The Night Parrot was probably originally distributed over much of semi-arid and arid Australia (Garnett et al. 1993, Threatened Species Scientific Committee 2016). Records in north-west and western Queensland in the early 1990-2000s were in a broad cross section of the habitats available (Garnett et al. 1993, Cupitt and Cupitt 2008, Boles et al. 2016). There have been recent sightings in the Pilbara in 1980, 2005 and 2017, central WA in 1979, north-eastern South Australia in 1979, western Queensland (including Pullen-Pullen-Mt Windsor-Diamantina population) in 1980, 1990, 1993, 2006 and 2013-17 (Davis and Metcalf 2008, Garnett et al. 2011, Charalambous 2016, Pickrell 2016, AG staff 2017, Palaszczuk and Miles 2017, Rykers 2017, AG staff 2018), Pilbara in 2017 (Jones 2017) and the northern Goldfields (Jackett et al. 2017). Garnett *et al.* (2011) suggested that there were between 50-250 mature individuals in less than 5% of its previous range.

Wilson's (1937) summary of observations provided information on the early records of Night Parrots' preferred habitat and breeding sites. Recent information indicates its preferred habitat appears to be in *Triodia* grasslands, chenopod shrublands, shrubby samphire and floristically diverse habitats dominated by large-seeded species (Threatened Species Scientific Committee 2016, McCarthy 2017, Murphy et al. 2017b). At Pullen Pullen Reserve it nests in large, more or less ring-shaped *Triodia*, and the nest consists of a tunnel (25-30° and 0° to the ground; 20-33cm long) through an apron of dead spinifex leaves that leads to a chamber under a live hummock, with a shallow depression (3-4cm) excavated into the gravelly/sandy soil (Murphy et al. 2017a). In the northern Goldfields the nest was again in a spinifex hummock, it was circular, with an excavated depression (~1.5-2.0cm) in sandy substrate (Hamilton et al. 2017, Jackett et al. 2017). The entrance tunnel was 62cm long,

and was downward sloping (27°) with the entrance 28cm above the ground (Hamilton et al. 2017). It has clutches of two to four sub-elliptical, white eggs with a lustrous appearance (Murphy et al. 2017a). Breeding followed significant rains in March for the observations in Pullen-Pullen Reserve and in April in the northern Goldfields (Hamilton et al. 2017, Murphy et al. 2017a), but it is thought that breeding generally occurs between April and October (Murphy et al. 2017a).

Murphy *et al.* (2017b) placed a GPS tag on Night Parrots and reported that the two birds called at dusk from their diurnal roosts among spinifex hummocks and then flew to more floristically diverse habitats dominated by large-seeded, prolifically seeding species to feed.

The Department of Parks and Wildlife (2017) described localised Night Parrot habitat as 'roosting and nesting sites are in clumps of dense vegetation, primarily old and large spinifex clumps (often >50 years unburnt), especially hummocks that are ring-forming. These may be in expanses or isolated patches, but sometimes associated with other vegetation types, such as dense chenopod shrubs. Spinifex hummocks that are collapsed (i.e. less than about 40-50 cm in height) are not likely to provide adequate shelter'.

There are no substantive mature spinifex hummocks in the project area and numerous feral fauna. As the preferred roosting and nesting sites for Night Parrots is not present and there is a significant threatening process for the species in the area (i.e. wild dogs and feral cats), it is improbable that Night Parrots are present in the project area and will therefore not be impacted by any proposed development.

Sandhill Dunnart (*Sminthopsis psammophila*) – Endangered under the *BC Act 2016* and *EPBC Act 1999*

The Sandhill Dunnart is a small (30-45g) arid adapted dasyurid that is found in the eastern part of the Western Australian section of the Great Victoria Desert, eastern Goldfields and the western and southern parts of South Australia. Recent surveys undertaken for the Great Victoria Desert Trust has increased their geographic range in the Great Victoria Desert and into the eastern Goldfields.

Riley (2020) and Riley et al. (2021) indicated that the Sandhill Dunnart typically uses Stages 4 and 5 hummocks, and occasionally Stage 3, with Stage 4 being an open hummock ring with soft, dead leaves centrally and Stage 5 is where the hummock breaks apart and continues spreading, and the larger parts remain as suitable shelter for the dunnart.

The habitat in the project area is not suitable for this dunnart and there are no records of the Sandhill Dunnart near the project area in the Atlas of Living Australia, so it is highly unlikely that they are present in the project area.

Grey Falcon (*Falco hypoleucos*) - Vulnerable species under the *EPBC Act 1999* and *BC Act 2016*

The Grey Falcon is a moderately large raptor that is found mostly in the northern half of Western Australia, mostly in lightly wooded, coastal or riverine areas.

There are multiple records of the Grey Falcon in the Pilbara, but very few in the Goldfields. They are mostly recorded along the drainage lines and around the permanent or semi-permanent pools.

It is highly unlikely that the Grey Falcon is in the project area.

Malleefowl (*Leipoa ocellata*) - Vulnerable under the *BC Act 2016* and *EPBC Act 1999*

Malleefowl are large, ground-dwelling birds that rarely fly unless alarmed or are perching for the night. Historically, Malleefowl have been found in mallee regions of southern Australia from approximately the 26th parallel of latitude southwards. Prior to vegetation clearing for agriculture, Malleefowl were abundant in the WA Wheatbelt. Vegetation clearing for agriculture also opened adjacent bushland to predators, and in the south-west of WA, Malleefowl often only persist in isolated remnant patches of native vegetation. Sheep and other herbivores (e.g. goats, kangaroos) grazing in remnant vegetation removes or thins the undergrowth, and

they also compete with Malleefowl for herbaceous foods and can cause changes to the structure and floristic diversity of foraging habitats (Benshemesh 2007).

Malleefowl and their eggs are vulnerable to predation by foxes, and newly hatched chicks are vulnerable to foxes, cats and raptors (Priddel and Wheeler 1990, Benshemesh and Burton 1999, Benshemesh 2007, Lewis and Hines 2014). Their abundance in the Goldfields is low and they are sparsely distributed, favouring those areas that are more densely vegetated. Malleefowl build distinctive nests that comprise a large mound of soil/rock covering a central core of leaf litter. These nest mounds range in diameter but can span more than five metres and may be up to one metre high. Malleefowl are generally monogamous and once breeding commences, and they typically pair for life. The presence of nest mounds provides an indication of the presence of Malleefowl in the area.

Malleefowl have been observed in the bioregion, however, there are no recent records of active breeding mounds in the vicinity of the project area. Malleefowl tracks were recorded in the general area, but the fauna habitat in the project area was too sparse to provide any protection for this bird from predators. Therefore, vegetation clearing or development in the project area is unlikely to have any significant impact on this species.

Chuditch (*Dasyurus geoffroii*) – Vulnerable under the *BC Act 2016* and *EPBC Act 1999*

The Chuditch is the largest extant carnivorous marsupial in WA. It is usually active from dusk to dawn. Formally known from over 70% of Australia, the Chuditch now has a patchy distribution throughout the Jarrah forest and mixed Karri/Marri/Jarrah forest of south-west WA and other isolated areas. Chuditch are solitary animals for most of their life and den in hollow logs, burrows, culverts, etc. and have also been recorded in tree hollows and rock cavities. Chuditch are opportunistic feeders, and forage primarily on the ground at night. Their diet can include other mammals, birds, lizards, bird and reptile eggs but the majority is a mixture of large invertebrates (e.g. spiders, scorpions and crickets).

How *et al.* (1988) reported Chuditch being found near the Norseman-Lake King Road and near Mount Holland. DBCA records show that one specimen was recorded in 1974 in Kambalda East. There are multiple records south of Southern Cross and Marvel Loch and there have been other reported sightings east of Kambalda and near Norseman, but Terrestrial Ecosystems can find none north of Kalgoorlie. It is therefore highly unlikely that the Chuditch will be found as far north at Leonora and Laverton and in atypical habitat.

The project area is a long way north of the known distribution for this dasyurid, so it is unlikely that the Chuditch would be found in the project area. Therefore, Terrestrial Ecosystems' assessment is that any development is highly unlikely to have a significant impact on this species.

Princess Parrot (*Polytelis alexandrae*) - Vulnerable under the *EPBC Act 1999* and a Priority 4 species with DBCA

The Princess Parrot is found mostly in the inland arid areas of Australia, and in Western Australia in the Gibson, Little Sandy and Great Victoria Deserts (Johnstone and Storr 1998, Pavey *et al.* 2014). They are also occasionally found in lightly wooded areas adjacent to the sandy deserts (Moriarty 1972).

Very little is known about the Princess Parrot, even the exact extent of its geographical distribution is poorly understood. It is thought to be nomadic within the central desert regions of Australia, occupying arid shrub lands, particularly those dominated by Mulga, Desert Oak and spinifex. Due to the paucity of information on the species, accurate estimates of its conservation significance are difficult to make, however, this species is probably threatened by habitat loss to agricultural practices and changes in fire regimes.

Dr S. Thompson sighted this parrot in a survey near the Wanjarri Nature Reserve in 2006 and Moriarty (1972) also reported it in the same area, so it may occasionally be seen in the region. If it was present in the project area, any proposed development is unlikely to significantly impact on this species as it will move away to other areas if it is disturbed.

Great Desert Skink (*Liopholis kintorei*) - Vulnerable under the *BC Act 2016* and *EPBC Act 1999*

The Great Desert Skink is a large burrowing skink found in the sandy and gravelly habitats of the central and western deserts, where it lives in small colonies. It constructs large burrow systems to a depth of over 1m and up to 10m in diameter. The burrow system may be a single entrance tunnel or multiple entrances. Long-used burrows are often large and complex. The local skink community will have established a latrine site(s), which for old burrow complexes, is often quite large and visible. Habitat critical to their survival is typically hummock grass sandplains and some adjacent dunefield swales, often associated with paleodrainage channels, however, they have been recorded in open Mulga woodland in South Australia (McAlpin 2001).

Pearson et al. (2001) reported Great Desert Skinks in the Gibson Desert in undulating sandplain of deep red sands with a surface cover of fine laterite and vegetated with spinifex grass. This habitat is not present in the project area. A search of the Atlas of Living Australia records indicated that there are no recent records near the project area, so it is highly unlikely to be present in the project area.

Southern Whiteface (*Aphelocephala leucopsis*) - Vulnerable under the *EPBC Act 1999*

The Southern Whiteface is a recent addition to the *EPBC Act* listing of vulnerable species. It is a small bird found in the arid and semi-arid interior from the WA coast near Hamelin Bay through the Great Victoria Desert into the arid areas of South Australia, Victoria, NSW and Queensland (Johnstone and Storr 2004, Department of Climate Change Energy and the Environment and Water 2023).

It is found in open woodlands and shrublands with an understorey of grasses and low shrubs (Department of Climate Change Energy and the Environment and Water 2023). It forages on the ground, feeding on insects, spiders and seeds, mostly found in the leaf-litter (Johnstone and Storr 2004, Department of Climate Change Energy and the Environment and Water 2023).

The Southern Whiteface has been recorded in multiple vertebrate fauna assessments near the project area (Dell and How 1988, Ninnox Wildlife Consulting 1998, Halpern Glick Maunsell 1999, Biota Environmental Sciences 2007, Coffey Environments 2008, ENV Australia 2008, Terrestrial Ecosystems 2010). If this small bird is in the project area, then it will readily move to an adjacent area. Given the availability of similar habitat in the adjacent area, any impacts on the Southern Whiteface are unlikely to be significant.

Fork-tailed Swift (*Apus pacificus*) - Migratory species under the *EPBC Act 1999* and *BC Act 2016*

This species breeds in the northeast and mid-east Asia and winters in Australia and southern New Guinea. It is a visitor to most parts of Western Australia, beginning to arrive in the Kimberley in late September, in the Pilbara in November and in the southwest land division in mid-December, and leaving by late April. The Fork-tailed swift is an almost exclusively an aerial species, foraging and sleeping on the wing. It rarely comes to earth, usually only for breeding. It is common in the Kimberley, uncommon to moderately common near northwest, west and southeast coasts and rare to scarce elsewhere. It is rarely seen in the Goldfields (Plate 9).

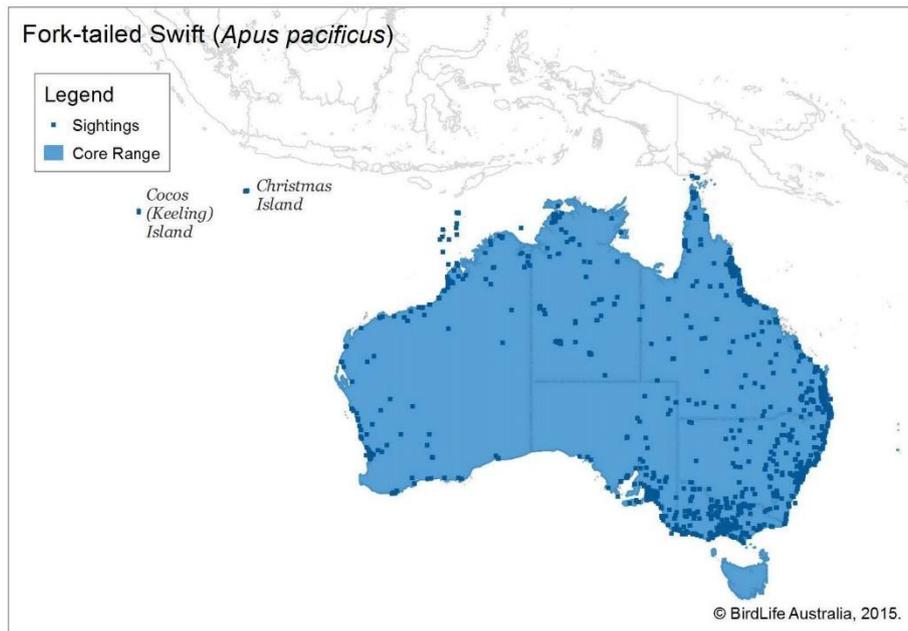


Plate 9. Range and actual reported sightings of the Fork-tailed Swift

(taken from <http://www.environment.gov.au/biodiversity/threatened/publications/epbc-act-referral-guidelines-migratory-birds>)

The Fork-tailed Swift may infrequently be seen in the region. However, any proposed vegetation clearing, or development is unlikely to significantly impact on this species as it is an aerial species and will move away to other areas if it is disturbed.

Grey Wagtail (*Motacilla cinerea*) - Migratory under the *EPBC Act 1999* and *BC Act 2016*

The Grey Wagtail is a small yellow breasted bird with a grey back and head. Johnstone and Storr (2004) reported this migratory species as breeding in Palearctic from western Europe and north-west Africa to eastern Asia and wintering in Africa, south-east Asia, Indonesia, the Philippines, New Guinea and Australia. Its preferred habitat in Australia is banks and rocks in fast-running fresh water including rivers, streams and creeks where it feeds on insects.

The Atlas of Living Australia records two sightings on the south-coast of Western Australia and none around the project area (Plate 10). The Grey Wagtail is highly unlikely to be seen in the project area due to a lack of records and suitable habitat.

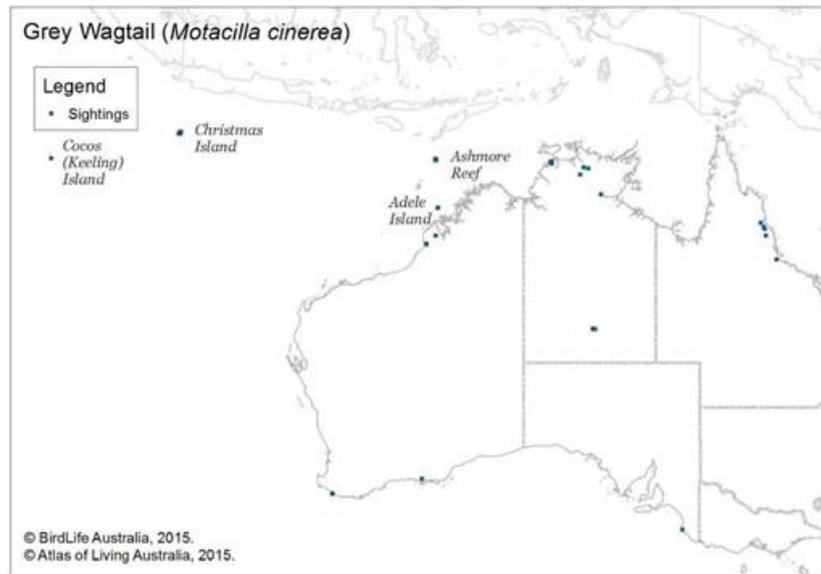


Plate 10. Reported sightings of the Grey Wagtail

(taken from <http://www.environment.gov.au/biodiversity/threatened/publications/epbc-act-referral-guidelines-migratory-birds>)

Yellow Wagtail (*Motacilla flava*) - Migratory under the *EPBC Act 1999* and *BC Act 2016*

The Yellow Wagtail is found in the millions in the northern hemisphere and the Atlas of Living Australia records multiple records of this bird in Australia in the coastal areas (Plate 11). There are no records for this species in inland Western Australia near the project area, therefore it is highly unlikely to be impacted by the proposed development.

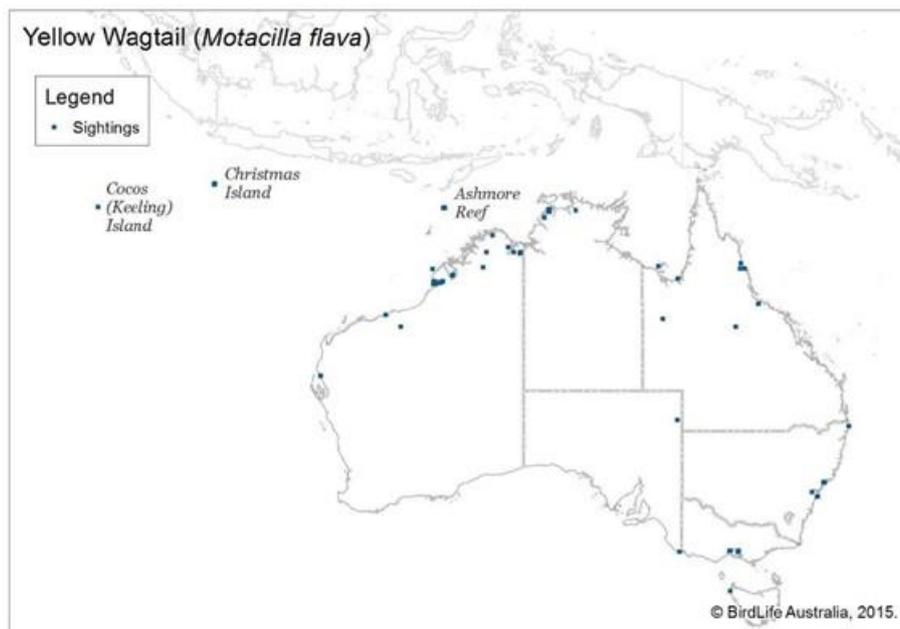


Plate 11. Reported sightings of the Yellow Wagtail

(taken from <http://www.environment.gov.au/biodiversity/threatened/publications/epbc-act-referral-guidelines-migratory-birds>)

Peregrine Falcon (*Falco peregrinus*) – Otherwise specially protected under the *BC Act 2016*

The Peregrine Falcon is uncommon, although widespread throughout much of Australia excluding the extremely dry areas and has a wide and patchy distribution. It shows habitat preference for areas near cliffs along coastlines, rivers and ranges and within woodlands along watercourses and around lakes. Nesting sites include ledges along cliffs, granite outcrops and quarries, hollow trees near wetlands and old nests of other large bird species. There is no evidence to suggest any change in status in the last 50 years. The Peregrine Falcon has been seen in the Wanjarri Nature Reserve (Moriarty 1972, Ninnox Wildlife Consulting 1994), at Honeymoon Well (Ninnox Wildlife Consulting 1994) and Mileura (Tingay and Tingay 1977), so they could infrequently be seen in the general area.

The Peregrine Falcon may infrequently be seen in the project area, however, vegetation clearing is unlikely to have a significant impact on this species as it will readily move away from disturbance and there are abundant areas of similar habitat in the region.

Long-tailed Dunnart (*Antechinomys longicaudatus*) - Priority 4 species with DBCA.

Burbidge *et al.* (2008) summarised the Long-tailed Dunnart geographic distribution as widely scattered in arid zone where it inhabits rugged rocky areas. They went on to suggest that its striated footpads, long tail and behaviour in captivity indicated that it was an active and capable climber. Specimens have been recorded in several rocky ranges in the Gibson Desert, West MacDonnell National Park, Murchison, Carnarvon Basin and the Pilbara. All previous capture sites for Long-tailed Dunnarts are within rugged rocky landscapes that support a low open woodland or shrubland of Acacias (especially mulga) with an understorey of spinifex hummocks, and (occasionally) also perennial grasses and cassias.

Long-tailed Dunnarts are typically found on banded ironstone formations (BIFs), rocky hills and ridges or the adjacent areas in much lower numbers (Department of Environment and Conservation 2007, Harewood 2014). They are typically found in low abundance when trapped on rocky areas and much lower abundance in adjacent areas. The vegetation is often low open woodland or shrubland of *Acacia* sp. (especially mulga) with an understorey of spinifex hummocks, and (occasionally) perennial grasses and cassias.

Long-tailed Dunnarts are present on numerous BIFs, rocky ridges and hills in the Goldfields and Midwest (Cowan 2001, Burbidge *et al.* 2008, Terrestrial Ecosystems 2011b, a, Stantec 2020, Terrestrial Ecosystems 2020) and at Mt Ida and Bottle Creek, which are west of Leonora. A single individual was caught in the recent Regis survey in the Thompson Bore area, but this individual was considered a vagrant, as there were no rocky ridges or breakaways in the area. There is a very low possibility it could be recorded in the project area.

Brush-tailed Mulgara (*Dasyercus blythi*) - Priority 4 with the DBCA

Woolley (2005) recognises two species of 'Mulgara'; *Dasyercus blythi* and *D. cristicauda*. *Dasyercus blythi* has a non-crested tail, two upper premolars and six nipples; *D. cristicauda* has a crested tail, three upper premolars and eight nipples. Both species potentially have overlapping distributions in arid Australia, but it is thought that *D. cristicauda* does not currently exist in Western Australia, although there are old records indicating its presence. Woolley (2005) suggested the common names for these two species be Brush-tailed Mulgara for *D. blythi* and Crest-tailed Mulgara for *D. cristicauda*. These two species can be sympatric in places, but probably utilise different parts of the habitat on a local scale when they are recorded in the same area. Currently, there are insufficient data to separate the spatial ecology, burrows and reproductive biology of these two species. Information that follows is based on what is known for 'Mulgara' without distinguishing between the species.

The reported distribution of Mulgara includes much of the inland spinifex covered sandy desert and spinifex vegetated areas in the Pilbara and northern goldfields. Within these areas their distribution is patchy and it is most frequently confined to mature spinifex dominated habitat (Gibson and Cole 1992, Masters 1998, Masters

et al. 2003, Thompson and Thompson 2008). In some areas, their relative abundance is positively associated with rainfall in the previous 12 to 24 months (Gibson and Cole 1992, Masters 1998, Dickman et al. 2001, Letnic and Dickman 2005) and recent burning of the spinifex does not seem to be sufficient to shift *Mulgara* out of an area (Thompson and Thompson 2007). *Mulgara* are generally sedentary in contrast with some other small dasyurids and have high site fidelity and a low propensity for dispersal once a home range has been established (Masters 1998, Dickman et al. 2001).

The lack of spinifex habitat in the project area would suggest that *Mulgara* are not present in the project area.

5. DISCUSSION

5.1 ADEQUACY OF THE FAUNA SURVEY DATA FOR FAUNA HABITATS REPRESENTED IN THE PROJECT AREA

The EPA's (2020) *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* indicated that the level of fauna assessment should be determined considering the following criteria:

- level of existing regional knowledge;
- type and comprehensiveness of recent local surveys;
- degree of existing disturbance or fragmentation at the regional scale;
- extent, distribution and significance of habitats;
- significance of species likely to be present;
- sensitivity of the environment to the proposed activities; and
- scale and nature of impact.

The Terrestrial Ecosystems' (2023a) *Basic and Detailed Vertebrate Fauna Survey and Assessment for the northern tenements* includes similar sparsely vegetated mulga woodland habitat, and included trapping, camera trapping and bird observation sites in the vicinity of the project area. The Terrestrial Ecosystems' (2010) two phase survey of the Garden Well project area is approximately 15km to the north of the project area. The Coffey Environments (2008) survey sites were to the north and included fauna habitat similar to that in the project area. In addition, surveys undertaken in adjacent areas (Dell and How 1988, How et al. 1988, How and Dell 1992, Ninox Wildlife Consulting 1998, Dunlop and Payne 1999, Halpern Glick Maunsell 1999, Terrestrial Ecosystems 2011a) also provide fauna assemblage data for mulga woodlands. Additional surveys are unlikely to reveal additional fauna species, and in particular conservation significant species, so the effort, time and cost of undertaking additional surveys is not warranted or justified.

5.2 AMPHIBIANS

Frogs are normally only detected immediately after rainfall or around semi-permanent pools. The ephemeral creeks would form pools after heavy rainfall events, and it would be expected that numerous frog species would be recorded after these rain events. *Neobatrachus sutor*, *Cyclorana occidentalis*, *Litoria rubella*, *Neobatrachus kunapalari*, *Neobatrachus wilmorei*, *Cyclorana maini* and *Platyplectrum spenceri* could be found in the general area based on the available regional data. Vegetation clearing in the project area is likely to result in a loss of individuals within the disturbed area, however, vegetation clearing, and mining operations are unlikely to have a significant impact on these species when assessed in a bioregional context.

5.3 REPTILES

Typically, approximately 35-40 species of reptiles are caught in open mulga woodland or mulga woodland over spinifex (Coffey Environments 2008, Terrestrial Ecosystems 2010, 2011a, 2023a). The regional reptile data provided in Appendix B provides an indication of the diversity of herpetofauna in this part of the Goldfields, however, these lists include species that are found in semi-arid sandplains vegetated with spinifex, which is not present in the project area, but has a high abundance of reptiles (Pianka 1986, 1989, 1992).

Terrestrial Ecosystems' view is that the development of the project area is unlikely to significantly impact on the reptile fauna when considered in a bioregional context.

5.4 BIRDS

The number of birds and bird species in the northern Goldfields fluctuates based on seasons and recent rainfall (Craig and Chapman 2003). Semi-arid and arid areas of inland Australia support a diverse range of transient and nomadic species that move through large areas in search of available resources. Heavy rain that is followed by flowering and seeding of many plant species is often sufficient to draw many of these nomadic species to the general area. These species move on to other areas once the resource is depleted or better resources are available in adjacent areas.

The project area is likely to support a similar avifauna assemblage to that present in the adjacent areas (Terrestrial Ecosystems 2023a). There are no bird species of conservation significance likely to be dependent on the project area to survive. The Southern Whiteface (i.e. listed as vulnerable) has been recorded to the north of the project area and in adjacent areas, but it will readily move if the vegetation is to be cleared, and unlikely to be significantly impacted. The Peregrine Falcon and Princess Parrot may infrequently be observed in the project area, but neither are likely to be impacted by vegetation clearing as they will also readily move to an adjacent area. The Princess Parrot is nomadic and moves around the arid interior often in search of water and resources. Tracks of Malleefowl have been recorded in the general area, but not in the project area. There are no historical, active or recently active breeding Malleefowl mounds in the project area, and the sparsely vegetated habitat would indicate that they are not present in the project area.

Clearing vegetation in a portion of the project area, particularly when similar habitat exists in the adjacent areas, is unlikely to significantly impact on any conservation significant species of bird. All birds will readily shift to other areas when there is a disturbance.

5.5 NON-VOLANT MAMMALS

All the terrestrial mammals potentially in the survey area, would be present in the many square kilometres of similar habitat in adjacent areas. The only mammal species of conservation significance potentially in the region is the Long-tailed Dunnart, which would typically be found on the rocky ridges, outcrops and breakaways. The rocky outcrops in the project area are small and unlikely to support a population of Long-tailed Dunnarts, so it is unlikely to be impacted during development.

5.6 BATS

All the bats likely to be recorded in the project area are common throughout the Goldfields and many other parts of semi-arid Western Australia and none are of conservation significance. Clearing of vegetation, development activities and mining operations will not significantly impact on the bat fauna when considered in a bioregional context.

5.7 BIODIVERSITY VALUE

An ecological assessment of a site should consider its biodiversity value at the genetic, species and ecosystem levels, and its ecological functional value at the ecosystem level. There are inadequate data to assess the ecological value at the genetic level.

The fauna habitat types represented in the project area are abundant and in similar condition in adjacent areas. Therefore, the fauna assemblage that is present in the project area will also be present and abundant in the adjacent areas.

5.7.1 Ecological functional value at the ecosystem level

Cattle grazing over many years has had a negative impact on the fauna habitat. The consequence is that the project area has a vegetation community that has depleted, reduced and modified grasses and shrubs compare with what existed prior to the introduction of cattle.

The presence of feral cats and wild dogs in the project area is likely to be having an on-going impact on vertebrate fauna in the project area and surrounds. Station owners in the region endeavour to manage the wild dog population by shooting animals when they are seen.

There has been an exploration program in the project area, and this would also have impacted on the vertebrate fauna assemblage.

The project area is unlikely to support conservation significant fauna or a conservation significant ecosystem.

5.7.2 Maintenance of threatened ecological communities

No threatened ecological fauna communities were identified in the project area.

5.7.3 Condition of fauna habitat

Much of the project area has been negatively impacted by many years of cattle grazing and exploration activity, resulting in an assessment of the condition in sections of the project area as being degraded or completely degraded. The uncleared fauna habitat present in the project area is like many square kilometres of adjacent habitat, therefore, any proposed development is unlikely to have a significant impact on the vertebrate fauna when considered in a bioregional context.

5.7.4 Ecological linkages

The project area does not support an ecological linkage or pathway that is not already available in the region.

5.7.5 Size and scale of the proposed disturbance

The project area of 889ha is relatively small, and represents a very small proportion of similar fauna habitat found in the adjacent area and bioregion. So vegetation clearing is unlikely to have significant consequences for the vertebrate fauna in a bioregional context.

5.7.6 Abundance and distribution of similar habitat in the adjacent areas

Fauna habitats present in the project area are abundant in adjacent areas. It is therefore likely that the fauna assemblage in the project area is like the many square kilometres of similar habitat in adjacent areas and the bioregion.

5.7.7 Potential impacts on ecosystem function

Clearing native vegetation is likely to result in the loss of small vertebrate fauna on-site that are unable to move away during the clearing process. The few larger animals, such as kangaroos and large goannas, and most of the birds will move into adjacent areas once clearing commences. Shifting animals into adjacent areas will increase the pressure on resources in those areas and it is likely that there will be some disruption to the ecosystems in these areas for a short period until a balance is restored.

Impacts associated with clearing vegetation and development in the project area in a landscape or bioregional context on the vertebrate fauna are likely to be low as the proposed disturbance area is small relative to the quantity of similar habitat in the bioregion and there will be no significant impact on conservation significant fauna.

It is likely that the impact of feral and pest fauna which are present in the project area will be doing more environmental damage than the combined impacts of proposed development and vegetation clearing in the project area.

6. POTENTIAL ENVIRONMENTAL IMPACTS

Development of the project area will potentially affect vertebrate fauna in numerous ways, including death/injury of fauna during vegetation clearing, impacts with vehicles and the loss of habitat.

6.1 ANIMAL DEATHS DURING THE CLEARING PROCESS AND DISPLACEMENT OF FAUNA

Clearing vegetation and activities associated with development will result in the loss of some small fauna that retreat to burrows, such as reptiles and mammals and the larger terrestrial animals and avian species will most often move to adjacent areas. Nocturnal species (e.g. dunnarts and mice) are unlikely to be active when most of the vegetation clearing is taking place which may result in these individuals being adversely impacted when they attempt to escape. This loss of fauna habitat is unlikely to have a significant impact when considered in a bioregional context.

Clearing large areas increases fauna habitat edges. Small mammals can respond both positively and negatively to edges depending on their ecological traits (Laurance 1991, 1994, Goosem and Marsh 1997, Goosem 2000). Edge and disturbance effects can lead to altered and most often higher levels of predation, restricting or increasing fauna movements and altering assemblage structure (Oxley et al. 1974, Paton 1994, Baker et al. 1998, Temple 1998, Luck et al. 1999, Goosem et al. 2001). Goldingay and Whelan (1997) and Clarke and Oldland (2007) reported that edge effects can extend up to 150-200m from the edge for some species, meaning the impact area on vertebrate fauna is likely to be larger than the cleared footprint.

Edge effects can lead to the disruption of ecological processes such as predation and dispersal, animal movements and can change assemblage structure. The consequence is that the impact area will typically be larger than the cleared area. However, the sparseness of the vegetation in the project area would indicate edge effects would generally be insignificant.

6.2 REDUCTION OR LOSS OF ACTIVITY AREAS AND CLOSURE OF BURROWS

Clearing vegetation and associated development activities are likely to destroy reptile and mammal burrows or foraging habitat that are currently in use or could be used again. Clearing vegetation that forms part of the activity area of individuals has the potential to force these animals into adjacent areas. These areas may offer fewer resources placing individuals under survival pressure. It could also cause individuals to move into the territories of other individuals increasing competition for resources. Forced relocations could increase the possibility of predation.

Although vegetation clearing seldom results in the death of adult avian species, clearing of vegetation reduces and alters their foraging areas. The loss of foraging areas shifts individuals into adjacent areas and increases competition for resources, with the inevitable result that some of the migrants and some of the residents failing to thrive in the altered environment and some could be lost.

6.3 HABITAT FRAGMENTATION

In addition to direct impacts of vegetation clearing, infrastructure including tracks, have the potential to fragment habitat. Clearing vegetation isolates sections of established communities and may alter long and medium-term patterns of movement around established home ranges particularly for small mammals and reptiles. A reduction in the population because of this development would be difficult to detect given our current knowledge of the spatial ecology for most of the small mammals known to be in the area. The project area contains sparse vegetation, multiple exploration tracks and existing pastoral and mining vehicle tracks, so from a small vertebrate species perspective, the habitat is already very fragmented.

6.4 INTRODUCED FAUNA AND WEEDS

Cats and wild dogs are known to be established in the bioregion and the project area. In many situations, both these species have become a 'naturalised' species in the Australian bush. Increases in dog or cat numbers can have a detrimental impact on native fauna because they predate on and compete with native species, severely disrupting the natural balance. The feral cat is a particularly damaging predator on native fauna and any increase in their numbers could have a detrimental effect on local native fauna (Kinnear 1993, Bamford 1995, Woinarski et al. 2017, Woinarski et al. 2018, Murphy et al. 2019); hence it is important to ensure that populations of the feral predators, such as cats are kept under control.

Infrastructure known to support feral species, such as poorly managed waste disposal sites and bins and permanent water, should be managed to minimise increases in these populations. It is important that wild dog and feral cat reduction programs are implemented on an annual basis.

Introduced plant species can successfully and rapidly invade areas of cleared native vegetation or otherwise disturbed by humans. Introduced plant species may replace native species that provide shelter or foraging areas for native fauna. Bringing new cattle to the stations and vehicle movement can introduce weeds to the project area. Major changes to the structure of vegetation will alter the fauna habitat and consequently may influence fauna species composition.

6.5 ROAD FAUNA DEATHS

An increase in road fauna deaths is likely to occur where new roads / tracks are constructed or upgraded. This affects kangaroos, nocturnal birds and ground dwelling large carnivorous predators. Species such as goannas and raptors are attracted to carrion on road verges and therefore, there is an increased propensity for these species to be killed by vehicles. Given the size of the project area, sparseness of the vegetation and the low abundance of vertebrate fauna, the impacts of road fauna deaths are likely to be low.

6.6 FIRE

Increased human activity is often associated with an altered fire regime which leads to a degradation of natural ecosystems. Fire has been identified as one of the threatening processes for some conservation significant species as numerous small mammal and bird species rely on long unburnt vegetation, however, many Australian small mammal and reptile species are adapted to landscape scale wild fires (Pianka and Goodyear 2012, Letnic et al. 2013, Swan et al. 2016).

Large and widespread fires are unlikely to be a significant threat to native fauna species in and adjacent to the project area due to the sparseness of the vegetation.

6.7 ANTHROPOGENIC ACTIVITY

Unnatural noises, vibrations, artificial light sources, and vehicle and human movement in an area may be sufficient to force individuals or fauna species to move from adjacent areas or alter their activity periods. This form of disturbance is likely to occur during the vegetation clearing and on-going mining operations. The overall impact is likely to be confined to small areas adjacent to mining operations and infrastructure.

6.8 DUST

Dust generated from shifting topsoil and increased vehicle traffic can potentially degrade surrounding vegetation, reducing its ability to absorb sunlight and influencing photosynthetic rates. Degradation of these areas may potentially render habitat unsuitable for fauna. Dust suppression and management programs are

an essential component of minimising impacts on fauna in areas adjacent to the mine. An effective dust management program should be implemented.

7. VERTEBRATE FAUNA RISK ASSESSMENT

7.1 RISK ASSESSMENT

Fauna surveys to support mining applications are part of the environmental risk assessment undertaken to consider what potential impacts a development might have on the biodiversity on a particular area and region. Potential impacts on fauna from the proposed development are identified and briefly described above. Tables 8, 9 and 10 provide a summary of the risk assessment associated with this project.

Any risk assessment is a product of the likelihood of an impact occurring and the consequences of that impact. Likelihood and consequences are categorised and described below. The assessed risk level (likelihood x consequences) is then calculated as the overall risk for the development. This is followed by an assessment of the acceptability of the risk associated with each of the impacts. Disturbances and vegetation clearing have an impact on the fauna at multiple scales – site, local, landscape and regional. Each of these is considered in the risk assessment. This assessment should be considered in the context of the summary in Table 10.

Table 8. Fauna impact risk assessment descriptors

Likelihood		
Level	Description	Criteria
A	Rare	The environmental event may occur, or one or more conservation significant species may be present in exceptional circumstances.
B	Unlikely	The environmental event could occur, or one or more conservation significant species could be present at some time.
C	Moderate	The environmental event should occur, or one or more conservation significant species should be present at some time.
D	Likely	The environmental event will probably occur, or one or more conservation significant species will be present in most circumstances.
E	Almost certain	The environmental event is expected to occur, or one or more conservation significant species is expected to be present in most circumstances.
Consequences		
Level	Description	Criteria
1	Insignificant	Insignificant impact on fauna of conservation significance or regional biodiversity, and the loss of individuals will be insignificant in the context of the availability of similar fauna or fauna assemblages in the area.
2	Minor	Impact on fauna localised and no significant impact on species of conservation significance in the project area. Loss of species at the local scale.
3	Moderate	An appreciable loss of fauna in a regional context or a limited impact on species of conservation significance in the project area.
4	Major	Significant impact on conservation significant fauna or their habitat in the project area and/or regional biodiversity and/or a significant loss in the biodiversity at the landscape scale.
5	Catastrophic	Loss of species at the regional scale and/or a significant loss of species categorised as 'vulnerable' or 'endangered' under the EPBC Act (1999) at a regional scale.
Acceptability of Risk		
Level of risk	Management Action Required	
Low	No action required.	
Moderate	Avoid if possible, routine management with internal audit and review of monitoring results annually.	
High	Externally approved management plan to reduce risks, monitor major risks annually with external audit and review of management plan outcomes annually. May a referral to the Commonwealth under the EPBC Act 1999.	
Extreme	Unacceptable, project should be redesigned or not proceed.	

Table 9. Levels of acceptable risk

		Likelihood				
		Rare or very low (A)	Unlikely or low (B)	Moderate (C)	Likely (D)	Almost certain (E)
Consequence	Insignificant (1)	Low	Low	Low	Low	Low
	Minor (2)	Low	Low	Low	Moderate	Moderate
	Moderate (3)	Low	Moderate	Moderate	High	High
	Major (4)	Moderate	Moderate	High	High	Extreme
	Catastrophic (5)	Moderate	High	High	Extreme	Extreme

Table 10. A risk assessment of the impact of ground disturbance activity on fauna

			Before management				With management		
Potential impacts			Inherent risk			Risk controls	Residual risk		
Factor			Likelihood	Consequence	Significance		Likelihood	Consequence	Significance
Fauna survey data	Inadequate vertebrate fauna survey data to adequately assess the risks	Unknown loss of fauna, fauna of conservation significance, and fauna assemblages, and an incomplete fauna assessment.	A	1	Low				
Clearing vegetation	Loss of fauna habitat – local scale	Loss of terrestrial fauna in the project area.	E	2	Mod.				
	Loss of fauna habitat – landscape scale	Loss of some fauna during vegetation clearing.	B	1	Low				
	Loss of fauna habitat – regional scale	Small loss of some fauna from the region.	B	1	Low				
	Loss of a threatened ecological fauna community	Loss of an undetected threatened ecological fauna community.	A	2	Low				
	Habitat fragmentation	Fauna movement restricted resulting in the death of fauna and a loss of biodiversity.	A	2	Low				
Death or loss of conservation significant fauna	Loss of a unique terrestrial fauna ecosystem	Loss of an ecosystem containing fauna with high species richness, high abundance and numerous top of the food chain predators.	A	2	Low				
	Malleefowl	Death or reduced viability of this species.	B	2	Low				
	Long-tailed Dunnart	Death or reduced viability of this species.	B	2	Low				
	Southern Whiteface	Death or reduced viability of this species.	B	2	Low				
	Peregrine Falcon	Death or reduced viability of this species.	A	2	Low				
Human impacts	Increase or spread of weeds	Changed vegetation and a resulting loss of fauna habitat.	E	2	Mod.	Implementation of a noxious weeds management program.	D	2	Low
	Increased or spread of wild dogs and feral cats	Anthropogenic activity has the potential to increase the local abundance of wild dogs and feral cats.	D	3	Mod	Undertake an active feral and pest management program for feral cats and wild dogs.	C	2	Low

			Before management			With management			
	Road kills	Animals being killed by vehicles as they cross roads	E	1	Low	Limiting speeds	E	1	Low

7.2 NATIVE VEGETATION CLEARING PRINCIPLES AS THEY PERTAIN TO VERTEBRATE FAUNA

The *Environmental Protection Act 1986* outlines 10 principles that are to be used in the assessment of native vegetation clearing permit applications which are also applicable for other assessments and approvals (Table 11). Where possible, native vegetation should not be cleared if any of the following principles are compromised.

Table 11. Assessment of impact using the native vegetation clearing principles

Principle	Response
It comprises a high level of biological diversity.	Clearing vegetation will not compromise a high level of biodiversity. There is a very low possibility that Malleefowl and Long-tailed Dunnarts are transient in the project area, as the habitat is not suitable for either species. The Southern Whiteface has been recorded in other surveys nearby, so it is potentially in the project area, but it will readily move into adjacent areas if disturbed.
It comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	Clearing of vegetation and development of the project area will not result in the loss of significant habitat for indigenous fauna.
It includes, or is necessary for the continued existence or, rare flora.	N/A
It comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.	The area does not contain a threatened ecological fauna community.
It is significant as a remnant of native vegetation in an area that has been extensively cleared.	The area is not a remnant.
It is growing in, or in association with, an environment associated with a watercourses or wetland.	The area does not contain a natural wetland.
The clearing of the vegetation is likely to cause appreciable land degradation.	N/A
The clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	Clearing of vegetation is unlikely to impact on conservation areas in the region.
The clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	N/A
The clearing of the vegetation is likely to cause or exacerbate the incidence of flooding.	N/A

7.3 REFERRAL UNDER THE EPBC ACT

The proposed project is unlikely to significantly impact on a conservation significant vertebrate fauna species, so a referral under the *EPBC Act 1999* is not recommended.

8. SUMMARY

The Palliards project area (~716.8ha) is approximately 60km north of Laverton, ~15km south of the Garden Well mine and ~6km north of the King of Creation mining area.

This Basic vertebrate fauna survey and risk assessment report provides an indication of the vertebrate species potentially in the project area and surrounds and describes the potential impacts and consequences of exploration and mining in the area. The project area contains a single fauna habitat: sparsely vegetated open mulga woodland. Large sections of the project area are sparsely vegetated with many patches of bare ground, with areas degraded by historical exploration and cattle grazing.

The fauna habitats in the project area are like that in adjacent areas, with the consequence that a loss of this habitat is unlikely to have a significant impact on the vertebrate fauna in a bioregional context. Malleefowl tracks and a Long-tailed Dunnart have been recorded in the region in 2022/2023, however both records were of vagrants, and therefore unlikely to be residents in the project area. The Southern Whiteface has been recorded to the north of the project area, and in other surveys in nearby areas, however, as this bird will readily move due to vegetation clearing into adjacent similar habitat, and any impacts are unlikely to be significant. There are no vertebrate species listed under the *Environment Protection and Biodiversity Conservation Act 1999* or the *Biodiversity Conservation Act 2016* that will potentially be significantly impacted by vegetation clearing or mining operations.

Potential impacts on vertebrate fauna in the project area include death/injury of fauna during vegetation clearing, development and mining operations, habitat fragmentation, cumulative loss of habitat, introduction of weeds and feral and pest fauna, impacts with vehicles, and anthropogenic activity such as noise, vibrations and artificial light negatively impacting of native fauna in adjacent areas. Overall, the potential impact of vegetation clearing, development and mining operations will be low.

9. MANAGEMENT STRATEGIES

The purpose of this section is to identify generic management and mitigation strategies to address the potential impacts of development in the project area. Specific management and mitigation strategies to address potential impacts should be addressed in project approvals or management documents.

9.1 INDUCTION AND AWARENESS

All contractors and staff involved in vegetation clearing, development and ongoing operations in the project area should be made aware of the possible presence and issues associated with terrestrial fauna in the area through the induction process.

Recommendation 1: Implement an induction program that includes a component on managing vertebrate fauna for staff and contractors working in the project area.

9.2 DUST

Dust generated from the vegetation clearing and mining operations could potentially degrade surrounding vegetation, reducing its ability to absorb sunlight and influencing photosynthetic rates. Degradation of these areas will potentially render habitat unsuitable for fauna. Dust suppression and management programs are an essential component of minimising mining impacts on fauna during the construction program.

Recommendation 2: The impact of dust on adjacent vegetation and fauna habitat is managed.

9.3 FAUNA FERAL PREDATOR

Feral cats and wild dogs are present on Regis tenements. Cats, in particular, over an extended period can have a negative significant impact on the small terrestrial vertebrate fauna. For Regis, it appears as if the feral cat population is higher around areas of anthropogenic activity. Regis is encouraged to continue to implement, on an annual basis, a feral pest reduction program and to regularly remind staff that an effective management of putrescible waste will reduce feral animal abundance.

Recommendation 3: Continue to implement an annual feral predator reduction program.

10. REFERENCES

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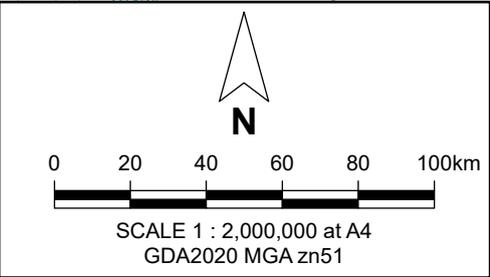
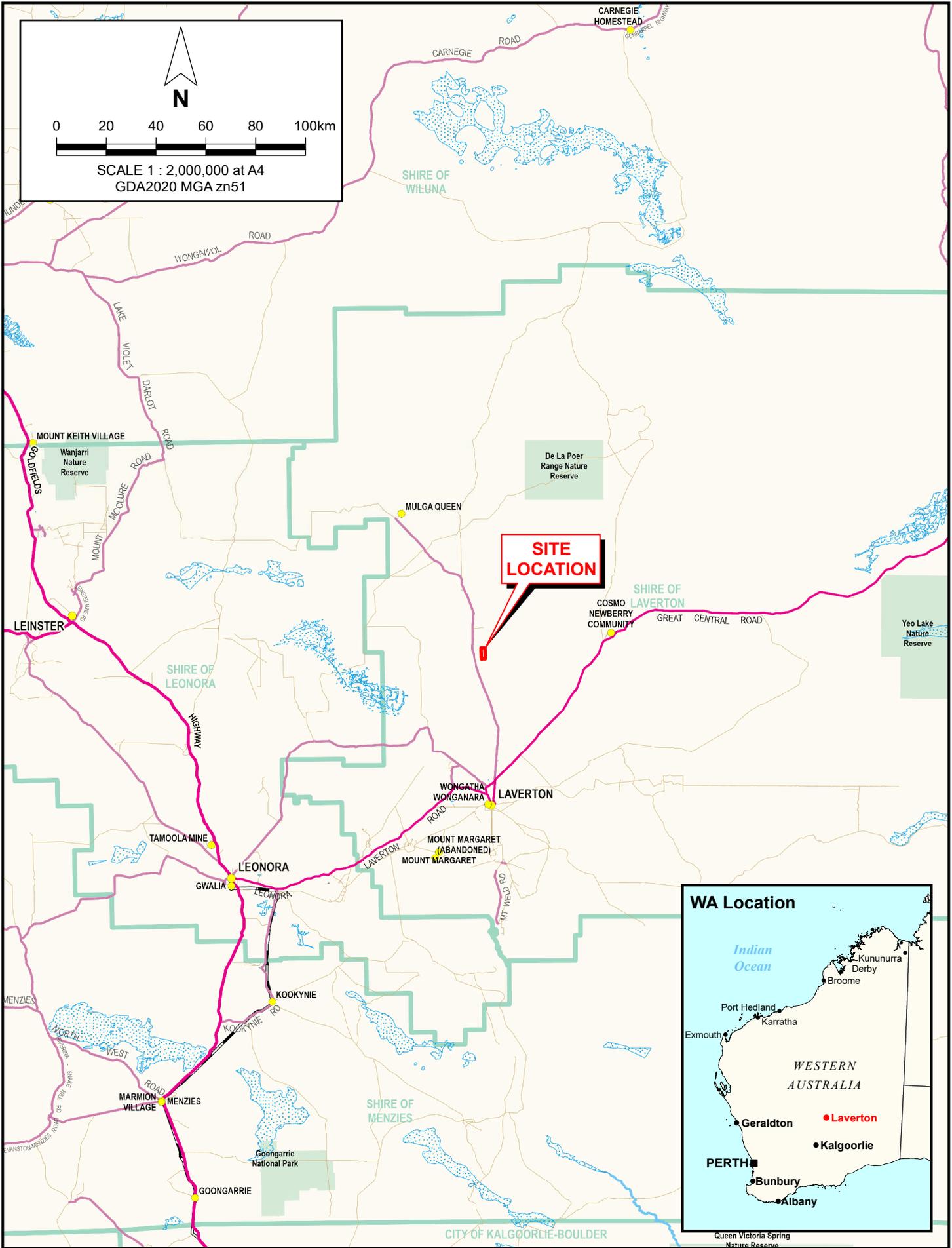
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Figures

Basic Vertebrate Fauna Survey and Risk Assessment
Palliards Project Area





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TERRESTRIAL ECOSYSTEMS

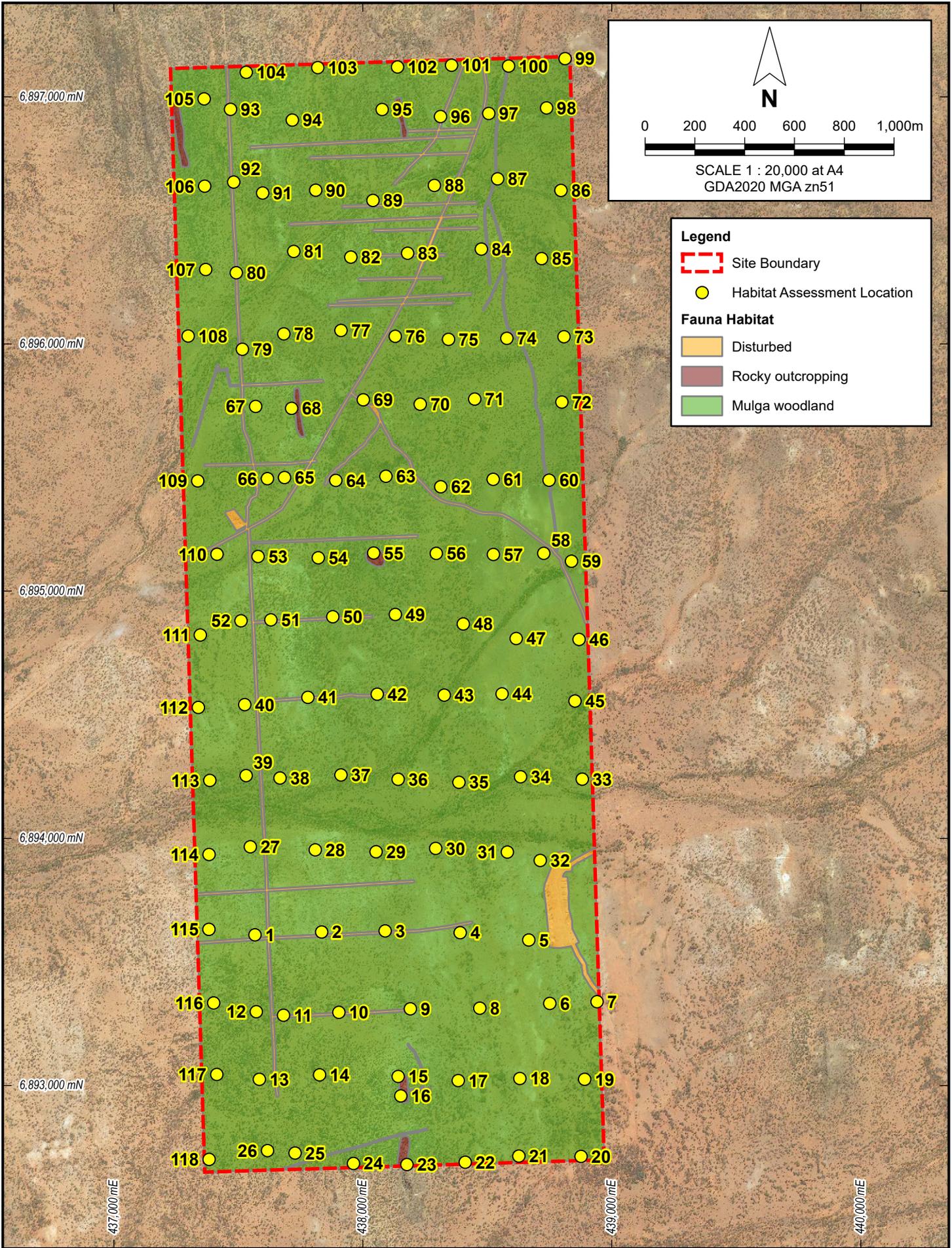
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Regis Resources
 BASIC VERTEBRATE FAUNA SURVEY AND RISK ASSESSMENT
 PALLIARDS PROJECT AREA

REGIONAL LOCATION

Figure 1

Job: 2023-0105



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TERRESTRIAL ECOSYSTEMS

Drawn: S. Thompson Date: 24 Jul 2023

Regis Resources
 BASIC VERTEBRATE FAUNA SURVEY AND RISK ASSESSMENT
 PALLIARDS PROJECT AREA

FAUNA HABITAT TYPES

Figure 2

Job: 2023-0105

Appendix A.

Results of the EPBC Act Protected Matters Search

Basic Vertebrate Fauna Survey and Risk Assessment
Palliards Project Area





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: 30-Aug-2023

[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:	7
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

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

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

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

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

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	1
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
-----------------	---------------------	---------------

BIRD

[Aphelocephala leucopsis](#)

Southern Whiteface [529]

Vulnerable

Species or species habitat known to occur within area

[Falco hypoleucos](#)

Grey Falcon [929]

Vulnerable

Species or species habitat may occur within area

[Leipoa ocellata](#)

Malleefowl [934]

Vulnerable

Species or species habitat likely to occur within area

[Pezoporus occidentalis](#)

Night Parrot [59350]

Endangered

Species or species habitat likely to occur within area

[Polytelis alexandrae](#)

Princess Parrot, Alexandra's Parrot [758]

Vulnerable

Species or species habitat likely to occur within area

MAMMAL

[Sminthopsis psammophila](#)

Sandhill Dunnart [291]

Endangered

Species or species habitat likely to occur within area

REPTILE

[Liopholis kintorei](#)

Great Desert Skink, Tjakura, Warrarna, Mulyamiji [83160]

Vulnerable

Species or species habitat may occur within area

Listed Migratory Species [\[Resource Information \]](#)

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

Migratory Marine Birds

Scientific Name	Threatened Category	Presence Text
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [\[Resource Information \]](#)

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

Commonwealth Land Name	State
Defence	
Defence - JINDALEE STATION [50257]	WA

Listed Marine Species

[[Resource Information](#)]

Scientific Name

Threatened Category

Presence Text

Bird

[Actitis hypoleucos](#)

Common Sandpiper [59309]

Species or species
habitat may occur
within area[Apus pacificus](#)

Fork-tailed Swift [678]

Species or species
habitat likely to occur
within area overfly
marine area[Calidris acuminata](#)

Sharp-tailed Sandpiper [874]

Species or species
habitat may occur
within area[Calidris melanotos](#)

Pectoral Sandpiper [858]

Species or species
habitat may occur
within area overfly
marine area[Chalcites osculans as Chrysococcyx osculans](#)

Black-eared Cuckoo [83425]

Species or species
habitat known to
occur within area
overfly marine area[Charadrius veredus](#)

Oriental Plover, Oriental Dotterel [882]

Species or species
habitat may occur
within area overfly
marine area[Merops ornatus](#)

Rainbow Bee-eater [670]

Species or species
habitat may occur
within area overfly
marine area[Motacilla cinerea](#)

Grey Wagtail [642]

Species or species
habitat may occur
within area overfly
marine area[Motacilla flava](#)

Yellow Wagtail [644]

Species or species
habitat may occur
within area overfly
marine area

Scientific Name	Threatened Category	Presence Text
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat may occur within area overfly marine area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area overfly marine area

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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

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

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Appendix B.

Vertebrate Fauna Recorded in Biological Surveys in the Region

Basic Vertebrate Fauna Survey and Risk Assessment
Palliards Project Area



B.1 VERTEBRATE FAUNA ASSESSMENTS

Family	Species	Common Name	Surveys																																				
			A																	B																			
			Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic		
Frogs																																							
Hylidae	<i>Cyclorana maini</i>	Sheep Frog	4	1	2	1																					1	2	4	1	2								
Limnodynastidae	<i>Neobatrachus kunapalari</i>	Kunapalari Frog	6	5	7		1	2	1	2	1	4																						1					
	<i>Neobatrachus wilsmorei</i>	Goldfields Bullfrog																												1	8	5	2						
	<i>Platyplectrum spenceri</i>	Spencer's Burrowing Frog																										3		6									
Reptiles																																							
Agamidae	<i>Ctenophorus caudicinctus</i>	Ring-tailed Dragon		2			3																				8												
	<i>Ctenophorus fordi</i>	Mallee Dragon	5																											14				19					
	<i>Ctenophorus inermis</i>	Military Dragon	2	6		1					1	1	1														5	1	2			2		1					
	<i>Ctenophorus isolepis</i>	Crested Dragon	7	2		3		1	4						1	3																4					1		
	<i>Ctenophorus reticulatus</i>	Western Netted Dragon	2	2							2																												
	<i>Ctenophorus salinarum</i>	Saltpan Dragon	3	1												1	5										1								6				
	<i>Ctenophorus scutulatus</i>	Lozenge-marked Dragon	1										1																										
	<i>Diporiphora amphiboluroides</i>	Mulga Dragon		1			1																																
	<i>Moloch horridus</i>	Thorny Devil	3												1																1	1	2	1					
	<i>Pogona minor</i>	Dwarf Bearded Dragon	2	2					2	1			1																	2	1								
Carphodactylidae	<i>Nephrurus vertebralis</i>	Midline Knob-tail																										1											
	<i>Underwoodisaurus milii</i>	Barking Gecko	1																																				
Diplodactylidae	<i>Diplodactylus pulcher</i>	Fine-faced Gecko			1	2																					2												
	<i>Lucasium squarrosum</i>	Mottled Ground Gecko	1													1																				18			
	<i>Strophurus elderi</i>	Jewelled Gecko											1																					1	10				

Family	Species	Common Name	Surveys		A															B																	
			Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
	<i>Strophurus strophurus</i>	Western Spiny-tailed Gecko	1				1																														
	<i>Strophurus wellingtonae</i>	Shield Spiny-tailed Gecko	1	1	1	1	1																														
Elapidae	<i>Brachyurophis semifasciata</i>	Half-girdled Snake																								1		1									
	<i>Furina ornata</i>	Orange-naped Snake	2																																		
	<i>Pseudechis australis</i>	Mulga Snake	1																																		
	<i>Pseudonaja mengdeni</i>	Gwardar		1																									1								
	<i>Pseudonaja modesta</i>	Ringed Brown Snake																												1							
	<i>Simoselaps bertholdi</i>	Jan's Banded Snake	1																																		
Gekkonidae	<i>Gehyra purpurascens</i>	Purplish Dtella	1						1																	10									3		
	<i>Gehyra variegata</i>	Tree Dtella	25	2		1	8		1		1		1												5	7	3		3	2	1	3		1			
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko	5	2		2																			3	1		1									
	<i>Rhynchoedura ornata</i>	Western Beaked Gecko	2	1		4																				2	2	6	3						1		
Pygopodidae	<i>Delma butleri</i>	Unbanded Delma			1			1																							1	1					
	<i>Delma nasuta</i>	Sharp-snouted Delma						1		1	3	1			1																						
	<i>Lialis burtonis</i>	Burton's Snake-lizard	1																										1	2	1				1		
	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot																												1							
Scincidae	<i>Cryptoblepharus buchanani</i>	Buchanan's Snake-eyed Skink	3											1																							
	<i>Ctenotus ariadnae</i>	Ariadna's Ctenotus				4																															
	<i>Ctenotus atlas</i>	Southern Mallee Ctenotus																									1										
	<i>Ctenotus calurus</i>	Blue-tailed Finesnout Ctenotus				1																															
	<i>Ctenotus grandis</i>	Grand Ctenotus		1																									1						1		
	<i>Ctenotus greeri</i>	Spotted-necked Ctenotus						2																													
	<i>Ctenotus helenae</i>	Clay-soil Ctenotus	3	1		2		3																			6	4	1								

Family	Species	Common Name	Surveys			A															B															
			Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus		2	5	1				2																	2	1	5	16	1	1	2			
	<i>Ctenotus pantherinus</i>	Leopard Skink						1	6			1				1																				
	<i>Ctenotus quattuordecimlineatus</i>	Fourteen-lined Ctenotus						2					1															1		5						
	<i>Ctenotus schevilli</i>	Scheville's Ctenotus						2					1																							
	<i>Ctenotus schomburgkii</i>	Schomburgk's Ctenotus							3																				3							
	<i>Egernia depressa</i>	Pygmy Spiny-tailed Skink		1	6	2		3	3	1																2										
	<i>Egernia formosa</i>	Goldfields Crevice-skink		2						1																								2		
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer						2																												
	<i>Lerista bipes</i>	North-western Sandslider						1																												
	<i>Lerista desertorum</i>	Central Desert Robust Slider	1						1	1	1			1												4	2			2				5		
	<i>Liopholis inornata</i>	Desert Skink																											1	1						
	<i>Liopholis striata</i>	Nocturnal Desert Skink																											1							
	<i>Menetia greyii</i>	Common Dwarf Skink	2								1		1																	1						
	<i>Morethia butleri</i>	Woodland Morethia Skink	2	3	1		3																											1		
	<i>Tiliqua multifasciata</i>	Centralian Blue-tongued Lizard		2																																
	<i>Tiliqua occipitalis</i>	Western Blue-tongued Lizard	2			1																														
Typhlopidae	<i>Anilius hamatus</i>	Pale-headed Blind Snake					1				1																	1	1	1	1	2				
	<i>Anilius waitii</i>	Waite's Blind Snake																										2								
Varanidae	<i>Varanus brevicauda</i>	Short-tailed Pygmy Monitor						1							1																					
	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor	1		2			1		3																			2		1					
	<i>Varanus eremius</i>	Pygmy Desert Monitor																												4						
	<i>Varanus giganteus</i>	Perentie																							1											
	<i>Varanus gouldii</i>	Gould's Goanna	1																									1	1							

Family	Species	Common Name	Surveys		A															B															
			Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo			2	3	1			1																			1	5	1	5			1
	<i>Cacomantis pallidus</i>	Pallid Cuckoo	1			1				1																		1	3						2
Halcyonidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher	1			1																													1
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper	1		9																								3	13				2	
Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	Spotted Bowerbird					2																						4				4	1	
Maluridae	<i>Malurus leucopterus</i>	White-winged Fairy-wren								2	69				57													143			142			1	
	<i>Malurus lamberti</i>	Variiegated Fairy-wren							2																										
Acanthizidae	<i>Smicromis brevirostris</i>	Weebill					10	8	6																		350		5				71		
	<i>Gerygone fusca</i>	Western Gerygone																									17						1		
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill					10																												
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill			11	1		3																			30	2	1						1
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill	1	40	22	19	3	20	8		3																		37				2	1	
	<i>Acanthiza apicalis</i>	Inland Thornbill						8																					2						
	<i>Aphelocephala leucopsis</i>	Southern Whiteface			17	2		9	12																										
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote		1											2												188		1					4	
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater			1	3		2	4	1	1																		23	7			20	1	
	<i>Lichenostomus virescens</i>	Singing Honeyeater			4	4	3		20	1	13	1															1	1	2				6	1	
	<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater		1																															
	<i>Purnella albifrons</i>	White-fronted Honeyeater			2	8	2	33	17		6	40		81	99													1	3	3			2		
	<i>Manorina flavigula</i>	Yellow-throated Miner																									216	9	17				32	1	
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater			34	1	11	5	32	2	1	12															1	24	8				23		
	<i>Epthianura tricolor</i>	Crimson Chat				3		11	28	55	43		20															1	47	4	44		1	1	
	<i>Epthianura aurifrons</i>	Orange Chat																									8			14					

Family	Species	Common Name	Surveys		A															B																	
			Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
	<i>Sugomel niger</i>	Black Honeyeater	1																																		
	<i>Lichmera indistincta</i>	Brown Honeyeater		1					1																												
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler					34		22	2																		4									
Psophodidae	<i>Cinclosoma cinnamomeum</i>	Cinnamon Quail-thrush					1			2																											
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella					12																														
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike													3																					1	
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike			1	1					1			2	2												20	12	1					9	1		
	<i>Lalage sueurii</i>	White-winged Triller			2	7			1	1	7	11																									
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler			7	11	1		1	18																	7	12	2	2					6		
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush					1	4		1	1																										
	<i>Oreoica gutturalis</i>	Crested Bellbird			3	8	6		2	18	7	1	17															15	6						7		
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow			99	21	43		1		119																										
	<i>Artamus superciliosus</i>	White-browed Woodswallow		1																																	
	<i>Artamus cinereus</i>	Black-faced Woodswallow			3	5			1	1	16	9	23		43	1											1	8	37	27		5		18	1		
	<i>Cracticus torquatus</i>	Grey Butcherbird							1																		2	1	6		2		1	1			
	<i>Cracticus nigrogularis</i>	Pied Butcherbird			1	5		1	3			15		5	2												55	1	2	3			28	1			
	<i>Cracticus tibicen</i>	Australian Magpie	1																								31								1		
	<i>Strepera versicolor</i>	Grey Currawong	1				1																														
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail			1	7	4		1	7	2	1	3		2																				2	1	
Corvidae	<i>Corvus bennetti</i>	Little Crow			7	2									10												231	15	48	14		34		46	1		
	<i>Corvus orru</i>	Torresian Crow																									1		1		1						
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	1																								17								1		
Petroicidae	<i>Microeca fascinans</i>	Jacky Winter							3			1																									

Family	Species	Common Name	Surveys		A															B																		
			Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic	
	<i>Vespadelus regulus</i>	Southern Forest Bat																									2											
Dasyuridae	<i>Antechinomys laniger</i>	Kultarr		2	6	3				2	3																								1			
	<i>Ningau ridei</i>	Wongai Ningau		1	2	3	1		5	1	1		1	7															7	2	8	2	4					
	<i>Pseudantechinus woolleyae</i>	Woolley's False Antechinus					1																															
	<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart										1			4	7													3									
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart																									1			1								
	<i>Sminthopsis hirtipes</i>	Hairy-footed Dunnart											2	8			1											1			1							
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart			10				3	7	10	2				1													2			1						
	<i>Sminthopsis ooldea</i>	Ooldea Dunnart				2	2		2	2		1			1												1		2									
Macropodidae	<i>Osphranter robustus</i>	Euro	3	12	1		7			1	1			1												1	1			1	1		1					
	<i>Osphranter rufus</i>	Red Kangaroo	38	24	4				1	1	1	2		1	4											1	1			1	1		1	1	1			
Leporidae	<i>Oryctolagus cuniculus</i>	European Rabbit	3												1												1											
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	1				1																															
Equidae	<i>Equus caballus</i>	Domestic Horse								1																												
Muridae	<i>Mus musculus</i>	House Mouse							2	3		1	3			3	8											2	3					2				
	<i>Notomys alexis</i>	Spinifex Hopping Mouse				1		1			3			1	9		2													1	1							
	<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse	1	1	5	6	2		8	1	14	9	6	1	2	1												7	3		3					7		

A McKenzie, N. L., J. K. Rolfe, and K. Youngson. (1994) Vertebrate fauna In: The Biological Survey of the Eastern Goldfields of Western Australia Part 10, Sandstone-Sir Samuel and Laverton-Leonora Study Areas. *Records of the Western Australian Museum* Supplement No. 47:51-85.

B How, R. A. and Dell, J. (1992) Vertebrate fauna. In: The Biological Survey of the Eastern Goldfields of Western Australia Part 7. Duketon - Sir Samuel Study Area. *Records of the Western Australian Museum*; Supplement 40, 90-109.

Family	Species	Common Name	Surveys																																		
			A								B								C																		
			MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic				
	<i>Strophurus assimilis</i>	Goldfields Spiny-tailed Gecko																															1			1	
	<i>Strophurus ciliaris</i>	Spiny-tailed Gecko														2		1				1			2												
	<i>Strophurus strophurus</i>	Western Spiny-tailed Gecko																							7											4	
	<i>Strophurus wellingtonae</i>	Western Shield Spiny-tailed Gecko		1																															1		
Elapidae	<i>Brachyuropsis fasciolata</i>	Narrow-banded Burrowing Snake																				1															
	<i>Parasuta monachus</i>	Monk Snake										1				1		3															1		1		
	<i>Pseudechis butleri</i>	Spotted Mulga Snake										1																									
	<i>Simoselaps bertholdi</i>	Jan's Banded Snake																		1																	
	<i>Suta fasciata</i>	Rosen's Snake																								2											
Gekkonidae	<i>Gehyra variegata</i>	Tree Dtella	3	9	3	16	3	9	2		3	1						15	1	1	1		2	15	1				1		5	2					
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko		3		1						1						34					2	7										1	1		
	<i>Rhynchoedura ornata</i>	Western Beaked Gecko																				1			2	1								1			
Pygopodidae	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot																1			1	1															
Scincidae	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink		2								1			1								1	1													
	<i>Ctenopus calurus</i>	Blue-tailed Finesnout Ctenopus																			1																
	<i>Ctenopus greeri</i>	Spotted-necked Ctenopus																																			
	<i>Ctenopus helenae</i>	Clay-soil Ctenopus																																			
	<i>Ctenopus leonhardii</i>	Leonhardi's Ctenopus				1							5	4												2	5	9									
	<i>Ctenopus pantherinus</i>	Leopard Skink																			4																
	<i>Ctenopus quattuordecimlineatus</i>	Fourteen-lined Ctenopus																			11																
	<i>Ctenopus schomburgkii</i>	Schomburgk's Ctenopus	1									2	1	3								11		2	3		15	1									
	<i>Ctenopus severus</i>	Stern Ctenopus																6		1																	
	<i>Ctenopus uber</i>	Spotted Ctenopus														3		2					6	1	1												

Family	Species	Common Name	Surveys																																	
			A									B								C																
			MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic			
	<i>Egernia depressa</i>	Pygmy Spiny-tailed Skink					1														4	2														
	<i>Egernia formosa</i>	Goldfields Crevice-skink																						3												
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer														1	1														1	1				
	<i>Lerista desertorum</i>	Central Desert Robust Slider					1			1	1							6	6		2											5				
	<i>Lerista macropisthopus</i>	Unpatterned Robust Slider																						2												
	<i>Lerista muelleri</i>	Wood Mulch-slider																											1		2					
	<i>Lerista picturata</i>	Southern Robust Slider																						2												
	<i>Lerista sp.</i>						2			1	1							9	1			1			5											
	<i>Liopholis inornata</i>	Desert Skink																					1	1												
	<i>Liopholis striata</i>	Nocturnal Desert Skink																				2														
	<i>Menetia greyii</i>	Common Dwarf Skink	4									1	1									1		4		1						2				
	<i>Morethia butleri</i>	Woodland Morethia Skink		2		4	2	3	1	1	1	1			2			6						2	4											
Typhlopidae	<i>Anilius hamatus</i>	Pale-headed Blind Snake														1									1											
	<i>Anilius margaretae</i>	Buff-snouted Blind Snake																																		
	<i>Anilius waitii</i>	Waite's Blind Snake														2									1											
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor		1				1									1					6			2		1		1							
	<i>Varanus giganteus</i>	Perentie																							1											
	<i>Varanus gouldii</i>	Gould's Goanna																	1					2	2	1		1	1							
	<i>Varanus panoptes</i>	Yellow-spotted Monitor						1			1	1	1			2							1								1	4	2			
Birds																																				
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	1	1				1		1	1	1		2		1	5		2					1	2		1					1				
Megapodiidae	<i>Leipoa ocellata</i>	Malleefowl										1																								
Phasianidae	<i>Coturnix pectoralis</i>	Stubble Quail																1																		

Family	Species	Common Name	Surveys										A										B										C				
			MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic				
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	5	6		6	17	2	4			1						4		8				9	4												
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill	8	30	2	10	14	15	50			1			3	5	88		126		10	3	53	27													
	<i>Acanthiza apicalis</i>	Inland Thornbill	2					2	6			1					3		2	1	2																
	<i>Aphelocephala leucopsis</i>	Southern Whiteface				4		6	20			1			8	5		52		12		4															
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote					3					1			1	2																					
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater											2	2																							
	<i>Lichenostomus virescens</i>	Singing Honeyeater		4	2		1	1	1	1	1	1	3	11		3	2	2	3			1	8	4			7	6	2								
	<i>Lichenostomus plumulus</i>	Grey-fronted Honeyeater					7							56			3		2																		
	<i>Purnella albifrons</i>	White-fronted Honeyeater	80	100	12	40	8	1	10	6	6	1	1	3		1	4			7	6		2	16													
	<i>Manorina flavigula</i>	Yellow-throated Miner	10	5	7		2	10		2	2	1		10	15	98	1	13		41	3		21	109				1	12		6						
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	25	20		1	6	2	1	1	2	1		11	2	2	5	8		10	6	4	2	9	7				1	2							
	<i>Anthochaera carunculata</i>	Red Wattlebird										3								2		3			1												
	<i>Conopophila whitei</i>	Grey Honeyeater													18							17			1												
	<i>Epthianura tricolor</i>	Crimson Chat											18	154	24		6			29			75														
	<i>Epthianura aurifrons</i>	Orange Chat											5																								
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey-crowned Babbler																													12						
	<i>Pomatostomus superciliosus</i>	White-browed Babbler										1			3						3	2															
Psophodidae	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush											2							3											1						
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella													2	6																					
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike											4		31	2	3																				
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike		2		1						1		4	5	6	1	9		10			7	3			1										
	<i>Lalage sueurii</i>	White-winged Triller													3	9				34		6	39	2													
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler					1	1	1	1		1						8				1															

Family	Species	Common Name	Surveys											A											B											C				
			MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic							
Estrildidae	<i>Taeniopygia guttata</i>	Zebra Finch										1	9	12		4	5								36								6							
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit			4							1	7	18		16	1	36								2						4	1							
Mammals																																								
Bovidae	<i>Capra hircus</i>	Goat									1			1				1																						
	<i>Ovis aries</i>	Sheep													1			1	1	1						1	1													
Camelidae	<i>Camelus dromedarius</i>	Dromedary										1																												
Canidae	<i>Canis familiaris</i>	Dog										1																												
	<i>Canis lupus</i>	Dingo									1																													
	<i>Vulpes vulpes</i>	Red Fox									1							1	1	1	1																			
Felidae	<i>Felis catus</i>	House Cat										1																												
Molossidae	<i>Austronomus australis</i>	White-striped Free-tail Bat																																						
	<i>Ozimops planiceps</i>	Southern Free-tail Bat																																						
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat													1																									
	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat													4	9																								
	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat													6																									
Dasyuridae	<i>Ningai ridei</i>	Wongai Ningai																5																						
	<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart	1	1								5							7						1		1													
	<i>Sminthopsis fuliginosus</i>	Grey-bellied Dunnart																																						
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart										1		2			1	1	1	1	1	1	2																	
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart																													2	2								
Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo										1																												
	<i>Osphranter robustus</i>	Euro			1							1					1	1	1	1	1	1	1																	
	<i>Osphranter robustus erubescens</i>	Euro																															1		3					

Family	Species	Common Name	Surveys											A										B										C				
			MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic					
	<i>Osphranter rufus</i>	Red Kangaroo			5						6	1	1	1	1	1				1			1	1														
Leporidae	<i>Oryctolagus cuniculus</i>	European Rabbit				1						1	1				1						2	1								1						
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna		1								1																			1	3	1					
Equidae	<i>Equus asinus</i>	Donkey										1																										
Muridae	<i>Mus musculus</i>	House Mouse	1	2	2	1	2	2					2				1	3					2															
	<i>Notomys alexis</i>	Spinifex Hopping Mouse	7						2													2		1														
	<i>Notomys mitchellii</i>	Mitchell's Hopping Mouse																				1																
	<i>Pseudomys bolami</i>	Bolam's Mouse																																				
	<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse						1			4		1			1		7		2				1														

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B Dell, J. and How, R. A. (1988) Vertebrate fauna. In: The biological survey of the Eastern Goldfields of Western Australia, Part 5, Edjulina - Menzies Study Area. *Records of the Western Australian Museum*, Supplement No 31, 38-77.

C Biota Environmental Sciences (2004) *Cosmos Nickel Mine Extension Fauna Survey*. Unpublished report for Sir Samuel Mines NL and URS, Perth.

Family	Species	Common Name	Surveys													B		C																			
			Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Opportunistic	Granny Deeps birds	Agnew Gold	BKBO1	BKBO4	BKBO5	BKBO7	BKBO9	BKBS04	BKBO2	BKBO3	BKBO12	BKBO8	BKBO6	BKBO10	BKBO11	BKBS01	BKBHarp01	BKBS03			
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor		2		1	3	1	1			1		2						1	3	1		1					1	3							
	<i>Varanus gouldii</i>	Gould's Goanna															1																				
	<i>Varanus panoptes</i>	Yellow-spotted Monitor	4		7		3	2	2			4	2		6							2					2		1								
Birds																																					
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu															3	1			1																
Anatidae	<i>Biziura lobata</i>	Musk Duck															2																				
	<i>Tadorna tadornoides</i>	Australian Shelduck																1																			
	<i>Chenonetta jubata</i>	Australian Wood Duck																																			
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck																																			
	<i>Anas gracilis</i>	Grey Teal																																			
	<i>Anas superciliosa</i>	Pacific Black Duck															13	1																			
	<i>Aythya australis</i>	Hardhead																																			
Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe																																			
	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe																																			
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing																																			
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon																1	6			2						9									
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar																																			
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron																																			
Accipitridae	<i>Elanus axillaris</i>	Black-shouldered Kite																																			
	<i>Haliastur sphenurus</i>	Whistling Kite																																			
	<i>Accipiter fasciatus</i>	Brown Goshawk																																			
	<i>Aquila audax</i>	Wedge-tailed Eagle																																			

Family	Species	Common Name	Surveys													B	C																					
			Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Opportunistic	Granny Deeps birds	Agnew Gold	BKBO1	BKBO4	BKBO5	BKBO7	BKBO9	BKBS04	BKBO2	BKBO3	BKBO12	BKBO8	BKBO6	BKBO10	BKBO11	BKBS01	BKBHarp01	BKBS03				
	<i>Aphelocephala leucopsis</i>	Southern Whiteface														13	1	1		1		5		4														
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote														1																						
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater														2				4																		
	<i>Lichenostomus virescens</i>	Singing Honeyeater														68	1	8	9	7	2	1				2	4	3	1									
	<i>Lichenostomus flavicollis</i>	Yellow-throated Honeyeater																3	4	3	15	4		4		5	9		3	4								
	<i>Manorina flavigula</i>	Yellow-throated Miner													3	38	1																					
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater														44	1			2	4			2														
	<i>Epthianura tricolor</i>	Crimson Chat														4				9		1							1									
	<i>Epthianura albifrons</i>	White-fronted Chat															1																					
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler														14	1					4																
Psophodidae	<i>Cinclosoma castanotum</i>	Chestnut Quail-thrush																3																				
	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush																		2																		
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella																	2																			
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike													2	5												2										
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike														7				1								2		1								
	<i>Lalage sueurii</i>	White-winged Triller													4		1																					
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler														22	1			1	3		6		1			2										
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush														3	1							1														
	<i>Oreoica gutturalis</i>	Crested Bellbird														1	45	1	6	1	4	2	2		6		1	5	1	4	1							
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow														4	23	1																				
	<i>Artamus cinereus</i>	Black-faced Woodswallow														6	1	5		9	2	2		1			7	7										
	<i>Artamus minor</i>	Little Woodswallow														2	1																					

Family	Species	Common Name	Surveys													B	C																		
			Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Opportunistic	Granny Deeps birds	Agnew Gold	BKBO1	BKBO4	BKBO5	BKBO7	BKBO9	BKBS04	BKBO2	BKBO3	BKBO12	BKBO8	BKBO6	BKBO10	BKBO11	BKBS01	BKBHarp01	BKBS03	
	<i>Vespadelus finlaysoni</i>	Finlayson's Cave Bat															1																		
Dasyuridae	<i>Antechinomys laniger</i>	Kultarr	2	1			3	3	3	2		2			1																				
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart	1	1	3	7	5	4	13	3	5	3		1	1																				
	<i>Sminthopsis hirtipes</i>	Hairy-footed Dunnart				1																													
	<i>Antechinomys longicaudatus</i>	Long-tailed Dunnart					1	1							1																				
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart	2	3		2	1	1	1	1	1	5	5	3	2						3						1	1	2	7					
	<i>Sminthopsis ooldea</i>	Ooldea Dunnart																	1																
Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo															1																		
	<i>Osphranter robustus</i>	Euro															1				1							1	1					1	
	<i>Osphranter rufus</i>	Red Kangaroo															1	4	2		4	1		2				3							
Leporidae	<i>Oryctolagus cuniculus</i>	European Rabbit															1																		
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna															1					1							1	2					1
Muridae	<i>Mus musculus</i>	House Mouse						1					5																						
	<i>Notomys alexis</i>	Spinifex Hopping Mouse	3																																
	<i>Pseudomys desertor</i>	Desert Mouse																	1																
	<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse	1	1	1	3					1	2	2	5	6			1		1				1						1					

A Terrestrial Ecosystems (2011a) *Level 2 Fauna Risk Assessment for Granny Deeps Project Area*. Unpublished report for Barrick Gold Corporation, Perth.

B ENV Australia (2008) *Agnew Prospects Fauna Assessment*. Unpublished report for Agnew Gold Mining Company Pty Limited, Perth.

C Biota Environmental Sciences (2007) *Bannockburn Fauna Habitat and Assemblage Survey*. Unpublished report for Jubilee Mines NL, Perth.

Family	Species	Common Name	Survey																																	
			A																																	
			REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3	REG Mulga woodland 2	REG Mulga woodland 3	REG Opportunistic	REG Open spinifex	REG Mulga woodland	REG Eucalypt over spinifex	REG Shrubs over spinifex	REG Mulga thicket 2	REG Turkeys	REG Mulga thicket 1	REG Dogbolter					
	<i>Rhipidura leucophrys</i>	Willie Wagtail																						3		4										
Corvidae	<i>Corvus orru</i>	Torresian Crow																								3										
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark																						7	4			3		3						
Petroicidae	<i>Microeca fascians</i>	Jacky Winter																								1	1									
	<i>Petroica goodenovii</i>	Red-capped Robin																										1								
	<i>Melanodryas cucullata</i>	Hooded Robin																									1						1			
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit																															1			
Mammals																																				
Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail Bat				1																														
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat							1			1		1																						
	<i>Chalinolobus morio</i>	Chocolate Wattled Bat				1						1		1																						
	<i>Mormopterus sp.</i>	Free-tail Bat Sp.				1			1			1		1																						
	<i>Nyctophilus sp.</i>	Long-eared Bat Sp.							1	1		1		1																						
	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat				1			1			1					1																			
Dasyuridae	<i>Dasyercus cristicauda</i>	Crest-tailed Mulgara		1																																
	<i>Ningai ridei</i>	Wongai Ningai	2	3	1	2	1	3	5	1	2				6	2	1		1	2																
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart	1			2						1	1	2	1	5	5	3	3	4	2	3														
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart		1								2	1					1																		
Muridae	<i>Mus musculus</i>	House Mouse	7	1	3		2	1		1																										
	<i>Notomys alexis</i>	Spinifex Hopping Mouse		1			1		4				1																							

Family	Species	Common Name	Survey																													
			REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3	REG Mulga woodland 2	REG Mulga woodland 3	REG Opportunistic	REG Open spinifex	REG Mulga woodland	REG Eucalypt over spinifex	REG Shrubs over spinifex	REG Mulga thicket 2	REG Turkeys	REG Mulga thicket 1	REG Dogbolter	
	<i>Pseudomys desertor</i>	Desert Mouse	1				1	3	1								1	1	1													
	<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse	1		2					1				2							2											

A Coffey Environments (2008) *Level 2 Fauna Assessment for Moolart Well, Dogbolter and Erlistoun*. Unpublished report for Regis Resources, Perth.

Family	Species	Common Name	Surveys																								
			A								B																
			Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Opportunists	Birds	
Reptiles																											
Agamidae	<i>Ctenophorus reticulatus</i>	Western Netted Dragon	1																								
	<i>Diporiphora amphiboluroides</i>	Mulga Dragon										1	2			1	1						1	1			
	<i>Pogona minor</i>	Dwarf Bearded Dragon		1																1							
	<i>Tympanocryptis cephalus</i>	Pebble Dragon								2			2	1													
Boidae	<i>Antaresia stimsoni</i>	Stimson's Python			1																						
Carphodactylidae	<i>Underwoodisaurus milii</i>	Barking Gecko		1												1											
Diplodactylidae	<i>Diplodactylus pulcher</i>	Fine-faced Gecko				1				1	1	3				5	3	2	3	7	4	6	3	3			
	<i>Strophurus assimilis</i>	Goldfields Spiny-tailed Gecko		1																							
	<i>Strophurus wellingtonae</i>	Western Shield Spiny-tailed Gecko								1	2		3	1			3	4	5	1		2	4	1			
Elapidae	<i>Parasuta monachus</i>	Monk Snake																		1							
Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko	1				1			1				1	7	1	1		3	7		7	1	1			
Pygopodidae	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot								1																	
Scincidae	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink		1																							
	<i>Cryptoblepharus plagiocephalus</i>	Peron's Snake-eyed Skink																	3				3				
	<i>Ctenotus schomburgkii</i>	Schomburgk's Ctenotus									1																
	<i>Ctenotus uber</i>	Spotted Ctenotus				1				3	1		8	4		2				1		1	2	2			
	<i>Egernia depressa</i>	Pygmy Spiny-tailed Skink			1		1	1	1				1				1				1	1		3			
	<i>Egernia formosa</i>	Goldfields Crevice-skink			1					1	1	1					2	2	4				1				
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer	1	1								2				1							1				
	<i>Lerista desertorum</i>	Central Desert Robust Slider		1												1		6	2	5		1	2				
	<i>Lerista muelleri</i>	Wood Mulch-slider								2						5				1	1		5	4			
	<i>Lerista sp.</i>					1	1		1																		

Family	Species	Common Name	Surveys															Opportunist	Birds								
			A							B																	
			Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15			
	<i>Liopholis striata</i>	Nocturnal Desert Skink					1																				
	<i>Menetia greyii</i>	Common Dwarf Skink	1	1		1										1							1				
	<i>Morethia butleri</i>	Woodland Morethia Skink								1							2	2		2	1	1	1	1			
Typhlopidae	<i>Anilius australis</i>	Austral Blind Snake																							1		
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor		1						4		3		3			2		1	1			1				
	<i>Varanus panoptes</i>	Yellow-spotted Monitor													1		1						1				
	<i>Varanus panoptes rubidus</i>	Yellow-spotted Monitor	1	1	1	1	1	1	1																		
Cheluidae	<i>Chelodina steindachneri</i>	Steindachner's Turtle	1																								
Birds																											
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	1	1	1	1	1	1	1																	1	
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing	1	1		1	1		1																	1	3
	<i>Ocyphaps lophotes</i>	Crested Pigeon	1	1	1	1	1	1																		1	14
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar																									1
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar						1																			
Otididae	<i>Ardeotis australis</i>	Australian Bustard		1																							
Accipitridae	<i>Accipiter fasciatus</i>	Brown Goshawk	1																								
	<i>Aquila audax</i>	Wedge-tailed Eagle						1																			
	<i>Hieraetus morphnoides</i>	Little Eagle		1																							
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel		1	1	1		1	1																	1	
	<i>Falco berigora</i>	Brown Falcon	1	1			1																				
Charadriidae	<i>Euseyonis melanops</i>	Black-fronted Dotterel	1																								
	<i>Vanellus tricolor</i>	Banded Lapwing					1																				
Turnicidae	<i>Turnix velox</i>	Little Button-quail							1																		
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah	1	1	1	1	1	1																	1	1	

Family	Species	Common Name	Surveys															Opportunist	Birds								
			A							B																	
			Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15			
	<i>Lichenostomus virescens</i>	Singing Honeyeater	1	1	1	1	1	1	1																		24
	<i>Purnella albifrons</i>	White-fronted Honeyeater	1	1					1																		
	<i>Manorina flavigula</i>	Yellow-throated Miner	1	1	1	1	1	1	1																1	10	
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	1	1		1	1	1	1																		13
	<i>Epthianura tricolor</i>	Crimson Chat		1		1	1	1	1																		
	<i>Sugomel niger</i>	Black Honeyeater							1																		
	<i>Lichmera indistincta</i>	Brown Honeyeater		1																							
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler	1				1																		1	8	
Psophodidae	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush				1	1	1	1																		
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella			1																						
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike	1	1				1																			
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	1	1		1		1	1																		2
	<i>Lalage sueurii</i>	White-winged Triller		1			1																				
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler	1	1	1	1	1	1	1																		22
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	1	1	1	1	1	1	1																		13
	<i>Oreoica gutturalis</i>	Crested Bellbird	1	1	1	1	1	1	1																		40
Artamidae	<i>Artamus cinereus</i>	Black-faced Woodswallow	1	1		1		1	1																2	3	
	<i>Cracticus torquatus</i>	Grey Butcherbird	1	1	1	1	1	1	1																		
	<i>Cracticus nigrogularis</i>	Pied Butcherbird	1	1	1	1	1	1	1																1	2	
	<i>Cracticus tibicen</i>	Australian Magpie	1		1		1																				
	<i>Strepera versicolor</i>	Grey Currawong	1																								
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail	1	1			1		1																		
Corvidae	<i>Corvus bennetti</i>	Little Crow			1	1	1		1																		14
	<i>Corvus orru</i>	Torresian Crow	1	1	1		1	1	1																1		

Family	Species	Common Name	Surveys		A								B														
			Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Opportunist	Birds	
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	1	1																						1	
Petroicidae	<i>Petroica goodenovii</i>	Red-capped Robin	1	1	1	1	1	1	1																		14
	<i>Melanodryas cucullata</i>	Hooded Robin	1	1	1		1	1	1																		3
Megaluridae	<i>Cincloramphus mathewsi</i>	Rufous Songlark		1				1																			
Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow	1				1	1	1																		
	<i>Petrochelidon ariel</i>	Fairy Martin							1																		
	<i>Hirundo nigricans</i>	Tree Martin						1	1																		
Estrildidae	<i>Taeniopygia guttata</i>	Zebra Finch	1	1	1	1		1	1																		
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit		1				1																		1	
Mammals																											
Bovidae	<i>Bos taurus</i>	Cow	1	1	1	1	1	1	1																		
	<i>Capra hircus</i>	Goat	1	1																							
Canidae	<i>Canis lupus</i>	Dingo	1																								
	<i>Vulpes vulpes</i>	Red Fox	1																								
Felidae	<i>Felis catus</i>	House Cat	1	1																							
Vespertilionidae	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat																								4	
Dasyuridae	<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart		1																							
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart								1	5		1	4	4	2		1		1	1	3	2				
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart				1					1	1			1	3	1	1									
Macropodidae	<i>Osphranter robustus</i>	Euro			1																						
	<i>Osphranter rufus</i>	Red Kangaroo	1	1				1																			
Leporidae	<i>Oryctolagus cuniculus</i>	European Rabbit	1			1																					
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna			1																						
Equidae	<i>Equus caballus</i>	Domestic Horse	1					1																			

Family	Species	Common Name	Survey										
			A										
			TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HB1	
Frogs													
Limnodynastidae	<i>Neobatrachus wilsmorei</i>	Goldfields Bullfrog	3	1									
Reptiles													
Agamidae	<i>Ctenophorus inermis</i>	Military Dragon			1								
	<i>Ctenophorus maculatus</i>	Spotted Dragon				2							
	<i>Ctenophorus reticulatus</i>	Western Netted Dragon					1						
	<i>Ctenophorus salinarum</i>	Saltpan Dragon				2		1					
	<i>Pogona minor</i>	Dwarf Bearded Dragon	1		2				2	1	1		
Carphodactylidae	<i>Nephrurus vertebralis</i>	Midline Knob-tail					1		1				
Diplodactylidae	<i>Lucasium squarrosum</i>	Mottled Ground Gecko	2	1	5	2	1					2	
	<i>Strophurus elderi</i>	Jewelled Gecko		1					1	2			
Elapidae	<i>Simoselaps bertholdi</i>	Jan's Banded Snake	1										
Gekkonidae	<i>Gehyra xenopus</i>	Crocodile-faced Dtella		1			1			1	1		
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko	1				2				2	3	
Pygopodidae	<i>Delma nasuta</i>	Sharp-snouted Delma									1		
	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot									1		
Scincidae	<i>Ctenotus helenae</i>	Clay-soil Ctenotus		2					2	1			
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus	6	3	3	6	7				2	4	
	<i>Lerista desertorum</i>	Central Desert Robust Slider	4	1	1				1	2	1		
	<i>Lerista kingi</i>	King's Slider					1						
	<i>Menetia greyii</i>	Common Dwarf Skink				1	1						
Typhlopidae	<i>Anilius hamatus</i>	Pale-headed Blind Snake					1				1		
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor			1								
	<i>Varanus gouldii</i>	Gould's Goanna					1		1				

Family	Species	Common Name	Survey									
			A									
			TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HB1
Mammals												
Dasyuridae	<i>Ningai ridei</i>	Wongai Ningai							1			
Muridae	<i>Notomys alexis</i>	Spinifex Hopping Mouse							1			

A Dunlop, J.N. and Payne, W. (1999) *A vertebrate fauna survey of the North Lake Carey region*, Unpublished report for Placer (Granny Smith) and Homestake.

Family	Species	Common name	Survey																	Obs and Camera		
			11	13	6	9	8	15	10	12	14	7	19	17	16	20	1	5	18		3	4
Amphibian																						
Limnodynastidae	<i>Neobatrachus kunapalari</i>	Wheatbelt Frog	2	1	1																	
	<i>Neobatrachus sudelli</i>	Sudell's Frog				1	2	1	1													
	<i>Neobatrachus sutor</i>	Shoemaker Frog	4	2	3		1			6	2	1										
Pelodryadidae	<i>Cyclorana maini</i>	Main's Frog		1		1		1		1												
Reptile																						
Agamidae	<i>Ctenophorus scutulatus</i>	Lozenge-marked Dragon					2		1			2	1	3	2	2					3	
	<i>Diporiphora amphiboluroides</i>	Mulga Dragon	2				2	2		1	1	1	1	2		3	1	1	3			
	<i>Pogona minor</i>	Western Bearded Dragon						1														
	<i>Tympanocryptis pseudopsephos</i>	Goldfields Pebble-mimic Dragon	1						3	1								1				
Carphodactylidae	<i>Nephrurus vertebralis</i>	Midline Knob-tail			5		1		1						1							
	<i>Underwoodisaurus milii</i>	Barking Gecko			2	1										1			1	2		
Diplodactylidae	<i>Diplodactylus conspicillatus</i>	Fat-tailed Gecko		20			1	6		10	10		3		6	4						
	<i>Diplodactylus pulcher</i>	Beautiful Gecko	1	16	1	6	3	8	7	16	19	2	1	5	3	6	6	4	5	1	5	3
	<i>Rhynchoedura ornata</i>	Beaked Gecko			3	3		1		1	1		1				1	1				
	<i>Strophurus wellingtonae</i>	Western Shield Spiny-tailed Gecko	1		1	2	3		1			1	1		1							
Elapidae	<i>Brachyuropsis semifasciata</i>	Half-girdled Snake				1				1												
	<i>Furina ornata</i>	Orange-naped Snake				1																
	<i>Suta monachus</i>	Hooded Snake	1			2													1			
	<i>Pseudonaja modesta</i>	Ringed Brown Snake		1					1				2								14	
	<i>Suta fasciata</i>	Rosen's Snake												1								
Gekkonidae	<i>Gehyra variegata</i>	Variiegated Gehyra	3	3	5	9	2	2	3	4	3	1	5	4	3	2	4	2	2	7	5	3
	<i>Heteronotia binoei</i>	Bynoe's Gecko	4	3	2	2	2	1	3	5	7	1				2		1		1	2	3
Pygopodidae	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot		1				2	1		1			1								
Pythonidae	<i>Antaresia stimsoni</i>	Stimson's Python								1												
Scincidae	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink				1																
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus	1	1	4			1				1			2							
	<i>Ctenotus schomburgkii</i>	Barred Wedgesnout Ctenotus			16	13	3					24	1	1	1			1			1	
	<i>Ctenotus uber</i>	Spotted Ctenotus	8	6	7	12	7	6	4	5	3	11	11	12	6	7	3	7	9	1		
	<i>Egernia depressa</i>	Southern Pygmy Spiny-tailed Skink	2	3	6	10	2	1	4	8	3	12	2		5	1	1	3	6	1	8	4
	<i>Egernia formosa</i>	Goldfields Crevice Skink	3	5	2	13	3	8	3	5	8	1	3		1		1		2	3	4	
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand-swimmer	3					1	2	5					1		2			4	2	1
	<i>Lerista desertorum</i>	Central Desert Robust Slider	1	9	3	3	1	2			2	1	4		2	1				1		
	<i>Lerista kingi</i>	King's Slider		2	2	2		1				4	6	7	4	3	2	2	1		1	1
	<i>Menetia greyii</i>	Common Dwarf Skink		4	1	4						2	1	3	1	1	6	3	1	6	8	4
	<i>Morethia butleri</i>	Woodland Morethia Skink		3				3	2	13	4		1					1				

Family	Species	Common name	Survey																	Obs and Camera		
			11	13	6	9	8	15	10	12	14	7	19	17	16	20	1	5	18		3	4
Typhlopidae	<i>Anilius hamatus</i>	Pale-headed Blind Snake	2			1	2	2	1	2	1		1	1	1	1			1	2		
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor	3		1	1	2		1	5	3		1	2	2	1	5	4		1	1	
	<i>Varanus panoptes</i>	Yellow-spotted Monitor	1				1	3		1	2	1		2			1	3				7
Birds																						
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu																				
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing																				3
	<i>Ocyphaps lophotes</i>	Crested Pigeon																				2
Cuculidae	<i>Chrysococcyx osculans</i>	Black-eared Cuckoo																				2
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar																				3
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar																				1
Accipitridae	<i>Aquila audax</i>	Wedge-tailed Eagle																				2
	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk																				1
Alcedinidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher																				1
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater																				5
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel																				
	<i>Falco longipennis</i>	Australian Hobby																				1
	<i>Falco berigora</i>	Brown Falcon																				1
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah																				2
Psittaculidae	<i>Neopsephotus bourkii</i>	Bourke's Parrot																				1
	<i>Barnardius zonarius</i>	Australian Ringneck																				4
	<i>Psephotus varius</i>	Mulga Parrot																				1
	<i>Melopsittacus undulatus</i>	Budgerigar																				1
Ptilonorhynchidae	<i>Chlamydera guttata</i>	Western Bowerbird																				1
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper																				9
Maluridae	<i>Malurus assimilis</i>	Purple-backed Fairywren																				
	<i>Malurus splendens</i>	Splendid Fairywren																				1
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater																				1
	<i>Purnella albifrons</i>	White-fronted Honeyeater																				1
	<i>Manorina flavigula</i>	Yellow-throated Miner																				2
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater																				32
	<i>Gavicalis virescens</i>	Singing Honeyeater																				67
	<i>Lichmera indistincta</i>	Brown Honeyeater																				1
Acanthizidae	<i>Pyrrholaemus brunneus</i>	Redthroat																				14
	<i>Acanthiza apicalis</i>	Inland Thornbill																				17
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill																				3
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill																				24
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill																				13

Family	Species	Common name	Survey																	Obs and Camera			
			11	13	6	9	8	15	10	12	14	7	19	17	16	20	1	5	18		3	4	2
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey-crowned Babbler																					2
	<i>Pomatostomus superciliosus</i>	White-browed Babbler																					4
Cinclosomatidae	<i>Cinclosoma castanotum</i>	Chestnut Quail-thrush																					3
	<i>Cinclosoma clarum</i>	Copperback Quail-thrush																					4
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckooshrike																					9
	<i>Lalage tricolor</i>	White-winged Triller																					1
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella																					2
Oreoiidae	<i>Oreoica gutturalis</i>	Crested Bellbird																					
Pachycephalidae	<i>Colluricincla harmonica</i>	Grey Shrikethrush																					17
	<i>Pachycephala rufiventris</i>	Rufous Whistler																					55
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow																					1
	<i>Artamus cinereus</i>	Black-faced Woodswallow																					2
	<i>Cracticus torquatus</i>	Grey Butcherbird																					4
	<i>Gymnorhina tibicen</i>	Australian Magpie																					3
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail																					13
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark																					1
Corvidae	<i>Corvus orru</i>	Torresian Crow																					6
	<i>Corvus coronoides</i>	Australian Raven																					
Petroicidae	<i>Petroica goodenovii</i>	Red-capped Robin																					36
	<i>Melanodryas cucullata</i>	Hooded Robin																					12
Locustellidae	<i>Cincloramphus mathewsi</i>	Rufous Songlark																					1
Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow																					1
Dicaeidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird																					1
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit																					1
Mammals																							
Bovidae	<i>Bos taurus</i>	Cow																					14
Canidae	<i>Canis lupus</i>	Dingo																					2
Felidae	<i>Felis catus</i>	Cat																					1
Vespertilionidae	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat																					1
Dasyuridae	<i>Antechinomys laniger</i>	Kultarr			1																		1
	<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart	1																				
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart	2	8	9	6		7	1	2	4	7	5	2	8	4	3		10	7	14		
	<i>Antechinomys longicaudatus</i>	Long-tailed Dunnart												1									
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart	2	2		1	2	13	2	1		6	5	2	3	7	18	4	12	16	2		
	<i>Sminthopsis ooldea</i>	Ooldea Dunnart	1	2												1							
	<i>Sminthopsis youngsoni</i>	Lesser Hairy-footed Dunnart											2										
Macropodidae	<i>Osphranter robustus</i>	Euro																					

Family	Species	Common name	Survey																	Obs and Camera			
			11	13	6	9	8	15	10	12	14	7	19	17	16	20	1	5	18		3	4	2
	<i>Osphranter rufus</i>	Red Kangaroo																					
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit																					
Muridae	<i>Notomys alexis</i>	Spinifex Hopping Mouse			1																		
	<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse	1	3		3		2	1		5	1	3	2			1	1	1	3	1	2	1

A Terrestrial Ecosystems (2023a) Detailed Vertebrate Fauna Survey and Assessment for Regis Tenements, Unpublished report for Regis Resources, Perth.

Appendix C. Definitions of Significant Fauna under the WA Biodiversity Conservation Act 2016 and Priority Species

**Basic Vertebrate Fauna Survey and Risk Assessment
Palliards Project Area**



APPENDIX C

DEFINITIONS OF SIGNIFICANT FAUNA UNDER THE WA BIODIVERSITY CONSERVATION ACT 2016

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 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

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

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

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

CR Critically endangered species

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

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

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).

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 birds protected under an international agreement

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 dependant fauna)

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

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

OS Other specially protected species

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

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

P Priority species

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

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

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

P1 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.

P2 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.

P3 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.

P4 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.

Appendix D.

Rapid habitat assessment

Basic Vertebrate Fauna Survey and Risk Assessment
Palliards Project Area



Date: 10/06/2023

Habitat Assessment #: 1

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 427626 mE

Northing: 6935993 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 2

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437566 mE

Northing: 6893609 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 3

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437834 mE

Northing: 6893621 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 4

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438089 mE

Northing: 6893625 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 5

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438391 mE

Northing: 6893618 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 6

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438666 mE

Northing: 6893588 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 7

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438750 mE

Northing: 6893332 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 8

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438940 mE

Northing: 6893339 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 9

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438469 mE

Northing: 6893312 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 10

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438190 mE

Northing: 6893310 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 11

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437903 mE

Northing: 6893296 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 12

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437681 mE

Northing: 6893284 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 13

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437572 mE

Northing: 6893298 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 14

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437584 mE

Northing: 6893025 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 15

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437826 mE

Northing: 6893043 mN

Fire History: < 5 years

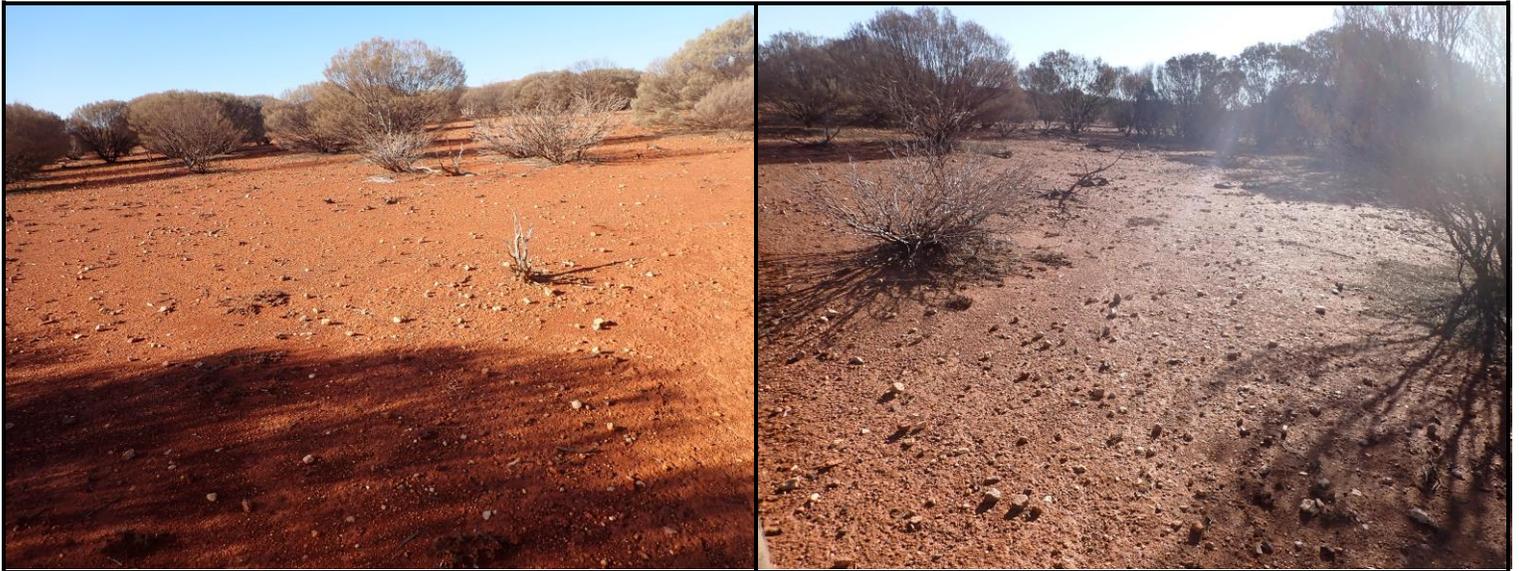
Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 16

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438142 mE

Northing: 6893036 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 17

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438152 mE

Northing: 6892957 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 18

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438383 mE

Northing: 6893020 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 19

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438630 mE

Northing: 6893028 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Sparse Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 20

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438890 mE

Northing: 6893025 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 21

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438876 mE

Northing: 6892713 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 22

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438626 mE

Northing: 6892714 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 23

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438411 mE

Northing: 6892689 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 24

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438177 mE

Northing: 6892680 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 25

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437962 mE

Northing: 6892684 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 26

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437727 mE

Northing: 6892726 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 27

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437617 mE

Northing: 6892736 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Degraded

Surface: Sand



Date: 10/06/2023

Habitat Assessment #: 28

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437548 mE

Northing: 6893965 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Cobbles



Date: 10/06/2023

Habitat Assessment #: 29

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437809 mE

Northing: 6893953 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 30

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438053 mE

Northing: 6893945 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 31

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438292 mE

Northing: 6893959 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 32

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438580 mE

Northing: 6893944 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 33

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438712 mE

Northing: 6893910 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 34

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438881 mE

Northing: 6894239 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Degraded

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 35

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438633 mE

Northing: 6894249 mN

Fire History: < 5 years

Landform: Drainage

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles



Date: 10/06/2023

Habitat Assessment #: 36

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438386 mE

Northing: 6894226 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 37

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438141 mE

Northing: 6894238 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 38

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437912 mE

Northing: 6894256 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 39

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437667 mE

Northing: 6894244 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 40

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437531 mE

Northing: 6894253 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 41

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437525 mE

Northing: 6894540 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 42

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437779 mE

Northing: 6894570 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 43

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438058 mE

Northing: 6894583 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 44

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438327 mE

Northing: 6894579 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 45

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438559 mE

Northing: 6894584 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Sparse Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 46

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438852 mE

Northing: 6894555 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 47

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438868 mE

Northing: 6894804 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Sparse Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 48

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438616 mE

Northing: 6894808 mN

Fire History: < 5 years

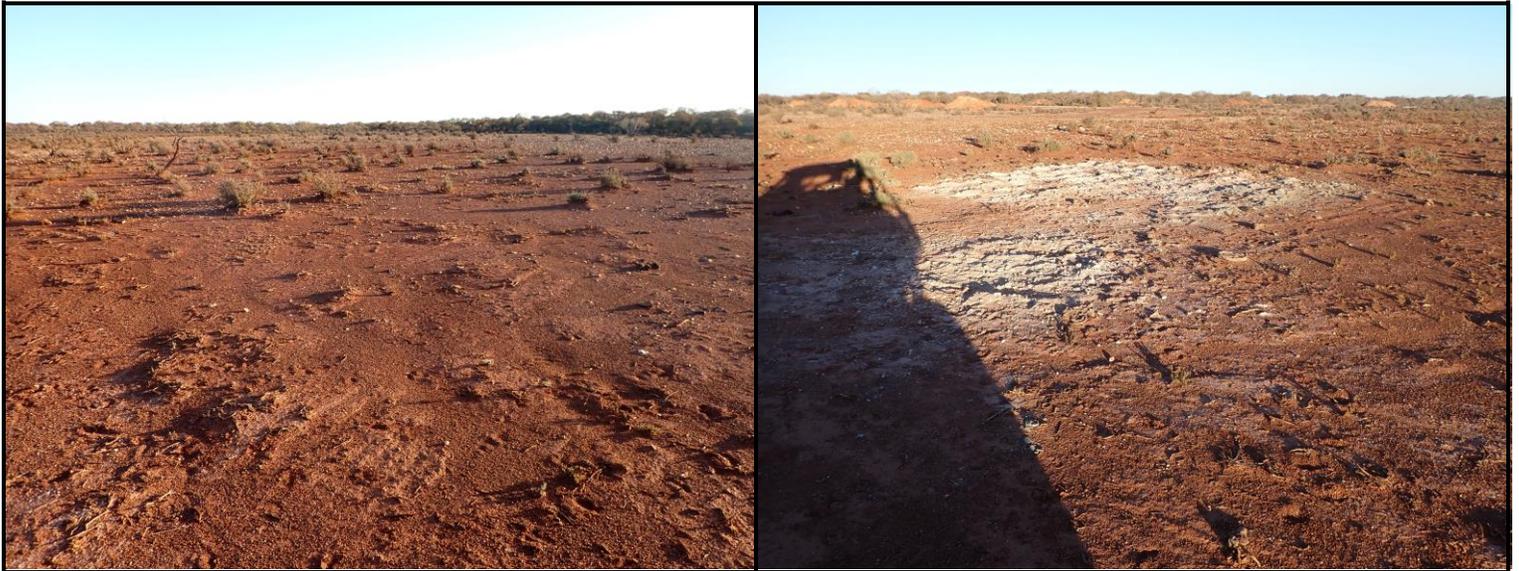
Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Sparse Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 49

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438403 mE

Northing: 6894867 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 10/06/2023

Habitat Assessment #: 50

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438130 mE

Northing: 6894905 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 51

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437879 mE

Northing: 6894896 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 52

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437630 mE

Northing: 6894883 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 10/06/2023

Habitat Assessment #: 53

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437510 mE

Northing: 6894880 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 54

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437579 mE

Northing: 6895140 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 55

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437821 mE

Northing: 6895135 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 56

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438043 mE

Northing: 6895154 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 57

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438295 mE

Northing: 6895152 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 58

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438524 mE

Northing: 6895148 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Sparse Mulga Woodland

Habitat Quality: Degraded

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 59

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438726 mE

Northing: 6895153 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Sparse Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 60

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438838 mE

Northing: 6895121 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 61

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438748 mE

Northing: 6895448 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 62

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438523 mE

Northing: 6895452 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 63

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438313 mE

Northing: 6895422 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 64

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438092 mE

Northing: 6895464 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 65

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437891 mE

Northing: 6895448 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 66

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437685 mE

Northing: 6895459 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 67

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437616 mE

Northing: 6895455 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 68

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437569 mE

Northing: 6895747 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 69

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437714 mE

Northing: 6895739 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 70

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438002 mE

Northing: 6895774 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 71

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438230 mE

Northing: 6895756 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 72

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438449 mE

Northing: 6895777 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 73

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438799 mE

Northing: 6895765 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 74

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438808 mE

Northing: 6896029 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 75

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438578 mE

Northing: 6896022 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 76

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438344 mE

Northing: 6896018 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 77

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438130 mE

Northing: 6896031 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 78

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437912 mE

Northing: 6896054 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 79

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437682 mE

Northing: 6896040 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Degraded

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 80

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437516 mE

Northing: 6895978 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 81

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437491 mE

Northing: 6896288 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles



Date: 11/06/2023

Habitat Assessment #: 82

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437722 mE

Northing: 6896374 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain, Rocky

Rise

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 83

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437951 mE

Northing: 6896351 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 84

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438179 mE

Northing: 6896367 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 85

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438476 mE

Northing: 6896383 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 86

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438718 mE

Northing: 6896345 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 87

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438795 mE

Northing: 6896621 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 88

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438541 mE

Northing: 6896668 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 89

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438287 mE

Northing: 6896641 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles



Date: 11/06/2023

Habitat Assessment #: 90

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438040 mE

Northing: 6896580 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Stones



Date: 11/06/2023

Habitat Assessment #: 91

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437810 mE

Northing: 6896622 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 92

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437597 mE

Northing: 6896610 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 93

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437481 mE

Northing: 6896655 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 94

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437468 mE

Northing: 6896949 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 95

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437716 mE

Northing: 6896905 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 96

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438077 mE

Northing: 6896948 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 97

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438312 mE

Northing: 6896920 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 98

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438505 mE

Northing: 6896932 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 99

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438738 mE

Northing: 6896955 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 100

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438812 mE

Northing: 6897154 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 101

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438585 mE

Northing: 6897124 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 102

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438356 mE

Northing: 6897127 mN

Fire History: < 5 years

Landform: Rocky Rise

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 103

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 438139 mE

Northing: 6897120 mN

Fire History: < 5 years

Landform: Drainage, Rocky

Soil Type: Sandy clay

Rise

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 104

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437819 mE

Northing: 6897118 mN

Fire History: < 5 years

Landform: Drainage,

Soil Type: Sandy clay

Undulating Plain

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 105

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437531 mE

Northing: 6897099 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 106

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437362 mE

Northing: 6896991 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 107

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437364 mE

Northing: 6896638 mN

Fire History: < 5 years

Landform: Gentle Slope

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 108

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437368 mE

Northing: 6896301 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 109

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437298 mE

Northing: 6896032 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles, Stones



Date: 11/06/2023

Habitat Assessment #: 110

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437336 mE

Northing: 6895446 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 111

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437414 mE

Northing: 6895149 mN

Fire History: < 5 years

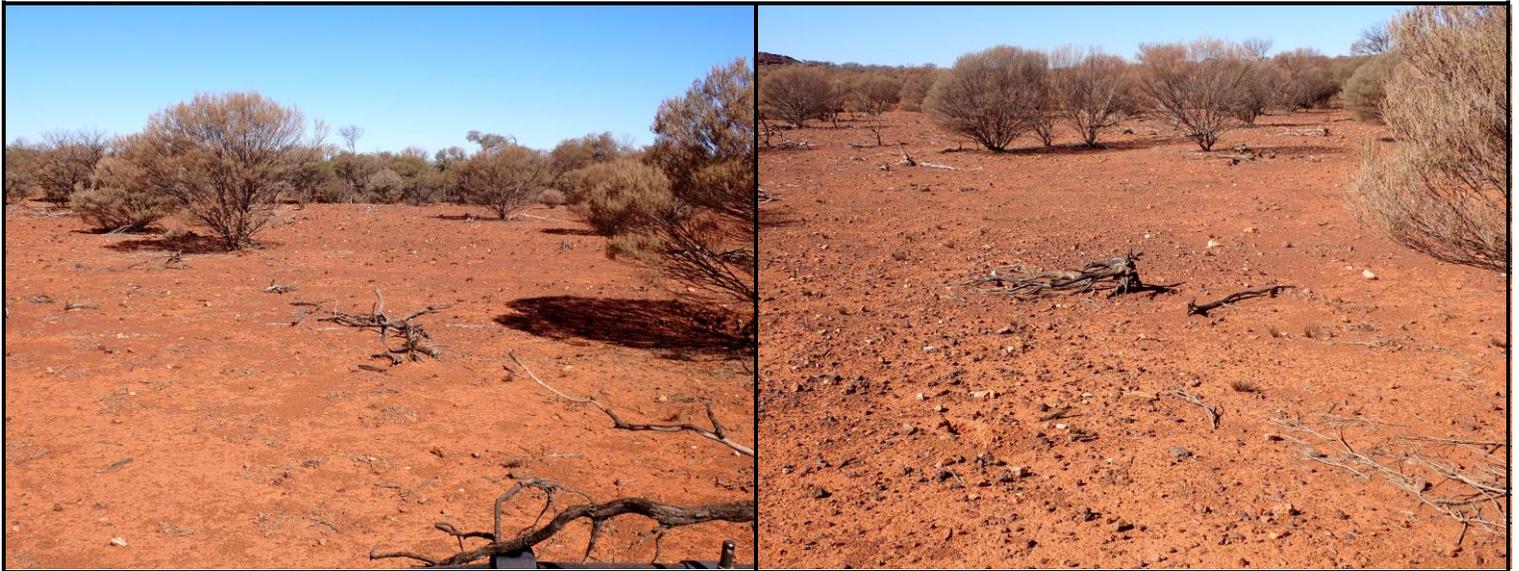
Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Poor

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 112

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437347 mE

Northing: 6894822 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 113

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437339 mE

Northing: 6894529 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 114

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437385 mE

Northing: 6894234 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 115

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437382 mE

Northing: 6893934 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 116

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437381 mE

Northing: 6893631 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 117

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437400 mE

Northing: 6893334 mN

Fire History: < 5 years

Landform: Undulating Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



Date: 11/06/2023

Habitat Assessment #: 118

Observer: Tom Raymond and Brody Altus

Zone: 51

Easting: 437413 mE

Northing: 6893044 mN

Fire History: < 5 years

Landform: Flat Plain

Soil Type: Sandy clay

Habitat Structure: Open Mulga Woodland

Habitat Quality: Good

Surface: Sand, Pebbles, Cobbles



