# Basic Vertebrate Fauna Reconnaissance Survey and Risk Assessment

## St Barbara Leonora Province Expansion

Prepared for: Genesis Minerals Ltd

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# EXECUTIVE SUMMARY

Native Vegetation Solutions on behalf of St Barbara Ltd requested a vertebrate fauna risk assessment to support the preparation of environmental approval applications for the Leonora Province Expansion project area in Leonora (i.e. project area). The project is located north and south of Leonora and straddles the Goldfields Highway and the Leonora Mount Ida Road. The project area has been sold to Genesis Minerals (Leonora) Pty Ltd who requested the report was updated to reflect the recent changes to conservation status of Western Australia fauna.

There are five broad fauna habitats in the project area:

- Bare salt lakes;
- Ephemeral creek lines;
- Tall shrublands;
- Low shrublands; and
- Open mulga woodlands.

In addition, there are disturbed areas that are largely devoid of vegetation, and if present are mostly weeds with few vertebrate fauna.

The density of trees and shrubs in the relatively undisturbed areas varied across the project area but was mostly sparse. The fauna habitat varied from highly degraded to good; the more degraded areas are due to historical and recent mining activity and grazing. There are numerous access tracks in the project area, but these are narrow and mostly only wheel tracks on a sand-clay substrate. There is extensive evidence of feral fauna in the area.

Tracks of Malleefowl were recorded at three locations in the project area, but there are no active or recently active Malleefowl mounds, so it is probable these are isolated birds that are moving around in the areas of slightly more-dense vegetation, but are not breeding.

The Southern Whiteface has been recorded in other fauna surveys in the adjacent areas, so it will likely be present in the project area. This small bush bird is relatively abundant in this part of the Goldfields and Murchison and will move if disturbed; therefore, vegetation clearing and further operations in the area are unlikely to impact this species significantly.

Clearing native vegetation in the project area is likely to result in the loss of small vertebrate fauna on-site that are unable to move away during the vegetation clearing process, however, this loss is not expected to be significant when viewed in a bioregional context. The few larger animals, such as kangaroos, large goannas and snakes, and most of the birds will move into adjacent areas once vegetation clearing commences, so potential impacts will be low. There may be an on-going loss of small native fauna to vehicle strikes on access tracks, but overall, this impact will be very low. Forced migration of fauna due to vegetation clearing increases competition for resources, which may result in the subsequent loss of migrants or local individuals. Individuals shifted out of their established activity areas are also vulnerable to predation until they have become established in their new areas. The impacts associated with clearing the vegetation in the project area in a landscape or bioregional context on the vertebrate fauna are likely low as there are vast tracts of similar habitat in adjacent areas.

Impacts on vertebrate fauna associated with clearing vegetation in the project area in a landscape or bioregional context are likely to be low as there are vast tracts of similar fauna habitat in adjacent areas.

There was evidence of rabbits, cattle, horses and wild dogs in the project area, and probably feral cats. These feral and pest fauna are likely to be doing more environmental damage than the combined impacts of proposed development.

The proposed project is unlikely to have a significant impact on a species of conservation significance, so a referral under the *EPBC Act* is not recommended.

The proposed windfarm will potentially impact birds and bats in the project area, so a management plan is required, which may include increasing the wind-turbines' cut-in speed to minimise the impact on birds and bats. Once the design characteristics of the wind farm are known, further targeted assessment may be required.

It is recommended that:

- an induction program that includes a component on managing vertebrate fauna is mandatory for staff working in the project area;
- the vertebrate fauna management plan for the project should specifically address potential impacts on birds and bats, and include mitigation strategies to minimises this impact;
- the management of wild dogs and feral cats is specifically addressed in the vertebrate fauna management plan;
- Where possible, access routes are aligned to existing roads, tracks or follow the boundaries of broad-scale vegetation associations in the area;
- if clearing is to occur in the Southern Whiteface breeding season, a zoologist familiar with the species will search the area for active nests before vegetation clearing is undertaken. This will appreciably reduce the probability of an active Southern Whiteface nest being disturbed;
- if an active Southern Whiteface nest(s) is found, then a 250m buffer is implemented around the nest site until all chicks have fledged; and
- the impact of dust on adjacent vegetation and therefore fauna habitat is managed and monitored against appropriate KPIs.

# 1. INTRODUCTION

## 1.1 BACKGROUND

Native Vegetation Solutions on behalf of St Barbara Ltd requested a vertebrate fauna risk assessment to support the preparation of environmental approval applications for the Leonora Province Expansion project area in Leonora. The project area has subsequently been sold to Genesis Minerals (Leonora) Pty Ltd who requested the report was updated to reflect the recent changes to conservation status of Western Australia fauna. The project area (Figure 1) is located north and south of Leonora and straddles the Goldfields Highway and the Leonora Mount Ida Road. The total assessed area was 3,588ha. The project area includes large and deep mining pits, some of which contain water, waste dumps, tailings storage facilities, mining infrastructure, part of the Leonora airstrip, the Leonora racecourse and some residential housing.

## 1.2 PROJECT OBJECTIVES AND SCOPE OF WORKS

Terrestrial Ecosystems was commissioned to undertake a Basic vertebrate fauna risk assessment including a targeted survey for Malleefowl and their mounds for the Leonora Province Expansion project area. The purpose of this Basic vertebrate fauna risk assessment was to provide information to the proponent on the potential impacts on the vertebrate fauna assemblage in the project area to enable the proposed development to be adequately assessed. The methodology broadly follows that described in the Environmental Protection Authority (2020) *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment*.

This Basic fauna risk assessment involved a desktop review and site visit. The assessment objectives were to:

- provide an indication of the vertebrate fauna assemblage (reptiles, amphibians, mammals, birds and fish) on and near the project area, so that potential impacts on the fauna and fauna assemblage might be adequately assessed;
- identify the presence and/or potential risk of impacts on species of conservation significance that are present or likely to be present in the project area;
- assess the impact and environmental risks associated with the proposed development on the vertebrate fauna assemblage;
- assess the potential for bird and bat strikes from operational wind-turbines in the area;
- determine if any additional surveys are required to assess the potential impact on vertebrate fauna assemblage in the project area including impacts on species of conservation significance; and
- make recommendations that avoid, mitigate or minimise potential impacts on resident fauna.

To achieve these objectives, Terrestrial Ecosystems:

- reviewed Terrestrial Ecosystems' database [includes Atlas of Living Australia and Western Australian Museum records] to identify potential vertebrate fauna within the area;
- searched the Commonwealth Governments database of fauna of national environmental significance to identify species potentially occurring within the area 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;
- reviewed previous fauna surveys conducted near the project area;
- undertook an assessment of the potential risks to the fauna associated with clearing additional areas of native vegetation and operation of wind turbines in the area;
- discussed the likelihood of *EPBC Act 1999* and *Biodiversity Conservation Act 2016* (*BC Act*) listed species being present in the project area; and
- provided management recommendations to avoid, mitigate and minimise potential impacts on the fauna in the project area.

# 2. EXISTING ENVIRONMENT

## 2.1 LOCATION OF PROJECT AREA

The project area is in the Murchison 1 (MUR1 - East Murchison subregion) IBRA bioregion. Cowan (2001) described the subregion as mostly dominated by mulga woodlands that are often rich in ephemerals; hummock grasslands, salt bush shrub lands and haloscarcia shrub lands. Cowan (2001) recorded no threatened ecological communities in the vicinity of the project areas. Threatening processes for species of conservation significance were listed by Cowan (2001) as foxes and cats.

## 2.2 LAND USE HISTORY

The dominant land uses for the bioregion are native pasture to support grazing and crown land reserves, and to a lesser extent mining and exploration. The region surrounding the project area has been disturbed for minerals exploration and there are many operational and non-operational mining projects in the region.

The project area includes large and deep mining pits, some of which contain water, waste dumps, tailings storage facilities, mining infrastructure, part of the Leonora airstrip, the Leonora racecourse and some residential housing.

## 2.3 CLIMATE

The project area is characterised as semi-arid. Leonora has an annual rainfall of approximately 235mm, although this varies considerably from year-to-year. The highest mean maximum and minimum temperatures in Leonora are in January with an average of 37°C and 21.8°C, respectively (Bureau of Meteorology, 2022). The lowest mean daily maximum and minimum temperatures occur in July (Chart 1). Average monthly rainfall is heaviest in January - March.

Summer rain is unpredictable and often results from thunderstorms coming from the north and the west or decaying cyclonic activity as low-pressure cells move from the Pilbara through the Goldfields.

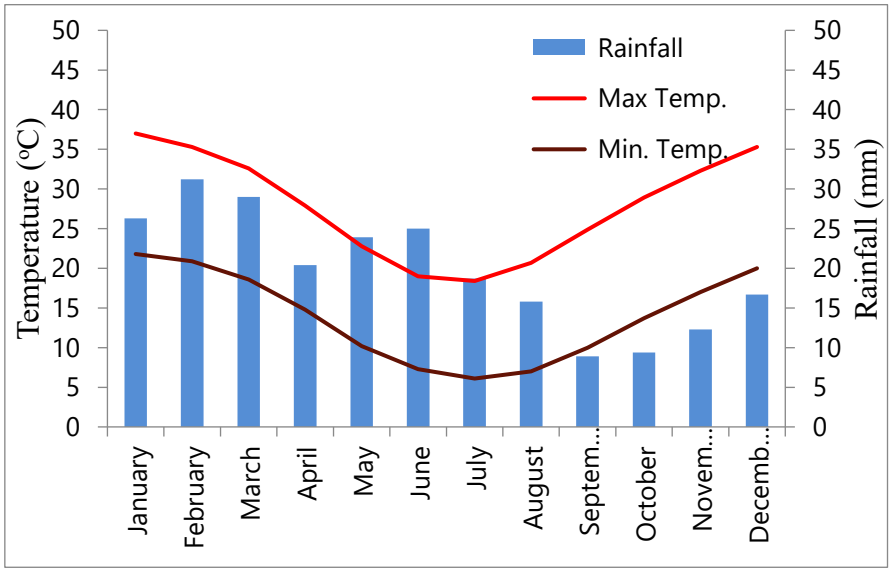


**Chart 1. Climatic averages for Leonora**

## 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:


- Bamford Consulting Ecologists (2007) *Fauna Assessment and Targeted Mulgara Search of the Fish Deposit, Laverton Gold Project*.
- Bell, D. T., Bell, R. C. and Loneragan, W. A. (2007) Winter bird assemblages across an arid gradient in south-west Western Australia. *Journal of the Royal Society of Western Australia* 90, 219-227.
- 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 (2007) *Level 1 Fauna Assessment, Leinster Nickel Operations*, Perth.
- Coffey Environments (2008) *Level 2 Fauna Assessment for the Duketon Gold Project*. Unpublished report for Regis Resources, Perth.
- Craig, M. D. and Chapman, A. (2003) Effects of short-term drought on the avifauna of Wanjarri Nature Reserve: What do they tell us about drought refugia. *Journal of the Royal Society of Western Australia* 86: 133-137.
- 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.
- Dell, J., How, R. A. and Milewski, A. V. (1992) The biological survey of the Eastern Goldfields, Part 6, Youanmi-Leonora Study Area. *Records of the Western Australian Museum*, Supplement No 40, 131.
- Donarto Environmental Services (2005a) *Leinster Nickel Operations Tailing Storage Facility and Water Storage Areas: Wildlife Interactions and Assessment of Risks*, Perth.
- Dunlop, J. N. (1990) The small vertebrate ground fauna of Mulga habitats near Wiluna, Western Australia. *Mulga Research Centre Journal*, 10, 19-27.
- 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.
- Hall, N.J, McKenzie, N.L. and Keighery, B.J. (1994b) 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.
- Harewood, G (2011) *Terrestrial Fauna Survey (Level 1) of the West Laverton Area (P38/3717, P38/3718, P38/3491, P38/3492, P38/3314, P38/3490, P38/3315, M38/0046, M38/0049, M38/0040, M38/0358, M38/0048, M38/0101, M38/0364, M38/0342, M38/0345, L38/0179, L38/0177, L38/0178, L38/0153, L38/0092, E38/1930, E38/2347, E38/2084 & E38/1966)*. Unpublished report for Crescent Gold Limited.
- Hart, Simpson and Associates (2000) Anaconda Nickel Ltd, *Cawse Expansion Project Fauna Survey*. Unpublished report for Anaconda Nickel Ltd, 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.
- Kingfisher Environmental Consulting (2014) *Murrin Murrin – Sunrise Dam Infrastructure Corridor Level 1 Fauna Survey*. Unpublished report for Anglogold Ashanti Australia, Perth.
- Kingfisher Environmental Consulting (2020) *Northern Goldfields Interconnect Pipeline Fauna Assessment*. Unpublished report for APA Group, Perth.
- MBS Environmental (2004) *Vegetation and Habitat Assessment of the Euro, Sickle and Admiral Hill Project Areas, Laverton*. Unpublished report for Crescent Gold Limited.

- McKenzie, N. L., Rolfe, J. K. and Youngson, W. K. (1992) Vertebrate fauna. In: The Biological Survey of the Eastern Goldfields of Western Australia; Part 8; Kurnalpi - Kalgoorlie Study Area. *Records of the Western Australian Museum*, Supplement No 41, 37-65.
- McKenzie, N. L., Rolfe, J. K. and Youngson, W. K. (1994a) 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, pp. 51-85.
- Moriarty; T. K. (1972) Birds of Wanjarri; WA (27°; 25'S; 120° 40'E) *The Emu*, 72, 1-7.
- Murphy, D. (1994) *Vertebrate fauna species of the North-eastern Goldfields*. Report to Western Mining's Leinster Nickel and Mount Keith Operations, Perth.
- Ninox Wildlife Consulting (1998) *A Vertebrate Fauna Survey of the Murrin Expansion Project*. Unpublished report for Anaconda Nickel Ltd, Perth.
- Ninox Wildlife Consulting (2005) *Vertebrate Fauna Habitat Assessment of the Proposed Expansions to the Cosmos Nickel Mine, near Leinster, Western Australia*. Unpublished report for URS Australia Pty Ltd, Perth.
- Phoenix Environmental Sciences (2021) Fauna and habitat survey for the Redcliffe Gold Project. Unpublished report for Dacian Gold Limited, Perth.
- Spectrum Ecology and Spatial (2022) Leonora Operations Flora and Vegetation Site Visit and Basic Vertebrate Fauna Assessment. Unpublished report for Talis Consultants and St Barbara Limited, Perth.
- Terrestrial Ecosystems (2010) *Level 2 Fauna Risk Assessment for the Garden Well Project Area*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2011a) *Level 2 Fauna Risk Assessment for Granny Deeps Project Area*. Unpublished report for Barrick Gold Corporation, Perth.
- Terrestrial Ecosystems (2011c) *Targeted Survey for Long-tailed Dunnarts for the Granny Deeps Project Area*. Perth.
- Terrestrial Ecosystems (2012a) *Level 1 Vertebrate Fauna Risk Assessment for the Proposed Exploration Areas around the Granny Open Pit Project Area*. Unpublished report for Granny Smith Mining Pty Ltd, Perth.
- Terrestrial Ecosystems (2012b) *Level 1 Vertebrate Fauna Risk Assessment for the Proposed Mining Areas around the Granny Open Pit Project Area*. Unpublished report for Granny Smith Mining Pty Ltd, Perth.
- Terrestrial Ecosystems (2014) *Level 1 Fauna Risk Assessment for a proposed power station site, Perth*. Unpublished report for Granny Smith Mining Pty Ltd, Perth.
- Terrestrial Ecosystems (2015) *Fauna risk assessment of the proposed borrow pit expansion*. Unpublished report for Granny Smith Mining Pty Ltd, Perth.
- Terrestrial Ecosystems (2018) *Vertebrate Fauna Risk Assessment for the Granny Smith Solar Power Farm Project*, Unpublished report for Granny Smith Mining Company Pty Ltd, Perth.
- Terrestrial Ecosystems (2020) *Level 2 Vertebrate Fauna Assessment for the King of the Hills Project*, Unpublished report for Red 5, Perth.


In addition, there are individual records for fauna contained in the Atlas of Living Australia and the Western Australian Museum collection have also been accessed.

The most useful of these are the report by Terrestrial Ecosystems (2020) for the King of the Hills project area, which is approximately 25km to the north of the project area and includes very similar fauna habitats, the Western Australian Museum's (WAM) regional eastern goldfields biological surveys which were undertaken in the Duketon-Sir Samuel, Sandstone–Sir Samuel and Laverton areas (How and Dell 1992, McKenzie et al. 1994b) and the Murrin Murrin Expansion project fauna survey (Ninox Wildlife Consulting 1998) which is east of the project area and has similar fauna habitats and fauna assemblages.

These fauna surveys, when considered together, provide a near complete list of the vertebrate species likely to be found in the project area. The composition of vertebrate fauna assemblages varies from habitat-to-habitat and site-to-site within the bioregion, but the survey data contained in the attached appendices provide a good indication of the vertebrate fauna assemblage that is likely to be found in the project area. These data therefore provide a good regional context and indicate the extent of fauna assemblage variation that might be anticipated from site-to-site and temporally.

## 2.5 FAUNA SPECIES AT RISK

Cowan (2003), in a dated report, indicated fauna species at risk in the East Murchison subregion were the Bilby (*Macrotis lagotis*), Marsupial Mole (*Notoryctes typhlops*), Mulgara (*Dasycercus cristicauda / blythi*), Malleefowl (*Leipoa ocellata*), Princess Parrot (*Polytelis alexandrae*), Slender-billed Thornbill (*Acanthiza iredalei iredalei*), Giant Desert Skink (*Liopholis kintorei*) and Peregrine Falcon (*Falco peregrinus*). Since then, several additional species have been added to the list including Night Parrot (*Pezoporus occidentalis*), Sandhill Dunnart (*Sminthopsis psammophila*), Western Spiny-tailed Skink (*Egernia stokesii badia*), Grey Falcon (*Falco hypoleucos*), Chuditch (*Dasyurus geoffroii*) and Southern Whiteface (*Aphelocephala leucopsis*). This report assesses the potential for these species to be found in the project area and the potential impact that the proposed development might have on these species, and other fauna species of conservation significance.

# 3. METHODOLOGY

## 3.1 DATABASE SEARCHES

A review of the *EPBC Act 1999* Matters of National Environmental Significance (MNES) list of protected species was undertaken to identify species of conservation interest to the Commonwealth Government (Appendix A). In addition, a desktop search of 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 (2010) 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 that were expected to utilise the project area and broader bioregion. 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. water and shore birds). Vagrants can be recorded almost anywhere. Many records are historical, and the species are no longer in the local area (e.g. Bilby). Many 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 poorly understood. It can sometimes be difficult to indicate species whose specific habitat requirements are absent 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 Western Australian Museum (WAM) collection. These errors occur because of a misidentification of individuals, taxonomic name changes, and incorrect coordinates entering the database. Terrestrial Ecosystems could not verify the primary records, so it has used the information provided. 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

A site visit was undertaken from 12 and 17 September 2022 to assess fauna habitat types and condition in the project area and to search for evidence of Malleefowl.

The fauna habitat assessment was undertaken for the entire project area. This field assessment had two foci:

- assessing fauna habitat types and their condition; and
- assessing the possible presence of and recording evidence of species of conservation significance so that mitigation and management strategies might be implemented to reduce potential impacts.

The surveyor who undertook the site assessment stopped at multiple locations within the project area and recorded a suite of data about the fauna habitat and its condition. This information included a description of the habitat structure, habitat condition, landform, soils and vegetation and time since last fire (Table 1).

**Table 1. Variables assessed during the rapid habitat assessment**

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

| Soil colour - options | | | |
|---|---|---|---|
| ☐ | Black | ☐ | Red |
| ☐ | Brown | ☐ | White |
| ☐ | Grey | ☐ | Yellow |
| ☐ | Orange | | |
| **Surface stones – options** | | | |
| ☐ | None | ☐ | Boulders (>250mm) |
| ☐ | Pebbles (0-50mm) | ☐ | Rocks |
| ☐ | Cobbles (51-250) | | |

## 3.3 SURVEY AND REPORTING STAFF

Joel Wilson undertook the site investigation and fauna habitat assessment and searched the project area for Malleefowl and their mounds. Dr Scott Thompson and Joel Wilson completed the fauna habitat mapping. Dr Graham Thompson prepared this report and Dr Scott Thompson reviewed the report before it was sent to the client.

Senior scientists have appropriate, relevant post-graduate qualifications, extensive experience in conducting vertebrate fauna surveys and assessments, have published research articles on biodiversity, fauna assemblages, species of conservation significance, trapping techniques, and temporal variations in trapped fauna assemblages and are therefore appropriately trained and experienced to undertake the survey and prepare the assessment. Both Drs Thompson have undertaken multiple assessments in the region and are familiar with the habitats and fauna assemblages in the bioregion.

Dr Scott Thompson is the only environmental practitioner in Western Australia with independent specialist certification (CEnvP – Ecology Specialist) combined with post-graduate tertiary qualifications and is a licensed pest management technician (LPMT). This unique set of skills and qualifications ensures Scott undertakes fauna surveys, assessments, and control programs to the highest standard and quality assurance. The qualifications and experience of the survey and reporting personnel are shown in Table 2.

**Table 2. Project personnel and their qualifications**

| Name | Qualifications | Experience | Role |
|---|---|---|---|
| **Dr Scott Thompson** | BSc. (Env. Sc.), MSc. (Env. Mngt.), PhD (Env. Sc./Mngt), Cert III (Vertebrate Pest Mngt), Cert IV (WHS). CEnvP (Ecology Specialist) | > 20 years | Principal zoologist Survey coordinator, field survey, fauna habitat mapping and report review. |
| **Dr Graham Thompson** | Post Grad. Dip. (Zool.), PhD (Zoology), Cert III (Vertebrate Pest Mngt), | > 20 years | Principal zoologist. Field surveys and report preparation. |
| **Joel Wilson** | BSc (Env. Sci); Cert III (Laboratory skills) | 7 years | Field surveys and habitat mapping |

## 3.4 TAXONOMY AND NOMENCLATURE

Taxonomy and nomenclature for fauna species used in this report are 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 were correct and we have only corrected obvious records where the nomenclature was known to be incorrect.

## 3.5 LIMITATIONS

This Basic vertebrate fauna survey and risk assessment is based on information 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 appreciate the fauna assemblage in the project area fully.

Lists of species potentially in and around the project area have been compiled from WAM records, Atlas of Living Australia, and reports of fauna surveys undertaken nearby. Some records in the Atlas of Living Australia and the WAM are very old, and those species are no longer present in the area. Terrestrial Ecosystems have not been able to verify the primary data and, therefore, cannot vouch for the accuracy of these records. All these data sources are known to contain errors, which should be considered when reading this assessment. These errors occur because of a misidentification of individuals, taxonomic name changes, and incorrect coordinates entered into the database.

The *EPBC Act* online matters of national environmental significance (MNES) database for terrestrial fauna includes historical records. It places a wide buffer around previously known locations of threatened species in its database. A search of this database will invariably include species that are either locally extinct or were never present in parts of the search area.

The EPA (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 3.

**Table 3. 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. |
| Competency/experience of the survey team, including experience in the bioregion surveyed | No | The field survey team and authors of this report have appropriate post-graduate qualifications, undertaken multiple surveys and assessments in the region, have published a book and multiple refereed journal articles based on fauna surveys in the goldfields 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 | |
| Timing, weather and season | No | Weather was suitable for a site and fauna habitat assessment. |
| 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 | Discussed in the report. |
| Access problems | No | There were no access problems. |
| Problems with data and analysis, including sampling biases | N/A | |
| Timing, weather and season | No | Weather was suitable for a site survey and assessment. |

N/A = not applicable, Significant = major impact on outcome of the assessment, Moderate = impacted parts of the assessment, Negligible = almost no impact on the assessment.

# 4. RESULTS

## 4.1 FAUNA HABITAT

There are five broad fauna habitats in the project area:

- Bare salt lakes;
- Ephemeral creek lines;
- Tall shrublands;
- Low shrublands; and
- Open mulga woodlands.

In addition, there are disturbed areas that are largely devoid of vegetation, including large and deep mining pits, some of which contain water, waste dumps, tailings storage facilities, mining infrastructure, part of the Leonora airstrip, the Leonora racecourse and some residential housing.

The density of trees and shrubs in the relatively undisturbed areas varied across the project area but was mostly sparse. Trees and shrubs are most dense in the ephemeral creek lines. Fauna habitat quality varied from highly degraded to good; the more degraded areas are due to historical and recent exploration and mining activity, grazing, and existing tracks. There are numerous access tracks in the project area, but these are narrow and mostly only wheel tracks on a sand-clay substrate. There is extensive evidence of feral fauna in the area.

Plates 1-14 show some of the fauna habitats present in the project area.

**Plate 1. Salt lake**

**Plate 2. Ephemeral creek line**

**Plate 3. Ephemeral creek line**

**Plate 4. Tall shrubland**

**Plate 5. Tall shrubland**

**Plate 6. Tall shrubland**

**Plate 7. Low shrubland**

**Plate 8. Low shrubland**

**Plate 9. Open mulga woodland**

**Plate 10. Open mulga woodland**

**Plate 11. Disturbed area**

**Plate 12. Disturbed area**

**Plate 13. Evidence of earlier mining activity**

**Plate 14. Evidence of earlier mining activity**

## 4.2 MALLEEFOWL

Some very old disused Malleefowl mounds were recorded in other regional surveys. Malleefowl tracks were recorded in three locations (Table 4), two in the southern section and one in the western section of the project area (Plates 15 and 16). No Malleefowl mounds were recorded.

**Table 4. Location of Malleefowl tracks (GDA 94, UTM Zone 51)**

| Easting | Northing |
|---|---|
| 338186 | 6797369 |
| 336582 | 6797779 |
| 334013 | 6799946 |

**Plate 15. Malleefowl tracks**

**Plate 16. Malleefowl tracks**

## 4.3 FERAL SPECIES

The project area supports rabbits (Plate 17), cattle (Plate 18), horses (Plate 19) and wild dogs (Plate 20) and probably feral cats.

**Plate 17. Rabbit scats**

**Plate 18. Cattle tracks**

**Plate 19. Horse scats**

**Plate 20. Dog tracks**

## 4.4 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 low 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 5. Birds potentially found near the project area

| Family | Species | Common Name |
|---|---|---|
| Casuariidae | *Dromaius novaehollandiae* | Emu |
| Anatidae | *Biziura lobata* | Musk Duck |
| | *Tadorna tadornoides* | Australian Shelduck |
| | *Chenonetta jubata* | Australian Wood Duck |
| | *Malacorhynchus membranaceus* | Pink-eared Duck |
| | *Anas gracilis* | Grey Teal |
| | *Anas superciliosa* | Pacific Black Duck |
| | *Aythya australis* | Hardhead |
| Podicipedidae | *Poliocephalus poliocephalus* | Hoary-headed Grebe |
| Columbidae | *Phaps chalcoptera* | Common Bronzewing |
| | *Phaps histrionica* | Flock Bronzewing |
| | *Ocyphaps lophotes* | Crested Pigeon |
| | *Geopelia placida* | Diamond Dove |
| Podargidae | *Podargus strigoides* | Tawny Frogmouth |
| Caprimulgidae | *Eurostopodus argus* | Spotted Nightjar |
| Aegothelidae | *Aegotheles cristatus* | Australian Owlet-nightjar |
| Apodidae | *Apus pacificus* | Fork-tailed Swift |
| Otididae | *Ardeotis australis* | Australian Bustard |
| Phalacrocoracidae | *Microcarbo melanoleucos* | Little Pied Cormorant |
| Ardeidae | *Ardea pacifica* | White-necked Heron |
| | *Egretta novaehollandiae* | White-faced Heron |
| Accipitridae | *Haliastur sphenurus* | Whistling Kite |
| | *Accipiter fasciatus* | Brown Goshawk |
| | *Accipiter cirrocephalus* | Collared Sparrowhawk |
| | *Circus assimilis* | Spotted Harrier |
| | *Aquila audax* | Wedge-tailed Eagle |
| | *Hieraaetus morphnoides* | Little Eagle |
| Falconidae | *Falco cenchroides* | Nankeen Kestrel |
| Falconidae | *Falco berigora* | Brown Falcon |
| | *Falco longipennis* | Australian Hobby |
| | *Falco peregrinus* | Peregrine Falcon |
| Rallidae | *Tribonyx ventralis* | Black-tailed Native-hen |
| | *Fulica atra* | Eurasian Coot |
| Recurvirostridae | *Himantopus leucocephalus* | Pied Stilt |
| Recurvirostridae | *Cladorhynchus leucocephalus* | Banded Stilt |
| Charadriidae | *Charadrius ruficapillus* | Red-capped Plover |
| | *Elseyornis melanops* | Black-fronted Dotterel |
| | *Vanellus tricolor* | Banded Lapwing |
| Scolopacidae | *Actitis hypoleucos* | Common Sandpiper |
| Turnicidae | *Turnix velox* | Little Button-quail |
| Cacatuidae | *Eolophus roseicapillus* | Galah |
| | *Nymphicus hollandicus* | Cockatiel |
| Psittacidae | *Barnardius zonarius* | Australian Ringneck |
| | *Psephotus varius* | Mulga Parrot |
| | *Melopsittacus undulatus* | Budgerigar |
| | *Neopsephotus bourkii* | Bourke's Parrot |
| | *Neophema splendida* | Scarlet-chested Parrot |
| Cuculidae | *Chalcites basalis* | Horsfield's Bronze-cuckoo |
| | *Chalcites osculans* | Black-eared Cuckoo |
| | *Heteroscenes pallidus* | Pallid Cuckoo |
| Halcyonidae | *Todiramphus pyrrhopygius* | Red-backed Kingfisher |
| Meropidae | *Merops ornatus* | Rainbow Bee-eater |
| Climacteridae | *Climacteris affinis* | White-browed Treecreeper |
| | *Climacteris rufa* | Rufous Treecreeper |
| Ptilonorhynchidae | *Ptilonorhynchus maculatus* | Spotted Bowerbird |
| | *Ptilonorhynchus guttatus* | Western Bowerbird |
| Maluridae | *Malurus splendens* | Splendid Fairy-wren |

| Family | Species | Common Name |
|---|---|---|
| | *Malurus leucopterus* | White-winged Fairy-wren |
| | *Malurus lamberti* | Variegated Fairy-wren |
| Acanthizidae | *Calamanthus fuliginosus* | Striated Fieldwren |
| | *Pyrrholaemus brunneus* | Redthroat |
| | *Smicrornis brevirostris* | Weebill |
| | *Gerygone fusca* | Western Gerygone |
| | *Acanthiza robustirostris* | Slaty-backed Thornbill |
| | *Acanthiza chrysorrhoa* | Yellow-rumped Thornbill |
| | *Acanthiza uropygialis* | Chestnut-rumped Thornbill |
| | *Acanthiza apicalis* | Inland Thornbill |
| | *Aphelocephala leucopsis* | Southern Whiteface |
| Pardalotidae | *Pardalotus striatus* | Striated Pardalote |
| Meliphagidae | *Certhionyx variegatus* | Pied Honeyeater |
| | *Gavicalis virescens* | Singing Honeyeater |
| | *Lichenostomus ornatus* | Yellow-plumed Honeyeater |
| | *Lichenostomus plumulus* | Grey-fronted Honeyeater |
| | *Purnella albifrons* | White-fronted Honeyeater |
| | *Manorina flavigula* | Yellow-throated Miner |
| | *Acanthagenys rufogularis* | Spiny-cheeked Honeyeater |
| | *Epthianura tricolor* | Crimson Chat |
| | *Epthianura aurifrons* | Orange Chat |
| | *Sugomel niger* | Black Honeyeater |
| | *Lichmera indistincta* | Brown Honeyeater |
| Pomatostomidae | *Pomatostomus superciliosus* | White-browed Babbler |
| Psophodidae | *Cinclosoma castaneothorax* | Chestnut-breasted Quail-thrush |
| Neosittidae | *Daphoenositta chrysoptera* | Varied Sittella |
| Campephagidae | *Coracina maxima* | Ground Cuckoo-shrike |

| Family | Species | Common Name |
|---|---|---|
| | *Coracina novaehollandiae* | Black-faced Cuckoo-shrike |
| | *Lalage tricolor* | White-winged Triller |
| Pachycephalidae | *Pachycephala rufiventris* | Rufous Whistler |
| | *Colluricincla harmonica* | Grey Shrike-thrush |
| | *Oreoica gutturalis* | Crested Bellbird |
| Artamidae | *Artamus personatus* | Masked Woodswallow |
| | *Artamus cinereus* | Black-faced Woodswallow |
| | *Artamus minor* | Little Woodswallow |
| | *Cracticus torquatus* | Grey Butcherbird |
| | *Cracticus nigrogularis* | Pied Butcherbird |
| | *Gymnorhina tibicen* | Australian Magpie |
| | *Strepera versicolor* | Grey Currawong |
| Rhipiduridae | *Rhipidura albiscapa* | Grey Fantail |
| | *Rhipidura leucophrys* | Willie Wagtail |
| Corvidae | *Corvus coronoides* | Australian Raven |
| | *Corvus bennetti* | Little Crow |
| | *Corvus orru* | Torresian Crow |
| Monarchidae | *Grallina cyanoleuca* | Magpie-lark |
| Petroicidae | *Microeca fascinans* | Jacky Winter |
| | *Petroica goodenovii* | Red-capped Robin |
| | *Melanodryas cucullata* | Hooded Robin |
| Megaluridae | *Cincloramphus mathewsi* | Rufous Songlark |
| | *Cincloramphus cruralis* | Brown Songlark |
| Hirundinidae | *Cheramoeca leucosterna* | White-backed Swallow |
| | *Hirundo neoxena* | Welcome Swallow |
| | *Petrochelidon ariel* | Fairy Martin |
| | *Petrochelidon nigricans* | Tree Martin |
| Nectariniidae | *Dicaeum hirundinaceum* | Mistletoebird |
| Motacillidae | *Anthus novaeseelandiae* | Australasian Pipit |

## Table 6. Amphibians potentially found near the project area

| Family | Species | Common Name |
|---|---|---|
| Hylidae | *Cyclorana maini* | Sheep Frog |
| | *Cyclorana platycephala* | Water-holding Frog |
| Limnodynastidae | *Neobatrachus aquilonius* | Northern Burrowing Frog |
| | *Neobatrachus kunapalari* | Kunapalari Frog |
| | *Neobatrachus sudelli* | Sudell's Frog |
| | *Neobatrachus sutor* | Shoemaker Frog |
| | *Neobatrachus wilsmorei* | Goldfields Bullfrog |
| | *Platyplectrum spenceri* | Spencer's Burrowing Frog |

## Table 7. Mammals potentially found near the project area

| Family | Species | Common Name |
|---|---|---|
| Bovidae | *Bos taurus* | Cow |
| | *Capra hircus* | Goat |
| | *Ovis aries* | Sheep |
| Camelidae | *Camelus dromedarius* | Dromedary |
| Canidae | *Canis lupus* | Dingo/dog |
| | *Vulpes vulpes* | Red Fox |
| Felidae | *Felis catus* | House Cat |
| Emballonuridae | *Saccolaimus flaviventris* | Yellow-bellied Sheath-tail Bat |
| Molossidae | *Austronomus australis* | White-striped Free-tail Bat |
| Vespertilionidae | *Chalinolobus gouldii* | Gould's Wattled Bat |
| | *Chalinolobus morio* | Chocolate Wattled Bat |
| | *Nyctophilus geoffroyi* | Lesser Long-eared Bat |
| | *Scotorepens balstoni* | Inland Broad-nosed Bat |
| | *Vespadelus regulus* | Southern Forest Bat |
| Dasyuridae | *Antechinomys laniger* | Kultarr |
| | *Dasycercus cristicauda/blythi* | Mulgara |
| | *Ningaui ridei* | Wongai Ningaui |
| | *Sminthopsis crassicaudata* | Fat-tailed Dunnart |
| | *Sminthopsis dolichura* | Little Long-tailed Dunnart |
| | *Sminthopsis hirtipes* | Hairy-footed Dunnart |
| | *Sminthopsis longicaudata* | Long-tailed Dunnart |
| | *Sminthopsis macroura* | Stripe-faced Dunnart |
| | *Sminthopsis ooldea* | Ooldea Dunnart |
| Macropodidae | *Osphranter robustus* | Euro |
| | *Osphranter rufus* | Red Kangaroo |
| Leporidae | *Oryctolagus cuniculus* | European Rabbit |
| Tachyglossidae | *Tachyglossus aculeatus* | Short-beaked Echidna |
| | *Equus caballus* | Domestic Horse |
| Equidae | *Mus musculus* | House Mouse |
| Muridae | *Notomys alexis* | Spinifex Hopping Mouse |
| | *Pseudomys desertor* | Desert Mouse |
| | *Pseudomys hermannsburgensis* | Sandy Inland Mouse |

## Table 8. Reptiles potentially found near the project area

| Family | Species | Common Name |
|---|---|---|
| Agamidae | *Ctenophorus caudicinctus* | Ring-tailed Dragon |
| | *Ctenophorus fordi* | Mallee Dragon |
| | *Ctenophorus inermis* | Military Dragon |
| | *Ctenophorus isolepis* | Crested Dragon |
| | *Ctenophorus maculatus* | Spotted Dragon |
| | *Ctenophorus nuchalis* | Central Netted Dragon |
| | *Ctenophorus reticulatus* | Western Netted Dragon |
| | *Ctenophorus salinarum* | Saltpan Dragon |
| | *Ctenophorus scutulatus* | Lozenge-marked Dragon |
| | *Diporiphora amphiboluroides* | Mulga Dragon |
| | *Moloch horridus* | Thorny Devil |
| | *Pogona minor* | Western Bearded Dragon |
| | *Tympanocryptis pseudopsephos* | Pebble Dragon |
| Boidae | *Antaresia stimsoni* | Stimson's Python |
| Carphodactylidae | *Nephrurus levis* | Three-lined Knob-tail |

| Family | Species | Common Name |
|---|---|---|
| | *Nephrurus vertebralis* | Midline Knob-tail |
| | *Nephrurus wheeleri* | Banded Knob-tail |
| | *Underwoodisaurus milii* | Barking Gecko |
| Diplodactylidae | *Diplodactylus conspicillatus* | Fat-tailed Diplodactylus |
| | *Diplodactylus granariensis* | Wheat-belt Stone Gecko |
| | *Diplodactylus pulcher* | Fine-faced Gecko |
| | *Lucasium damaeum* | Beaded Gecko |
| | *Lucasium squarrosum* | Mottled Ground Gecko |
| | *Strophurus assimilis* | Goldfields Spiny-tailed Gecko |
| | *Strophurus elderi* | Jewelled Gecko |
| | *Strophurus strophurus* | Western Spiny-tailed Gecko |
| | *Strophurus wellingtonae* | Spiny-tailed Gecko |
| Elapidae | *Brachyurophis fasciolata* | Narrow-banded Burrowing Snake |
| | *Brachyurophis semifasciata* | Half-girdled Snake |
| | *Furina ornata* | Orange-naped Snake |
| | *Parasuta monachus* | Monk Snake |
| | *Pseudechis australis* | Mulga Snake |
| | *Pseudechis butleri* | Spotted Mulga Snake |
| | *Pseudonaja mengdeni* | Gwardar |
| | *Pseudonaja modesta* | Ringed Brown Snake |
| | *Simoselaps bertholdi* | Jan's Banded Snake |
| | *Suta fasciata* | Rosen's Snake |
| Gekkonidae | *Gehyra purpurascens* | Purplish Dtella |
| | *Gehyra variegata* | Tree Dtella |
| | *Gehyra xenopus* | Crocodile-faced Dtella |
| | *Heteronotia binoei* | Bynoe's Prickly Gecko |
| | *Rhynchoedura ornata* | Western Beaked Gecko |
| Pygopodidae | *Aprasia picturata* | Black-headed Worm-lizard |
| | *Delma butleri* | Unbanded Delma |
| | *Delma nasuta* | Sharp-snouted Delma |
| | *Lialis burtonis* | Burton's Snake-lizard |
| | *Pygopus nigriceps* | Western Hooded Scaly-foot |
| Scincidae | *Cryptoblepharus australis* | Inland Snake-eyed Skink |
| | *Cryptoblepharus buchananii* | Buchanan's Snake-eyed Skink |
| | *Ctenotus ariadnae* | Ariadna's Ctenotus |

| Family | Species | Common Name |
|---|---|---|
| | *Ctenotus atlas* | Southern Mallee Ctenotus |
| | *Ctenotus dux* | Fine Side-lined Ctenotus |
| | *Ctenotus grandis* | Grand Ctenotus |
| | *Ctenotus greeri* | Spotted-necked Ctenotus |
| | *Ctenotus hanloni* | Nimbel Ctenotus |
| | *Ctenotus helenae* | Clay-soil Ctenotus |
| | *Ctenotus leonhardii* | Leonhardi's Ctenotus |
| | *Ctenotus pantherinus* | Leopard Skink |
| | *Ctenotus piankai* | Coarse Sands Ctenotus |
| | *Ctenotus quattuordecimlineatus* | Fourteen-lined Ctenotus |
| | *Ctenotus schomburgkii* | Schomburgk's Ctenotus |
| | *Ctenotus severus* | Stern Ctenotus |
| | *Ctenotus uber* | Spotted Ctenotus |
| | *Egernia depressa* | Pygmy Spiny-tailed Skink |
| | *Egernia formosa* | Goldfields Crevice-skink |
| | *Eremiascincus richardsonii* | Broad-banded Sand Swimmer |
| | *Lerista bipes* | North-western Sandslider |
| | *Lerista desertorum* | Central Desert Robust Slider |
| | *Lerista distinguenda* | South-western Orange-tailed Slider |
| | *Lerista kingi* | King's Slider |
| | *Lerista timida* | Timid Slider |
| | *Liopholis inornata* | Desert Skink |
| | *Liopholis striata* | Nocturnal Desert Skink |
| | *Menetia greyii* | Common Dwarf Skink |
| | *Morethia butleri* | Woodland Morethia Skink |
| | *Tiliqua multifasciata* | Centralian Blue-tongued Lizard |
| | *Tiliqua occipitalis* | Western Blue-tongued Lizard |
| Typhlopidae | *Anilios australis* | Austral Blind Snake |
| | *Anilios bicolor* | Dark-spined Blind Snake |
| | *Anilios endoterus* | Interior Blind Snake |
| | *Anilios hamatus* | Pale-headed Blind Snake |
| | *Anilios waitii* | Waite's Blind Snake |
| Varanidae | *Varanus brevicauda* | Short-tailed Pygmy Monitor |
| | *Varanus caudolineatus* | Stripe-tailed Monitor |
| | *Varanus eremius* | Pygmy Desert Monitor |
| | *Varanus giganteus* | Perentie |

| Family | Species | Common Name |
|---|---|---|
| | *Varanus gouldii* | Gould's Goanna |
| | *Varanus panoptes* | Yellow-spotted Monitor |

| Family | Species | Common Name |
|---|---|---|
| | *Varanus tristis* | Black-headed Monitor |
| Cheluidae | *Chelodina steindachneri* | Steindachner's Snake-necked Turtle |

## 4.5 SPECIES OF CONSERVATION SIGNIFICANCE

Fauna species of conservation significance 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 WA BC *Act 2016* provides for publishing the *Wildlife Conservation (Specially Protected Fauna) Notice* that lists species under multiple categories. In addition, the 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 managing 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 WA *BC Act* are provided in Appendix C.

Wetland and wetland migratory bird species have been excluded from the following list and assessments as there is no suitable habitat for these species in the project area, other than the water in the mining pits. One threatened species of fauna, and one migratory/marine species of birds identified under the *EPBC Act 1999* potentially occur in the project area. There are additional species listed under the *BC Act 2016* that potentially occur in the region. Following Table 9 is an assessment of the likelihood of each of the species being found in the project area.

**Table 9. Assessment of the potential presence of a species of conservation significance in the project area**

| Species | DBCA Schedule / Priority | Status under Commonwealth EPBC Act | Comment on the potential presence of the species |
|---|---|---|---|
| **Night Parrot** *Pezoporus occidentalis* | Critically Endangered | Endangered | Highly unlikely to be in the project area, due to a lack of suitable habitat. |
| **Sandhill Dunnart** *Sminthopsis psammophilia* | Endangered | Endangered | Highly unlikely to be in the project area due to a lack of suitable habitat. |
| **Western Spiny-tailed Skink** *Egernia stokesii badia* | Endangered | Endangered | Highly unlikely to be in the project area, as the project area is well outside its geographic range. |
| **Malleefowl** *Leipoa ocellata* | Vulnerable | Vulnerable | Footprints were recorded in three areas during the field assessment, however, no active or recently active mounds were recorded. It is likely that there are a few isolated Malleefowl in the project or adjacent areas. |
| **Giant Desert Skink** *Liopholis kintorei* | Vulnerable | Vulnerable | Highly unlikely to be in the project area due to a lack of suitable habitat. |
| **Chuditch** *Dasyurus geoffroii* | Vulnerable | Vulnerable | Highly unlikely to occur in the project area, as it has not been recorded in the region for many decades. |
| **Southern Whiteface** *Aphelocephala leucopsis* | Vulnerable | Vulnerable | Likely to occur in the project area, as it has not been recorded in the region for many decades. |

| Species | DBCA Schedule / Priority | Status under Commonwealth EPBC Act | Comment on the potential presence of the species |
|---|---|---|---|
| **Princess Parrot** *Polytelis alexandrae* | Priority 4 | Vulnerable | It may infrequently be seen in the region, however, it is unlikely to be a resident species. |
| **Mulgara** *Dasycercus blythi* | Priority 4 | | Highly unlikely to be in the project area due to a lack of suitable habitat. |
| **Oriental Plover** *Charadrius veredus* | IA | Migratory | Unlikely to be in the project area due to a lack of suitable habitat. |
| **Fork-tailed Swift** *Apus pacificus* | IA | Migratory | It may very infrequently be seen in the region, however, it is unlikely to be a resident species. |
| **Grey Wagtail** *Motacilla cinereal* | IA | Migratory | Highly unlikely to be present in the project area. |
| **Yellow Wagtail** *Motacilla flava* | IA | Migratory | Highly unlikely to be present in the project area. |
| **Peregrine Falcon** *Falco peregrinus* | OS | | May infrequently be seen in the region, however, it is unlikely to be a resident species. |
| **Long-tailed Dunnart** *Sminthopsis longicaudata* | Priority 4 | | Unlikely to be in the project area due to a lack of its typical breakaway habitat requirements and a high density of feral fauna. |

IA – Migratory birds protected under international agreements;

OS – Other Specially protected fauna

**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 initially distributed over much semi-arid and arid Australia (Garnett et al. 2011, Threatened Species Scientific Committee 2016). Recordings in north-west and western Queensland in the early 1990-2000s were in a broad cross-section of available habitats (Cupitt and Cupitt 2008, Garnett et al. 2011, 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, Palaszxzuk and Miles 2017, Rykers 2017, AG staff 2018), Pilbara in 2017 (Jones 2017), the northern Goldfields (Jackett et al. 2017) and Great Sandy Desert (Lindsay et al. 2024, Ngururrpa Rangers et al. 2024). Garnett *et al.* (2011) suggested that there were between 50-250 mature individuals in less than 5% of its previous range, but in recent research, there is estimated to be 40-50 birds in one region (Ngururrpa Rangers et al. 2024) so the Australia-wide estimate might be higher.

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$^{o}$ and 0$^{o}$ 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 (27º) 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 Biodiversity, Conservation and Attractions (Department of Parks and Wildlife 2017) survey guidelines for Night Parrots indicated that 'at the local (site) level, 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 are sometimes associated with other vegetation types, such as dense chenopod shrubs. Spinifex hummocks that are collapsed (i.e., less than 40-50 cm in height) are not likely to provide adequate shelter.'

There are no mature spinifex hummocks, and there is an abundance of feral predators in the project area. As the preferred roosting and nesting sites for Night Parrots are not present in the project area and there are significant threatening processes for the species in the area (i.e. wild dogs and feral cats), Terrestrial Ecosystems assess that Night Parrots are not 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 and the western and southern parts of South Australia. Recent surveys undertaken for the Great Victoria Desert Trust have increased their geographic range in the Great Victoria Desert.

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. As the preferred habitat for the Sandhill Dunnart is not present and there is a significant threatening process for the species in the area (i.e. feral cats), it is Terrestrial Ecosystems' assessment that Sandhill Dunnarts are not present in the project area due to a lack of suitable habitat and will therefore not be impacted by any proposed development.

**Western Spiny-tailed Skink (*Egernia stokesii badia*)** - Endangered under the *BC Act 2016* and the *EPBC Act 1999*

The Western Spiny-tailed Skink is a large, stout, live-bearing skink with short dorsal spines and longer tail spines. It has multiple geographically separate populations and sister subspecies that are found on offshore islands. It is typically found in York gum woodlands, living in logs with an obvious faecal pellet latrine site nearby (How et al. 2003). But they can also be found in Gimlet and Salmon Gum woodlands. Openings in fallen logs need to be a minimum of 25cm in diameter, with a preference for overlapping log piles (How et al. 2003). However, they have also been found in abandoned old houses, under a stack of tiles and in rock crevices.

It is highly unlikely that the Western Spiny-tailed Skink is present in the project area, as they have not been recorded nearby and the habitat is not suitable.

**Malleefowl (*Leipoa ocellata*)** - Vulnerable under the *BC Act 2016* and the *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 have been found in mallee regions of southern Australia from approximately the 26th parallel of latitude southwards. Malleefowl are now only found throughout these regions in fragmented patches due to clearing of habitat for agriculture, increased fire frequency, competition with exotic herbivores (sheep, rabbits, cattle, goats) and kangaroos, predation by foxes and cats, inbreeding as a result of fragmentation and possibly hunting for food. DBCA records show the only recorded observation was near Leonora in 1998.

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, they pair for life. The presence of nest mounds provides an indication of the presence of Malleefowl in the area.

Malleefowl tracks were present in the project area and some very old mounds that will never be used again were also recorded. No active or recently active nest-mounds were recorded, so Malleefowl in the project area are probably a few isolated birds moving in and through the project and adjacent areas. These birds are likely to move to adjacent areas if disturbed.

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

*Liopholis kintorei* is a large skink found in the sandy desert regions of Western Australia, Northern Territory and South Australia. It is found on sandflats and clay-based or loamy soils vegetated with spinifex. It lives in a multi-entranced communal burrow system and uses shared defecation sites. Storr et al. (1999) recorded them as being in the Wanjarri area of the Great Victoria Desert, and the DBCA Threatened species database records them in Laverton in 1967.

The Giant Desert Skink prefers sandy soils vegetated with spinifex. This habitat is not present in the project area, and there is a high density of feral fauna. Terrestrial Ecosystems' assessment is that *Liopholis kintorei* is very unlikely to be found in the project area due to a lack of suitable habitat and the presence of a threatening process for 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 seen as far north at Leonora and in atypical habitat. As the project area is a significantly

long way north of the species' known geographic distribution, it is unlikely that the Chuditch would be found in the project area; therefore, the clearing of vegetation and mining operations are unlikely to have a significant impact on this species.

**Southern Whiteface (*Aphelocephala leucopsis*)** - Vulnerable under the *EPBC Act 1999* and *BC Act 2016*

The Southern Whiteface is a recent addition to the *EPBC Act 1999 and BC Act*. The species was not list of conservation significance when the field assessments were undertaken in 2022.

It is a small bush 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 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 the Environment and Water 2023). It forages on the ground, feeding on insects, spiders and seeds that are mostly found in the leaf litter. (Johnstone and Storr 2004, Department of Climate Change Energy the Environment and Water 2023).

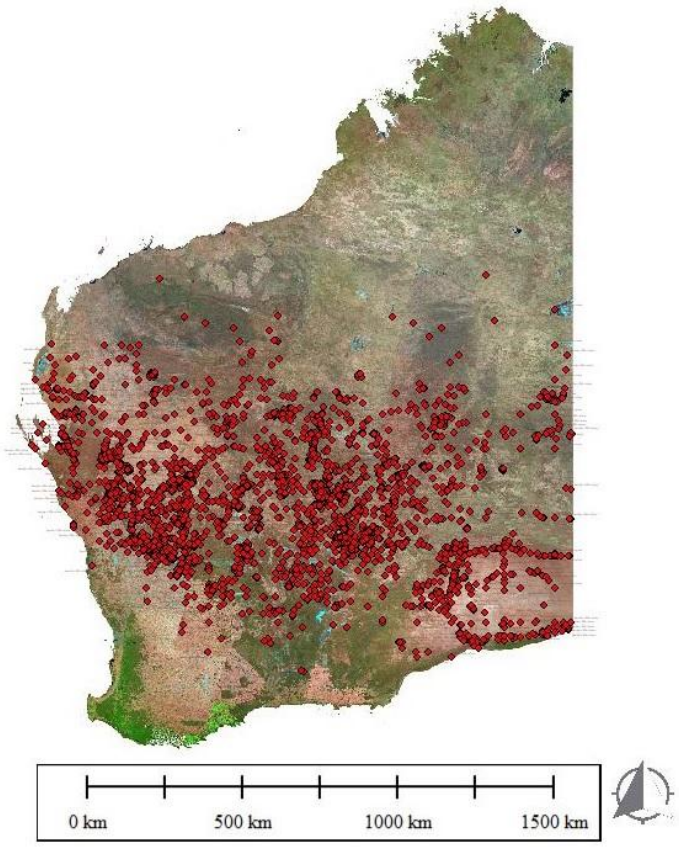


**Plate 21. Southern Whiteface records in Terrestrial Ecosystems' fauna survey database near the project area**

The Southern Whiteface has been recorded in multiple fauna surveys in the region (Plate 21), so it is likely to be present in the project area. In recent years, almost every comprehensive avifauna survey in the region has recorded the presence of Southern Whiteface. It will readily move if disturbed. Given its widespread distribution, abundance in surveys and ability to move if disturbed, it is unlikely to be significantly impacted by vegetation clearing of degraded habitats and low impact activities in the project area.

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

The species 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). However, they occasionally occurred in lightly wooded areas adjacent to the sandy deserts (Moriarty 1972). 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, any proposed development is unlikely to significantly impact this species as it will move away to other areas if it is disturbed.

Very little is known about the Princess Parrot; even the exact extent of its geographical distribution. 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.

The project area is a long way south and west of its known geographic distribution, so it is highly unlikely to be seen in the project area, unless it is an aviary escapee.

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

Woolley (2005) recognises two species of 'Mulgara'; *Dasycercus blythi* and *D. cristicauda*. *Dasycercus 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 the recent burning of the spinifex does not seem to be sufficient to shift Mulgara out of an area (Thompson and Thompson 2007). Mulgara is 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).

Fauna habitat in the project area is not suitable for Mulgara. It is therefore Terrestrial Ecosystems' view that they are unlikely to be found in the project area.

**Oriental Plover (*Charadrius veredus*)** - Migratory species under the *EPBC Act 1999* and *BC Act 2016*

A migrant species with patchy distribution in Australia, the Oriental Plover is sparsely distributed across arid and semi-arid Australia, but avoids truly desert regions. Its preferred habitat is dry plains. It was not recorded in other fauna surveys undertaken near the project area. The species is under threat due to habitat reduction resulting from agriculture and changes in fire regimes. This plover has not been recorded in the general area in any of the other regional surveys.

Terrestrial Ecosystems assess that the Oriental Plover is unlikely to be seen in the project area and therefore unlikely to be impacted.

**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, arriving in the Kimberley in late September, in the Pilbara in November, and in the southwest land division in mid-December, and departing 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 22).

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

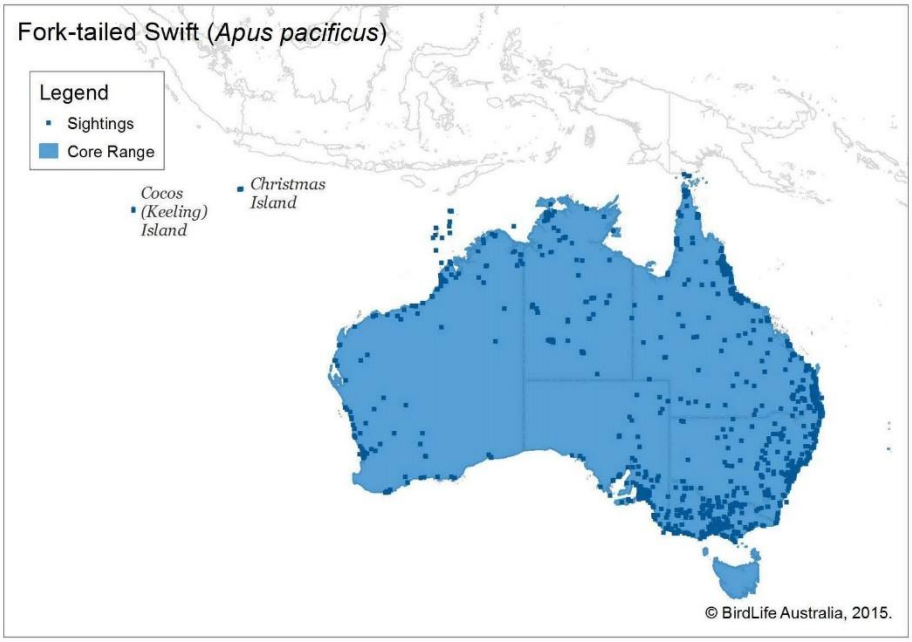


**Plate 22. Range and actual reported sightings of the Fork-tailed Swift**

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

**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 23). It is highly unlikely to be seen in the project area due to a lack of records and suitable habitat.

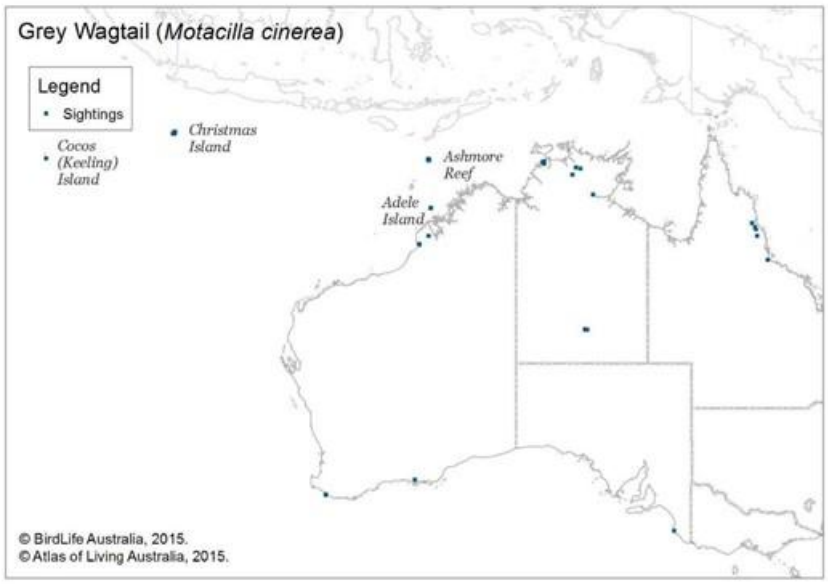


**Plate 23. Reported sightings of the Grey Wagtail**

**(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 it the millions in the norther hemisphere and the Atlas of Living Australia records multiple records of this bird in Australia in the coastal areas. 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.

**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, Ninox Wildlife Consulting 1994), at Honeymoon Well (Ninox Wildlife Consulting 1994) and Mileura (Tingay and Tingay 1977), so they could infrequently be seen in the general area.

Terrestrial Ecosystems' assessment is that the Peregrine Falcon may infrequently be seen in the project area, however, development 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 (*Sminthopsis longicaudata*)** - Priority 4 species with DBCA.

Burbidge et al. (2008) summarised the Long-tailed Dunnart distribution as widely scattered in arid zone where it inhabits rugged rocky areas. They went on to suggest that its striated foot-pads, 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.

Three adult Long-tailed Dunnarts were caught in the Granny Smith Level 2 fauna survey (Terrestrial Ecosystems 2011a) and a single individual was caught in the follow up targeted survey (Terrestrial Ecosystems 2011c). Subsequently, Long-tailed Dunnarts have been caught at Mt Ida and Bottle Creek, which are west of Leonora.

There are no suitable rocky outcrops in the project area, so, it is highly unlikely that they are present.

# 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 survey effort should be determined after consideration of the following:

- 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
- scale and nature of impact.

Terrestrial Ecosystems' (2020) Detailed and comprehensive terrestrial fauna survey for the King of the Hills project area which is approximately 25km north of the project area and in similar habitat provides a comprehensive appreciation of the vertebrate fauna within the project area. In addition, there are other surveys (How and Dell 1992, McKenzie et al. 1994b, Ninox Wildlife Consulting 1998) for nearby areas that have been undertaken in similar fauna habitats.

Much of the project area has been disturbed by previous mining and anthropogenic activity, with the consequence that a generic, Detailed, and Targeted survey of the project area is unlikely to provide additional information that would alter an assessment by government regulators and is therefore not recommended.

The EPA's (2020) *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* do not specify when a Detailed or Targeted vertebrate fauna survey is required. Instead, it has indicated that the level of survey effort should be determined after consideration of the criteria in Table 10.

**Table 10. Criteria for determining survey requirements**

| Criteria | Response |
|---|---|
| **Level of existing regional knowledge** | Surveys have been conducted in the region, and similar habitat types are common regionally. The local vertebrate fauna species are well known; additional trapping efforts are unlikely to add new fauna species to the existing knowledge. |
| **Type and comprehensiveness of recent local surveys** | Multiple surveys are available for the bioregion. They provide contextual information concerning the project area and compile a species list. |
| **Degree of existing disturbance or fragmentation at the regional scale** | The project area is fragmented and degraded |
| **Extent, distribution, and significance of habitats** | The available fauna habitats are not unique and are widely represented in the bioregion. |
| **Significance of species likely to be present** | The Southern Whiteface (Vulnerable) will likely be in the project area and region, however, Malleefowl (Vulnerable) and Long-tailed Dunnarts (Priority 4) are unlikely to be present. |
| **Sensitivity of the environment to the proposed activities** | There was no evidence to suggest that the project area has a unique fauna habitat that is environmentally sensitive from a vertebrate fauna perspective. |
| **Scale and nature of impact.** | The project's scale is small relative to the availability of similar fauna habitats in adjacent areas, and it is unlikely to have a large impact on fauna in the bioregion. |

### 5.1.1 Amphibians

Frogs are usually only detected immediately after rainfall or around semi-permanent pools. During the field assessment, pools of water were observed in the drainage channels. *Cyclorana maini*, *C. occidentalis*, *Pseudophryne occidentalis* and *Litoria rubella* were all recorded. It is likely that *Neobatrachus kunapalari* and *Neobatrachus wilsmorei* could also be found in the general area. These species, other than *P. occidentalis* and *L. rubella*, burrow into the ground and aestivate between rainfall events. *Pseudophryne occidentalis* and *L. rubella* find shelter under rocks and in crevices during the dry periods and enter temporary ponds to breed after major rainfall events. All species have a wide-spread distribution and are abundant. Development of the project area is likely to result in a loss of individuals within the disturbed area, however, is unlikely to have a significant impact on these species when assessed in a regional context.

### 5.1.2 Reptiles

Typically, between 25 and 35 species of reptiles are caught in predominantly open mulga woodland (Coffey Environments 2008, Terrestrial Ecosystems 2010, 2011a, 2020). None of the species likely to be in the project area, are of conservation significance. There were no characteristics of the reptile assemblage surveyed in earlier Terrestrial Ecosystems' Level 2/Detailed surveys in adjacent areas that indicated the fauna habitat present in the project area was of conservation significance or different to that in the neighbouring areas, and given that there were large expanses of similar habitat in adjacent areas, development of the project area is unlikely to have significant impact on reptiles when assessed in a regional context.

Terrestrial Ecosystems' view is that the development of the project area is unlikely to significantly impact the reptile fauna of the bioregion.

### 5.1.3 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 a large number of these nomadic species to the general area. These species move 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 assemblage to that present in the adjacent regions. Malleefowl tracks were recorded in three locations within the project area, but there are no active or recently active Malleefowl mounds, so there are likely a few isolated birds moving in the project and adjacent areas. The Southern Whiteface is likely to be in the project area. The Princess Parrot is nomadic and moves around the arid interior often in search of water and resources and may very infrequently be seen in the general area. The Peregrine Falcon will normally have a very large home range, and if it is present, it is unlikely to be significantly impacted as it will readily move to other areas if disturbed. The majority of avifauna will readily shift to other areas when there is a disturbance.

### 5.1.4 Mammals

The diversity of small terrestrial mammals potentially caught in the project area would be low due to the sparsely vegetated and degraded habitat and presence of feral and pest fauna.

Terrestrial Ecosystems' view is that the development of the project area is unlikely to significantly impact on the mammal fauna of the bioregion.

## 5.2 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.

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. The available fauna survey data (Appendix B) provides a good indication of the vertebrate fauna that are potentially in the project area.

From a fauna perspective, the project area has been grazed, resulting in degradation of the fauna habitats. The feral cat is present, and this species will, over many years, have significantly impacted the native vertebrate fauna. The habitat types identified in the project area are also abundant in adjacent areas, so the vertebrate fauna in the project area will be present in adjacent areas. There will be localised impacts from vegetation clearing, however, these will not be significant in a regional context.

### 5.2.1 Ecological functional value at the ecosystem level

Large sections of the project area have been disturbed by previous mining activity, with the consequence that these area and surrounds will have a depleted vertebrate fauna assemblage. The most significant impact on vertebrate fauna in the project area and surrounds will have been feral cats and wild dogs. Historically, goats would have heavily grazed the region which impacted the vertebrate fauna assemblages, but the recent increase in the wild dog population has reduced the abundance of feral goats.

### 5.2.2 Maintenance of threatened ecological communities

No threatened ecological communities were identified in the project area.

### 5.2.3 Condition of fauna habitat

Some of the project area has been highly disturbed due to historical mining and anthropogenic activity. The uncleared fauna habitat present in the project area is similar to many square kilometres of adjacent habitat. The proposed vegetation clearing and wind-turbines are therefore unlikely to have a significant impact on the vertebrate fauna when considered in a bioregional context.

### 5.2.4 Ecological linkages

The project area does not provide an important ecological linkage or fauna movement corridors.

### 5.2.5 Size and scale of the proposed disturbance

The project area (3,588ha) is a small proportion of similar fauna habitat found in the adjacent area and region. Given the available fauna survey data for these habitat types, no additional surveys are warranted.

### 5.2.6 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 similar to the many square kilometres of similar habitat in adjacent areas and the bioregion.

# 6. POTENTIAL IMPACTS

## 6.1 POTENTIAL IMPACTS ON FAUNA

Clearing native vegetation are likely to result in the loss of small vertebrate fauna on site that are unable to move away during the clearing process and aerial species could be hit by the blades of wind-turbines.

Although there are anticipated short term impacts on fauna, they are not considered to significantly impact fauna habitat and assemblages in a bioregional context in the long term. The overall impact on fauna species and species of conservation significance will be minimal, provided the recommended management procedures are implemented and adhered to.

## 6.2 DIRECT IMPACTS

### 6.2.1 Animal deaths during the clearing process and displacement of fauna

Clearing vegetation and activities associated with the development will result in the loss of some small fauna that retreat to burrows, such as reptiles and mammals. Nocturnal species are unlikely to be active when most of the land clearing and construction work is taking place which may result in these individuals being adversely impacted when they attempt to escape. This loss of vegetation is unlikely to have a significant impact when considered in a bioregional context. Larger terrestrial animals and avian species will most often move to adjacent areas. These species will be required to establish new activity areas and home ranges, and this could result in the temporary displacement of resident species.

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 larger than the cleared footprint.

### 6.2.2 Reduction or loss of activity areas and closure of burrows

Clearing vegetation and associated mining activities will likely destroy reptile and mammal burrows or foraging habitats that are currently in use or could be used again. Clearing vegetation in areas that form part of an individual's activity area 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.

## 6.3 IMPACTS OF THE WIND TURBINES ON BIRDS AND BATS

Operational wind turbines present a risk to a range of birds and bats. The main risk is mortality through collision with moving turbine blades (blade-strike), although alienation (behavioural avoidance of suitable habitat near infrastructure) is also an important issue.

### 6.3.1 Collision impacts

Fatality and injury may be caused by collision with the moving blades, or by being swept down by the wake behind a blade (Winkleman 1994) or for microbats, via barotrauma. Barotrauma is a 'traumatic [usually fatal] respiratory tract injury caused as a result of a sudden air pressure differential that may occur near moving wind turbine rotors' (Environment Protection and Heritage Council 2010). For the purposes of this assessment, barotrauma and blade-strike are referred to collectively as 'collision' impacts. Key factors when considering the potential rates of collision at a wind farm include the proposed configuration in relation to habitat (such as good quality forest) and topographical features (such as steep slopes providing updraughts).

Birds and bats flying within or close to the rotor swept area (RSA) are at risk of collision impacts. The RSA is the area of air space defined by the rotation of the turbine blade. As well as direct collision with infrastructure, the rotating blades produce a wake which may draw animals into the blades; the wake is principally behind the turbine within the same plane (Sandersee 2009). The wind turbines therefore present a collision risk to birds and bats that fly within or close to RSA height, and the ground clearance of the RSA relative to the flying height of bird and bat species is therefore a key consideration.

### 6.3.2 Alienation impacts

Operational wind turbines may cause changes in bird and bat behaviour. This behaviour includes avoiding nesting or foraging resources or diverging around the broad area where turbines are located; this is termed an 'alienation' or 'barrier' effect. The turbines, in these instances, act to 'sterilise' otherwise suitable areas of habitat or movement pathways. Alienation may affect local sedentary birds in their daily traverses for foraging, roosting and breeding sites or may cause migratory birds to shift migratory flyways. Birds and bats may be forced to change their flight behaviour to avoid collisions with turbines, subsequently impacting on their breeding and foraging success (Drewitt and Langston 2006). Alienation of hunting habitat for raptors such as Wedge-tailed Eagles or other birds of prey may be of particular concern for local populations. The distance over which disturbance effects can extend from a wind farm varies. A distance of 600m is often reported as the zone of disturbance around turbines, however this ranges from 80m (for a grassland songbird), to 800m (for waterfowl) and four kilometres (for seabirds) (Sharp 2010).

For both collision and alienation impacts, many species appear to habituate to the presence of turbines, after an initial acclimation period, reducing the effect of these impacts (Auswind 2006, De Lucas et al. 2008).

In general, birds at risk of collision are those that frequent the rotor sweep area and not all species of birds are at equal risk of collision with turbines. Generally, the higher risk groups of birds are:

- Raptors – soaring birds use landform features such as elevation, ridges and slopes to cruise and take ascendance. Further, they are generally higher order species, meaning they are less abundant and therefore more susceptible to population level impacts.
- Passerines - Passerines have been among the most frequently reported fatalities at wind farms in Europe, America and Australia. Breeding birds in the vicinity of wind farms may be at greater collision risk if displaying aerial courtship. Migrating and nomadic passerines typically fly at altitudes of 150m or higher.
- Waterbirds - waterbird (i.e. grebes, cormorants, ducks, waders, cranes, rails, crakes, gulls, shorebirds) fatalities have been reported worldwide at wind farms close to staging, breeding and wintering areas.

Bats, specifically microbats, are also impacted by collision impacts at wind farms worldwide. Bat species at most risk are those that forage above canopy height (i.e. in open airspace) and move through their environment at higher speeds. These species are more likely to travel at blade-sweep height and collisions result either where the individual fails to detect the moving blades or is unable to manoeuvre around them.

There are five species of bats potentially in this part of the Goldfields (Table 11), and all are nocturnal, insectivorous, use echolocation to find food and roost in tree hollows. Bats are killed by wind-turbines (Hull

and Cawthen 2013, Thompson et al. 2017, Smallwood et al. 2020, Davy et al. 2021), so it can be expected that a number of bats foraging at night in the vicinity of wind-turbines will be killed, and over time many of the local bats would be lost (Bennett et al. 2022) .

**Table 11. Bat species potentially in the Goldfields**

| Species | Common name |
|---|---|
| *Chalinolobus gouldii* | Gould's Wattled Bat |
| *Chalinolobus morio* | Chocolate Wattled Bat |
| *Nyctophilus geoffroyi* | Lesser Long-eared Bat |
| *Scotorepens balstoni* | Inland Broad-nosed Bat |
| *Vespadelus regulus* | Southern Forest Bat |

Birds are also killed by wind-turbines (Drewitt and Langston 2006, Perold et al. 2020, Smallwood et al. 2020, Chambert and Besnard 2021), so it can be expected that a small number of birds foraging in the vicinity of wind-turbines will be killed, and overtime some of the local birds would be lost (Chambert and Besnard 2021). In a summary of South African data (Perold et al. 2020), diurnal raptors were killed most often (36% of carcasses, 23 species) followed by passerines (30%, 49 species), waterbirds (11%, 24 species), swifts (9%, six species), large terrestrial birds (5%, 10 species), pigeons (4%, six species) and other near passerines (1%, seven species). So a wide range of species will potentially be negatively impacted by wind-turbines.

Smallwood et al. (2020) indicated that bird and bat mortality increases with increasing wind energy capacity of wind-turbines. Arnett et al. (2010) reported that by increasing the wind-turbines cut-in speed (i.e. the lowest wind speed at which the turbine generates power) it reduced bat mortality 5.5 and 3.6 times compared with the normal operational cut-in speed; demonstrating that active management of wind-turbines could reduce bat, and probably bird mortality.

A thorough assessment of the potential impacts on the birds and bats can only be undertaken when the number of turbines, and location, size and speed of the turbines are known.

## 6.4 INDIRECT IMPACTS

In addition to the obvious impact of vegetation clearing there can be an equally significant or greater impact on the adjacent areas because of 'edge effects'. Edge effects can lead to the disruption of ecological processes such as predation, dispersal, and animal movements and can change assemblage structure. Consequently, the impact area will always be much larger than the cleared area. Vehicle tracks and areas cleared for mining activity also tend to develop weed infestations that can impact natural fauna habitats.

There are numerous potential threats associated with vegetation clearing and the construction of infrastructure that could impact the vertebrate fauna in the project area. Some of these are discussed below.

### 6.4.1 Habitat fragmentation

In addition to direct impacts of vegetation clearing, infrastructure including tracks, has the potential to fragment habitat. Cleared linear tracks of land are 'unnatural' in much of the habitat. These linear structures that partition existing activity areas, isolate 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 and existing vehicle tracks. The impacts of habitat fragmentation due to additional vehicle tracks would therefore be quite low.

### 6.4.2 Introduced fauna and weeds

Increased habitat fragmentation and human activity often results in an increase in the abundance of introduced species such as the house mouse (*Mus musculus*), fox (*Vulpes vulpes*), feral cat (*Felis catus*) and wild dogs (*Canis lupus*). This increase may be due to a decline in habitat health, increased road kills, poor disposal of waste and easier access to areas via tracks.

House mice, foxes, cats and wild dogs are known to be established in the area. In many situations they have become a 'naturalised' species in the Australian bush. Increases in fox, 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 under control.

There are reliable reports that the population of wild dogs has significantly increased in response to the abundance of feral goats that were present in the region. The goat population has now been significantly reduced, so the wild dogs will turn their attention to predating on native animals. Given the proximity to Leonora it is likely that some of the dogs would also be coming from town.

Infrastructure known to support feral species, such as rubbish disposal sites and bins, permanent water, should be managed to minimise increases in these populations.

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. Major changes to the structure of vegetation will alter the fauna habitat and consequently may influence fauna species composition. Preparing and implementing a weed management plan will largely reduce their threat to native fauna species.

### 6.4.3 Road fauna deaths

An increase in road fauna deaths is likely to occur where new roads / tracks are constructed or upgraded, in particular, affecting 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, the impacts of road fauna deaths is likely to be low.

### 6.4.4 Fire

Increased human activity is often associated with an altered fire regime which lead to a degradation of natural ecosystems. Fire has been identified as one of the threatening processes for some species of conservation significance as numerous small mammal and bird species rely on long unburnt vegetation.

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.

### 6.4.5 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 initial vegetation clearing, when development activity commences or using wind turbines. The overall impact is likely to be confined to a relatively small area and is unlikely to be a significant impact.

### 6.4.6 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 and monitoring program is required.

# 7. VERTEBRATE FAUNA RISK ASSESSMENT

## 7.1 RISK ASSESSMENT

Fauna surveys to support Environmental Impact Assessments (EIA) 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 10, 11 and 12 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 14.

## Table 12. Fauna impact risk assessment descriptors

| Likelihood | | |
|---|---|---|
| **Level** | Description | Criteria |
| **A** | Rare | The environmental event may occur, or one or more fauna species of conservation significance may be present in exceptional circumstances. |
| **B** | Unlikely | The environmental event could occur, or one or more fauna species of conservation significance could be present at some time. |
| **C** | Moderate | The environmental event should occur, or one or more fauna species of conservation significance should be present at some time. |
| **D** | Likely | The environmental event will probably occur, or one or more fauna species of conservation significance will be present in most circumstances. |
| **E** | Almost certain | The environmental event is expected to occur, or one or more fauna species of conservation significance are expected to be present in most circumstances. |
| Consequences | | |
| **Level** | Description | Criteria |
| **1** | Insignificant | Insignificant impacts on fauna of conservation significance or regional biodiversity, and the loss of individuals will be negligible 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 study 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 study area. |
| **4** | Major | Significant impact on species of conservation significance 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 13. 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 14. 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 survey data to adequately assess the risks | Unknown loss of fauna, fauna of conservation significance, and fauna assemblages, and an incomplete fauna assessment. | B | 2 | Low | | | | |
| | Inadequacy of comparative data | Limits on the availability of comparative data reduced the capacity to assess the uniqueness of the fauna assemblages in the project area. | B | 2 | 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 | 3 | 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 | | | | |
| | Night Parrot | Loss of a Night Parrot or small population of Night Parrots | A | 2 | Low | | | | |
| | Sandhill Dunnart | Loss of a Sandhill Dunnart or small population of Sandhill Dunanrts | A | 2 | Low | | | | |
| | Malleefowl | Loss of a Malleefowl or small population of Malleefowl | C | 3 | Mod | Implementing speed controls around the projetc area will minimise | B | 3 | Mod |

| | | | Before management | | | | With management | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | potentail impacts on Malleefowl | | | |
| | Giant Desert Skink | Loss of a Giant Desert Skink or small popuation of Giant Desert Skinks | A | 2 | Low | | | | |
| | Chuditch | Loss of a Chuditch or small population of Chuditch | A | 2 | Low | | | | |
| | Southern Whiteface | Loss of a Southern Whiteface or small population of Southern Whiteface | C | 3 | Mod | Implement management recommendations | B | 2 | Low |
| | Princess Parrot | Loss of a Princess Parrot or small population of Princess Parrots | A | 2 | Low | | | | |
| | Mulgara | Loss of a Mulgara or small population of Mulgara | A | 2 | Low | | | | |
| | Oriental Plover | Loss of an Oriental Plover or small population of Oriental Plover | A | 2 | Low | | | | |
| | Fork-tailed Swift | Loss of a Fork-tailed Swift or small population of Fork-tailed Swift | A | 2 | Low | | | | |
| | Grey Wagtail | Loss of a Grey Wagtail or small population of Grey Wagtail | A | 2 | Low | | | | |
| | Yellow Wagtail | Loss of a Yellow Wagtail or small population of Yellow Wagtail | A | 2 | Low | | | | |
| | Peregrine Falcon | Loss of a Peregrine Falcon or small population of Peregrine Falcon | A | 2 | Low | | | | |
| | Long-tailed Dunnart | Loss of a Long-tailed Dunnart or small population of Long-tailed Dunnart | 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 weed management plan. | D | 2 | Low |
| | Road kills | Animals being killed by vehicles as they cross roads | E | 1 | Low | Limiting speeds | E | 1 | Low |
| | Increase in feral mammals, specifically the dog and cat | Increased predation on the native fauna | C | 2 | Low | | | | |
| **Wind turbine impacts** | Impacts on birds and bats due to an operating wind farm | Death, injury or changed behaviour due to collision or avoidance impacts to a species | D | 3 | High | Further assessment, modified design and monitoring | D | 2 | Mod |

## 7.2 NATIVE VEGETATION CLEARING PRINCIPLES AS THEY PERTAIN TO VERTEBRATE FAUNA

The *Environmental Protection Act (1986)* provides criteria to judge the potential impact of a development on clearing native vegetation on flora and fauna. These criteria have been listed below with a response to indicate how clearing the vegetation in the project area might be judged against these principles as they relate to fauna and fauna assemblages (Table 15). Where possible, native vegetation should not be cleared if any of the following principles are compromised.

**Table 15. 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 are a small number of Malleefowl in the project and adjacent areas. These birds are not breeding in the project area and are likely to be moving into adjacent areas.<br>The project area will likely support a small population of Southern Whiteface, a small bush bird listed as Vulnerable under the *EPBC Act*. This bird is widespread in this part of the Goldfields and will move if disturbed.<br>Active management will reduce potential impacts on these species. |
| It comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia. | Fauna habitat in the project area is like that in adjacent areas, so other than potential impacts on Southern Whiteface and Malleefowl, clearing the vegetation 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. Some of the mining pits have water in the bottom. |
| 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 the environmental values of the bioregion. |
| 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 CRITERIA FOR ASSESSING POTENTIAL IMPACTS ON VULNERABLE SPECIES

The significance of potential impacts of vegetation clearing in the project area is assessed per the criteria in the Commonwealth Government's significant impact assessment criteria (Department of the Environment 2013) in Table 16.

**Table 16. Criteria for assessing the potential impacts on Southern Whiteface**
(taken from: Department of the Environment 2013)

| Vulnerable Species | Southern Whiteface |
|---|---|
| An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will: | |
| • lead to a long-term decrease in the size of an important population of a species | No |
| • reduce the area of occupancy of an important population | No |
| • fragment an existing important population into two or more populations | No |
| • adversely affect habitat critical to the survival of a species | No |
| • disrupt the breeding cycle of an important population | No |
| • modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline | No |
| • result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat | No |
| • introduce disease that may cause the species to decline, or | No |
| • interfere substantially with the recovery of the species. | No |
| • modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline | No |

An important population is defined (Department of the Environment 2013) as:

- key source populations either for breeding or dispersal;
- populations that are necessary for maintaining genetic diversity; and/or
- populations that are near the limit of the species range.

There are more than 200 records of Southern Whiteface within 100km of the project area, so the number of individuals that are periodically onsite does not constitute an 'important population'. In addition, any Southern Whiteface living in the project area immediately before it is cleared will readily move to surrounding areas. The answer to Criteria 1 is 'No'.

Southern Whiteface records indicate this small bush bird is widespread in the bioregion. Had the Southern Whiteface occupancy area in Western Australia been randomly surveyed instead of survey sites being selected (i.e. mining locations and places where there is vehicle access), then it would have been evident that this bird is geographically widely distributed in Western Australia. No evidence indicates that the number of Southern Whiteface recorded in and around the project area represents an important population. Therefore, the loss of a small quantity of vegetation in the project area will not reduce its area of occupancy or displace an important population. The answer to Criteria 2 is 'No'.

The Southern Whitefaces' geographic distribution includes the entire width of southern Western Australia, extending into South Australia and the Northern Territory. The loss of a very small part of these many thousands of square kilometres of similar habitat, particularly when the bird is mobile, probably has a shifting activity area and will readily move if disturbed, will not fragment an existing population into two or more populations to the extent that it will impact on the species. There is no evidence that the very small number of Southern Whiteface recorded in and around the project area represents an important population.

There is no evidence to suggest that the small population of Southern Whiteface in and near the project area is a key source population, a population necessary to maintain genetic diversity, or is near the limit of its geographic range. The answer to Criteria 3 is 'No'.

Habitat that is critical to the survival of Southern Whiteface is described in the Commonwealth Conservation Advice as:

- relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, or both;
- habitat with low tree densities and an herbaceous understory litter cover which provides an essential foraging habitat; and
- living and dead trees with hollows and crevices which are essential for roosting and nesting.

This critical habitat description is vague and applies to thousands of square kilometres of inland Western Australia in the Midwest, Murchison, Goldfields, and elsewhere. The loss of a very small part of these many thousands of square kilometres of similar habitat, particularly when the bird is mobile, probably has a shifting activity area, and will readily move if disturbed, will not adversely affect habitat critical to the survival of the species to the extent of adversely impacting on the survival of the species. The answer to Criteria 4 is 'No'.

Johnstone and Storr (2004) reported that the Southern Whiteface builds a dome-shaped nest with a side entrance mainly in a hollow branch, a tree trunk, a crevice between branches, a stump, a fence post, or a recumbent log entrance through a knot-hole or crack. Nests are made with grass, bark, rootlets, feathers and wool and lined with feathers, wool, fur and soft plant down (Johnstone and Storr 2004). Such habitats and materials are widely available in the Midwest, Murchison and Goldfields of Western Australia. Based on the geographic records, this small bush bird very obviously breeds in thousands of locations in the semi-arid areas of Western Australia. There is no evidence that the very small number of Southern Whiteface recorded in and around the project area represents an important population. The answer to Criteria 5 is 'No'.

Quality habitat is not defined for the Southern Whiteface, but presumably, it is areas with a high abundance of this species concentrated in a particular area. Even the defined 'habitat critical to its survival' (Department of Climate Change Energy the Environment and Water 2023) is very widely available in the Goldfields, Murchison, and Midwest of Western Australia. Although the Southern Whiteface has been recorded in the project area, there is no evidence to suggest or indicate that it is a 'quality habitat', and it does not differ appreciably from the habitat in the many square kilometres of surrounding habitat in which the Southern Whiteface has been recorded. The answer to Criteria 6 is 'No'.

The proposed action will not result in invasive species harmful to the Southern Whiteface (e.g. cats) becoming established in the species habitat, as these invasive species are already present in the area. Feral cat trapping is also proposed to keep cat numbers consistent with what was present before the mining areas were operational. The answer to Criteria 7 is 'No'.

There is no suggestion or evidence to indicate that the proposed action will introduce disease into the Southern Whiteface habitats that would adversely significantly impact this small bush bird. The answer to Criteria 8 is 'No'.

There is no recovery plan for Southern Whiteface, and it is highly improbable that the proposed action will significantly and detrimentally impact the overall Southern Whiteface population or the bioregional Southern Whiteface population. The answer to Criteria 9 is 'No'.

Based on an assessment using criteria in the Commonwealth Government's (Department of the Environment 2013) significant impact assessment criteria, the proposed action will not significantly impact this species.

The Department of Climate Change, Energy, the Environment and Water's (2023) conservation advice listed the issues shown in Table 17 as threats to the Southern Whiteface. Against each threat is a comment on whether the proposed action will significantly increase this threat.

**Table 17. Threats to Southern Whiteface as described in the Conservation Advice to the Commonwealth Government Minister**

| Threat | Response |
|---|---|
| Habitat loss caused by clearing for agriculture | The proposed action is not clearing land for agriculture. |
| Habitat degradation caused by domestic livestock grazing | The cattle on the pastoral stations nearby were present long before the mining activity was undertaken. |
| Increased frequency or length of droughts | The mining operations have no capacity to influence the frequency or length of droughts in the Goldfields. |
| Increased likelihood of extreme events (i.e., wildfire, drought and heatwaves) | Genesis cannot influence the likelihood of extreme events in the Goldfields. |

*Mitigation*

The following two mitigation measures will reduce the potential impact of vegetation clearing on the Southern Whiteface:

- Clearing vegetation outside the breeding season of April to September (Johnstone and Storr 1998), and having a zoologist search each area for Southern Whiteface active nests before vegetation clearing will reduce the probability of disturbing an active Southern Whiteface nest. If an active nest(s) is found, then a 250m buffer is implemented around the nest site until all chicks have fledged; and
- Minimising vegetation clearing by redesigning the infrastructure location to avoid the more densely vegetated areas.

## 7.4 REFERRAL UNDER THE *EPBC ACT*

The project area will likely support Southern Whiteface (listed as Vulnerable under the *EPBC Act 1999*). However, the proposed vegetation clearing is unlikely to significantly impact this species or any other species of conservation significance. Therefore, a referral under the *EPBC Act* is not recommended.

# 8. SUMMARY

Genesis Minerals requested an update to a 2022 vertebrate fauna risk assessment to support the preparation of environmental approval applications for the Leonora Province Expansion project area in Leonora (i.e. project area). The project is located north and south of Leonora and straddles the Goldfields Highway and the Leonora Mount Ida Road. The total assessed area was 3,588ha.

There are five broad fauna habitats in the project area:

- Bare salt lakes;
- Ephemeral creek lines;
- Tall shrublands;
- Low shrublands; and
- Open mulga woodlands.

In addition, there are disturbed areas that are largely devoid of vegetation, and if present are mostly weeds with few vertebrate fauna.

The density of trees and shrubs in the relatively undisturbed areas varied across the project area but was mostly sparse. The fauna habitat varied from highly degraded to good; the more degraded areas are due to historical and recent mining activity and grazing. There are numerous access tracks in the project area, but these are narrow and mostly only wheel tracks on a sand-clay substrate. There is extensive evidence of feral fauna in the area.

Tracks of Malleefowl were recorded at three locations in the project area, but there are no active or recently active Malleefowl mounds, so it is probable these are isolated birds that are moving around in the areas of slightly more-dense vegetation, but are not breeding.

The Southern Whiteface has been recorded in other fauna surveys in the adjacent areas, so it will likely be present in the project area. This small bush bird is relatively abundant in this part of the Goldfields and Murchison and will move if disturbed; therefore, vegetation clearing and further operations in the area are unlikely to impact this species significantly.

Clearing native vegetation in the project area is likely to result in the loss of small vertebrate fauna on-site that are unable to move away during the vegetation clearing process, however, this loss is not expected to be significant when viewed in a bioregional context. The few larger animals, such as kangaroos, large goannas and snakes, and most of the birds will move into adjacent areas once vegetation clearing commences, so potential impacts will be low. There may be an on-going loss of small native fauna to vehicle strikes on access tracks, but overall, this impact will be very low. Forced migration of fauna due to vegetation clearing increases competition for resources, which may result in the subsequent loss of migrants or local individuals. Individuals shifted out of their established activity areas are also vulnerable to predation until they have become established in their new areas. The impacts associated with clearing the vegetation in the project area in a landscape or bioregional context on the vertebrate fauna are likely low as there are vast tracts of similar habitat in adjacent areas.

Impacts on vertebrate fauna associated with clearing vegetation in the project area in a landscape or bioregional context are likely to be low as there are vast tracts of similar fauna habitat in adjacent areas.

There was evidence of rabbits, cattle, horses and wild dogs in the project area, and probably feral cats. These feral and pest fauna are likely to be doing more environmental damage than the combined impacts of proposed development.

The proposed project is unlikely to have a significant impact on a species of conservation significance, so a referral under the *EPBC Act* is not recommended.

The proposed windfarm will potentially impact birds and bats in the project area, so a management plan is required, which may include increasing the wind-turbines' cut-in speed to minimise the impact on birds and bats. Once the design characteristics of the wind farm are known, further targeted assessment may be required.

# 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 the recommended Vertebrate Fauna Management Plan and Construction Environmental Management Plan.

## 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:** An induction program that includes a component on managing fauna is mandatory for staff working in the project area.

**Recommendation 2:** The induction program should incorporate information on protecting fauna and reporting deaths and sightings of feral fauna or fauna of conservation significance.

## 9.2 FAUNA MANAGEMENT AND MONITORING PLAN

The wind-turbines are likely to result in a loss of bats and birds in the project area. This loss can be partially mitigated by altering the cut-in speed for the turbine to operate. The potential impact on aerial fauna will need to be monitored. Details of the mitigation and monitoring should be contained in the fauna management plan for the project.

**Recommendation 3:** A vertebrate management and monitoring plan is prepared, identifying management actions to mitigate the potential impacts and a monitoring program to assess ongoing operations.

**Recommendation 4:** The fauna management and monitoring plan should specifically address potential impacts on birds and bats and include mitigation strategies to minimise this impact.

## 9.3 FERAL PREDATORS

The abundance of wild dogs and feral cats often increases around mining and other operations in the Goldfields, particularly due to poor waste management. These increased predator numbers can then impact on the native fauna. The potential impact of feral predators should be addressed in the fauna management plan and wild dog and feral cat management programs regularly implemented.

**Recommendation 5:** The management of wild dogs and feral cats is specifically addressed in the fauna management plan and management plans are regularly implemented.

## 9.4 DUST

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

**Recommendation 6:** The impact of dust on adjacent vegetation and fauna habitat is managed against appropriate KPIs and following the clients' site processes.

## 9.5 MINIMISING HABITAT FRAGMENTATION

Loss of vegetation and habitat may contribute to declining fauna in and around the project area. Where practicable, access routes are aligned to existing tracks and other barriers or follow the boundaries of broad-scale vegetation associations to minimise the impact on terrestrial fauna, which are often dependent upon specific habitat types. Where practicable, clearing is minimised and fragmentation of remnant vegetation is avoided. Once areas are no longer required, they are rehabilitated.

**Recommendation 7:** All areas disturbed during exploration or mining are rehabilitated as soon as practical after they are no longer required.

**Recommendation 8:** Where possible, access routes are aligned to existing roads, tracks and other barriers or follow the boundaries of broad-scale vegetation associations in the area.

## 9.6 UNCAPPED DRILL HOLES

Uncapped drill holes can seriously threaten small animals, including ground-dwelling reptiles, frogs and mammals. A log of all on-site drill holes is maintained, detailing when they were capped, how and by whom. All drill holes are temporarily capped on completion of drilling and permanently capped or closed as soon as possible after exploration activities have ceased.

**Recommendation 9:** A log of all on-site drill holes is maintained detailing when, how, and by whom they were capped.

## 9.7 SOUTHERN WHITEFACE

Clearing vegetation in the project area may remove habitat that the Southern Whiteface has used and could use in the future. These impacts are unlikely to be significant in a regional context, however, mitigation can further reduce potential impacts.

**Recommendation 10:** Clearing vegetation is undertaken outside the Southern Whiteface breeding season of April to September, acknowledging that rainfall events can influence the breeding season.

**Recommendation 11:** If clearing is to occur in the Southern Whiteface breeding season, a zoologist familiar with the species will search the area for active nests before vegetation clearing is undertaken.

**Recommendation 12:** If an active Southern Whiteface nest(s) is found, a 250m buffer is implemented around the nest site until all chicks have fledged.

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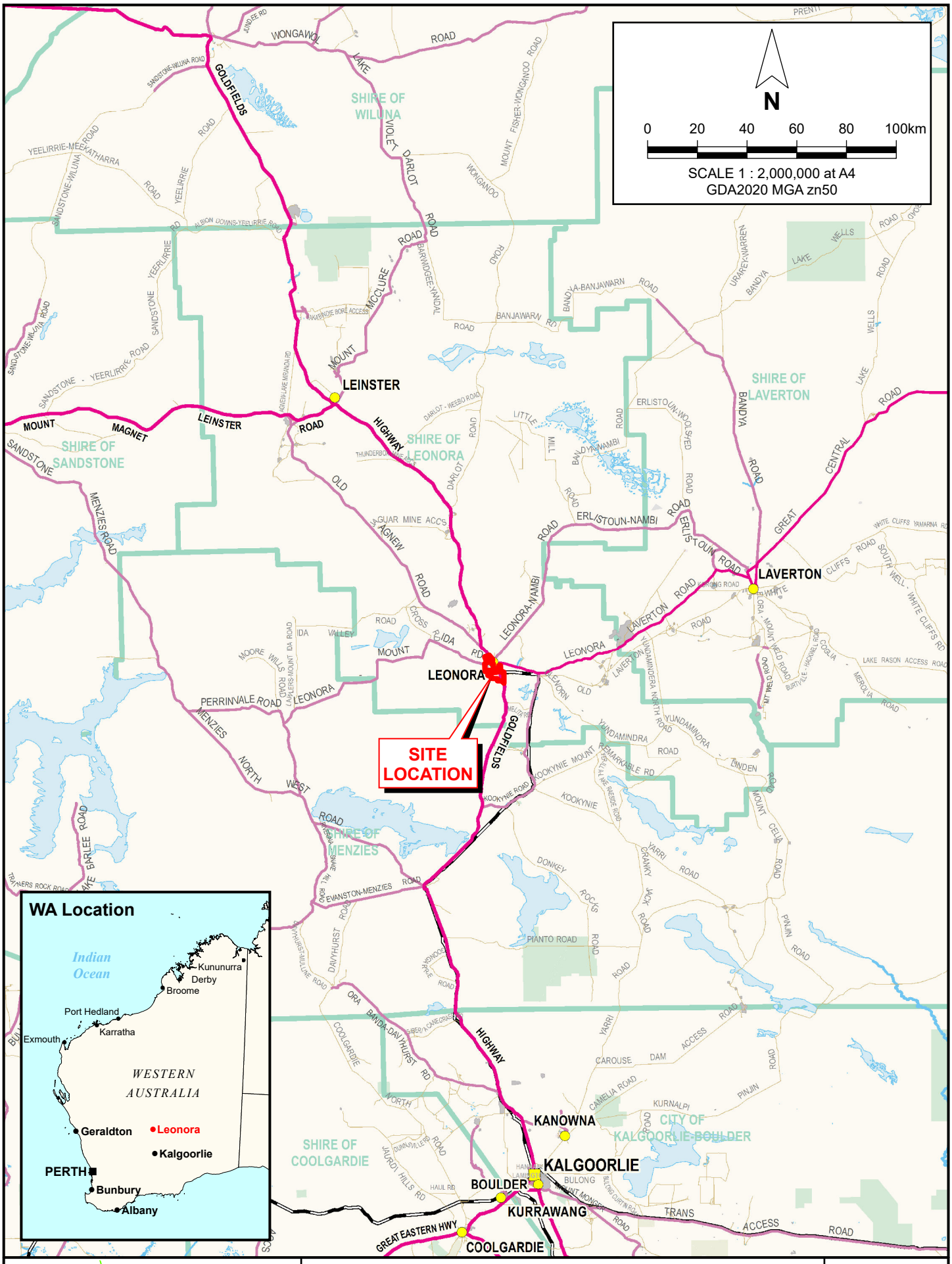
# Figures

**Basic Vertebrate Fauna Reconnaissance Survey and Risk Assessment**
**St Barbara Leonora Province Expansion**

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TERRESTRIAL ECOSYSTEMS

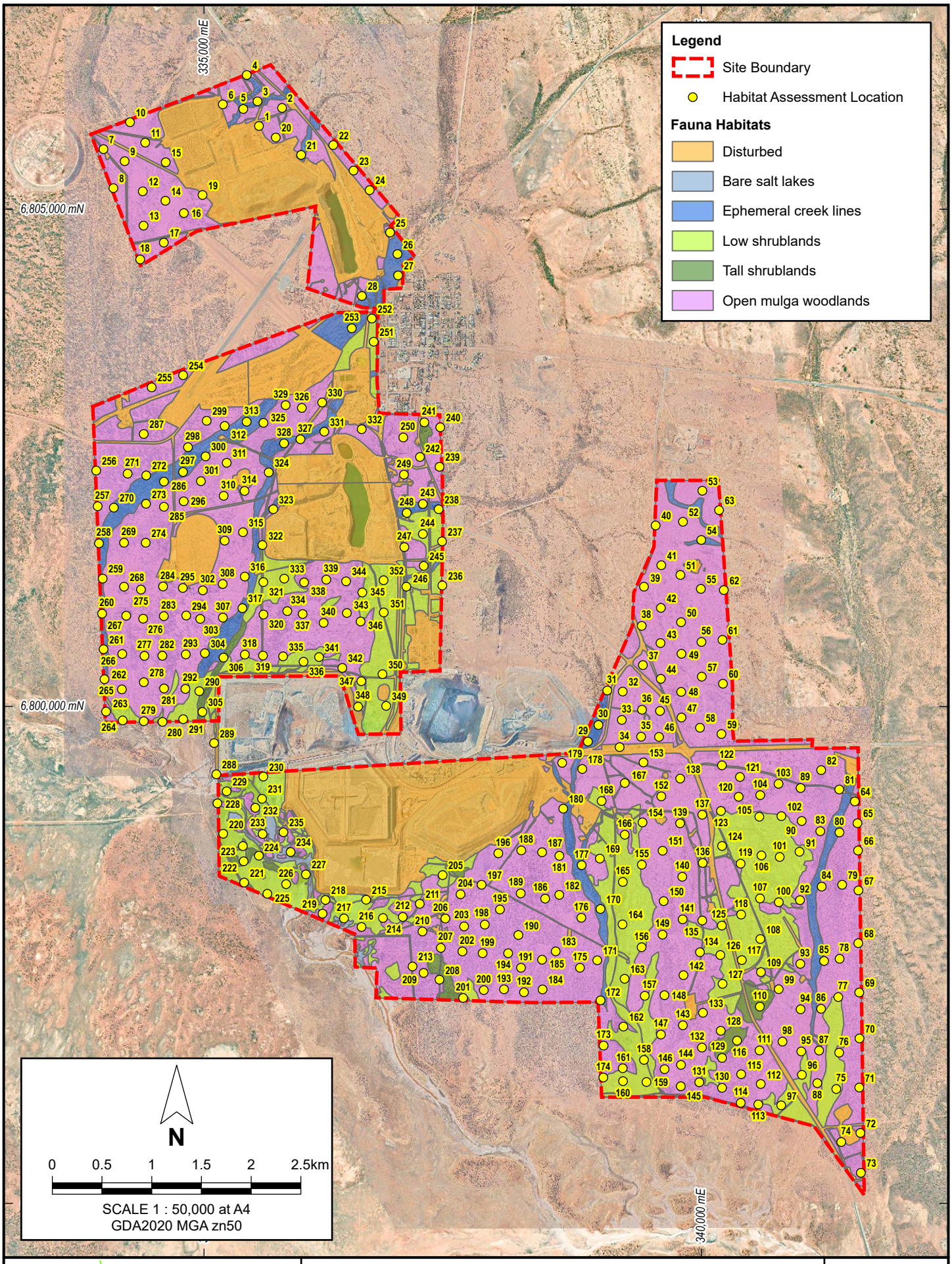
Drawn: S. Thompson | Date: 14 Jul 2025

Genesis Minerals Ltd
BASIC VERTEBRATE FAUNA RECONNAISSANCE SURVEY AND RISK ASSESSMENT FOR ST BARBARA LEONORA PROVINCE EXPANSION

# REGIONAL CONTEXT

**Figure 1**

Job: 2025-0074




PINPOINT CARTOGRAPHICS (08) 9562 7136 2025-0074.mxd

TERRESTRIAL ECOSYSTEMS

Drawn: S. Thompson | Date: 1 Aug 2025

Genesis Minerals Ltd
BASIC VERTEBRATE FAUNA RECONNAISSANCE SURVEY AND RISK ASSESSMENT FOR ST BARBARA LEONORA PROVINCE EXPANSION

# FAUNA HABITATS AND RAPID HABITAT ASSESSMENT LOCATIONS

**Figure 2**

Job: 2025-0074

# Appendix A.

## Results of the *EPBC Act* Protected Matters Search

**Basic Vertebrate Fauna Reconnaissance Survey and Risk Assessment**
**St Barbara Leonora Province Expansion**

# 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: 31-Jul-2025

# 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: | 8 |
| 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: | 12 |
| 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: | 1 |
| Regional Forest Agreements: | None |
| Nationally Important Wetlands: | None |
| EPBC Act Referrals: | 2 |
| 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.<br>Number is the current name ID. | | | |
| Scientific Name | Threatened Category | Presence Text | Buffer Status |
| BIRD | | | |
| Aphelocephala leucopsis<br>Southern Whiteface [529] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Falco hypoleucos<br>Grey Falcon [929] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Leipoa ocellata<br>Malleefowl [934] | Vulnerable | Species or species habitat known to occur within area | In feature area |
| Pezoporus occidentalis<br>Night Parrot [59350] | Endangered | Species or species habitat may occur within area | In feature area |
| Polytelis alexandrae<br>Princess Parrot, Alexandra's Parrot [758] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Tringa nebularia<br>Common Greenshank, Greenshank [832] | Endangered | Species or species habitat likely to occur within area | In feature area |
| MAMMAL | | | |
| Dasyurus geoffroii<br>Chuditch, Western Quoll [330] | Vulnerable | Species or species habitat may occur within area | In buffer area only |

| Listed Migratory Species | | | [ Resource Information ] |
|---|---|---|---|
| Scientific Name | Threatened Category | Presence Text | Buffer Status |
| Migratory Marine Birds | | | |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area | In feature area |
| Migratory Terrestrial Species | | | |
| Motacilla cinerea<br>Grey Wagtail [642] | | Species or species habitat may occur within area | In feature area |
| Motacilla flava<br>Yellow Wagtail [644] | | Species or species habitat may occur within area | In feature area |
| Migratory Wetlands Species | | | |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat known to occur within area | In feature area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area | In feature area |
| Charadrius veredus<br>Oriental Plover, Oriental Dotterel [882] | | Species or species habitat may occur within area | In buffer area only |
| Tringa nebularia<br>Common Greenshank, Greenshank [832] | Endangered | Species or species habitat likely to occur within area | In feature 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 | Buffer Status |
| Unknown | | |

| Commonwealth Land Name | State | Buffer Status |
|---|---|---|
| Commonwealth Land - [51796] | WA | In buffer area only |
| Commonwealth Land - [52213] | WA | In feature area |
| Commonwealth Land - [51756] | WA | In feature area |
| Commonwealth Land - [51754] | WA | In feature area |
| Commonwealth Land - [51755] | WA | In feature area |
| Commonwealth Land - [51752] | WA | In feature area |
| Commonwealth Land - [51753] | WA | In feature area |
| Commonwealth Land - [52232] | WA | In feature area |
| Commonwealth Land - [51751] | WA | In feature area |
| Commonwealth Land - [51058] | WA | In feature area |
| Commonwealth Land - [51984] | WA | In buffer area only |
| Commonwealth Land - [52197] | WA | In feature area |

| Listed Marine Species | | | [ Resource Information ] |
|---|---|---|---|
| Scientific Name | Threatened Category | Presence Text | Buffer Status |
| Bird | | | |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat known to occur within area | In feature area |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area overfly marine area | In feature area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area | In feature area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area overfly marine area | In feature area |

| Scientific Name | Threatened Category | Presence Text | Buffer Status |
|---|---|---|---|
| Chalcites osculans as Chrysococcyx osculans | | | |
| Black-eared Cuckoo [83425] | | Species or species habitat known to occur within area overfly marine area | In feature area |
| Charadrius veredus | | | |
| Oriental Plover, Oriental Dotterel [882] | | Species or species habitat may occur within area overfly marine area | In buffer area only |
| Merops ornatus | | | |
| Rainbow Bee-eater [670] | | Species or species habitat may occur within area overfly marine area | In feature area |
| Motacilla cinerea | | | |
| Grey Wagtail [642] | | Species or species habitat may occur within area overfly marine area | In feature area |
| Motacilla flava | | | |
| Yellow Wagtail [644] | | Species or species habitat may occur within area overfly marine area | In feature area |
| Thinornis cucullatus as Thinornis rubricollis | | | |
| Hooded Plover, Hooded Dotterel [87735] | | Species or species habitat known to occur within area overfly marine area | In feature area |
| Tringa nebularia | | | |
| Common Greenshank, Greenshank [832] | Endangered | Species or species habitat likely to occur within area overfly marine area | In feature area |

## Extra Information

| State and Territory Reserves | | | [ Resource Information ] |
|---|---|---|---|
| Protected Area Name | Reserve Type | State | Buffer Status |
| Unnamed WA46847 | Nature Reserve | WA | In buffer area only |

| EPBC Act Referrals | | | | [ Resource Information ] |
|---|---|---|---|---|
| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
| | | | | |
| Redcliffe Gold Project | 2023/09452 | | Completed | In buffer area only |

| Title of referral | Reference | Referral Outcome | Assessment Status | Buffer Status |
|---|---|---|---|---|
| Not controlled action | | | | |
| Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia | 2015/7522 | Not Controlled Action | Completed | In feature area |

# 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 is 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 on the contents of this report.

## 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 point locations and environmental data layers.

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 when time permits.

## 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 breeding sites; and
- 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 Reconnaissance Survey and Risk Assessment**
**St Barbara Leonora Province Expansion**

| | | Surveys | A | B | | | | | | | | C | | | | | | | | | D | | | | | | E | | | | | | | | | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family | Species | Common Name | | Site 1E | Site LL4 | Site LL5 | Site LL3 | Site LL1 | Site LL2 | Site 7 | Site 8 | Site 13 | Site 9 | Site 9a | Site 12 | Site 21 | Site 14 | Site 21a | Site 19 | Site 12a | MME1 | MME2 | Opportunis | MME3 | MME7 | MME6 | GG27 | GG29 | GG28 | GS28 | GS29 | GS27 | GS30 | GG30 | Weebo |
| Amphibians | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Limnodynastidae | *Neobatrachus kunapalari* | Wheatbelt Frog | X | 6 | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Neobatrachus sudelli* | Sudell's Frog | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Neobatrachus sutor* | Shoemaker Frog | X | | | | | | | | | 3 | 5 | 10 | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| | *Neobatrachus wilsmorei* | Plonking Frog | X | | | | | | | | | 1 | 11 | | 2 | 2 | | | | | | | | | | | 3 | 2 | | | | | | | | |
| | *Platyplectrum spenceri* | Spencer's Burrowing Frog | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Myobatrachidae | *Pseudophryne occidentalis* | Western Toadlet | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pelodryadidae | *Cyclorana maini* | Main's Frog | X | 4 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| | *Cyclorana occidentalis* | Western Water-holding Frog | X | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Litoria cyclorhyncha* | Spotted-thighed Frog | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Litoria moorei* | Motorbike Frog | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reptiles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agamidae | *Ctenophorus caudicinctus* | Ring-tailed Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenophorus cristatus* | Crested Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | 5 | 1 | 1 | | | | | |
| | *Ctenophorus fordi* | Mallee Dragon | X | 5 | | | | | | | | 43 | | | | 2 | | | | | | | | | | | 42 | 2 | 15 | 2 | 2 | 9 | | | | |
| | *Ctenophorus graafi* | Ring-tailed Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenophorus inermis* | Military Dragon | | 2 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | *Ctenophorus infans* | Ring-tailed Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenophorus isolepis* | Central Military Dragon | X | 7 | 4 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |
| | *Ctenophorus nuchalis* | Central Netted Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenophorus ornatus* | Ornate Crevice Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenophorus pictus* | Painted Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenophorus reticulatus* | Western Netted Dragon | X | 2 | | | | | | | | | 2 | 1 | | | 2 | 4 | | | | 1 | 1 | 1 | 3 | | | | | | | | 1 | 2 | | |
| | *Ctenophorus salinarum* | Saltpan Dragon | X | 3 | | | | 1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenophorus scutulatus* | Lozenge-marked Dragon | X | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | 3 | 7 | 3 | | 8 | | 3 | 1 | | |
| | *Diporiphora amphiboluroides* | Mulga Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Moloch horridus* | Thorny Devil | X | 3 | | | | | | | | 1 | | 1 | 2 | | | | | | | | | | | | 1 | | | | 1 | 2 | | 1 | | |
| | *Pogona minor* | Western Bearded Dragon | X | 2 | 2 | 1 | 1 | | | | | 1 | 2 | | 4 | 2 | 1 | 1 | 2 | | | | | | | | 1 | 1 | 1 | | 3 | 1 | | 3 | | |
| | *Tympanocryptis cephalus* | Pebble Dragon | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carphodactylidae | *Nephrurus laevissimus* | Smooth Knob-tail | X | | | | | | | | | 18 | | | 1 | | | | | | | | | | | | 18 | | 2 | 1 | 1 | 9 | | | | |
| | *Nephrurus vertebralis* | Midline Knob-tail | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Nephrurus wheeleri* | Banded Knob-tail | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Underwoodisaurus milii* | Barking Gecko | X | 1 | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | 9 | | | | |
| Diplodactylidae | *Diplodactylus conspicillatus* | Fat-tailed Gecko | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | Surveys | A | B | | | | | | | | C | | | | | | | | | D | | | | | | E | | | | | | | | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family | Species | Common Name | | Site 1E | Site LL4 | Site LL5 | Site LL3 | Site LL1 | Site LL2 | Site 7 | Site 8 | Site 13 | Site 9 | Site 9a | Site 12 | Site 21 | Site 14 | Site 21a | Site 19 | Site 12a | MME1 | MME2 | Opportunis | MME3 | MME7 | MME6 | GG27 | GG29 | GG28 | GS28 | GS29 | GS27 | GS30 | GG30 | Weebo |
| Elapidae | *Brachyurophis fasciolatus* | Narrow-banded Burrowing Snake | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | |
| | *Brachyurophis semifasciata* | Half-girdled Snake | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | *Demansia psammophis* | Yellow-faced Whipsnake | X | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| | *Furina ornata* | Orange-naped Snake | X | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Neelaps bimaculatus* | Black-naped Burrowing Snake | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Suta monachus* | Hooded Snake | X | | | | | | | | | | | | | | | | | | | | 1 | | | | | | 1 | | | | | |
| | *Pseudechis australis* | Mulga Snake | X | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Pseudechis butleri* | Spotted Mulga Snake | X | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | |
| | *Pseudonaja mengdeni* | Western Brown Snake | X | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| | *Pseudonaja modesta* | Ringed Brown Snake | X | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | | 3 | | | | | |
| | *Simoselaps bertholdi* | Jan's Banded Snake | X | 1 | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | |
| | *Suta fasciata* | Rosen's Snake | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gekkonidae | *Christinus marmoratus* | Marbled Gecko | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Gehyra punctata* | Spotted Dtella | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Gehyra purpurascens* | Purplish Dtella | X | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | |
| | *Gehyra variegata* | Variegated Gehyra | X | 25 | | 1 | 1 | 1 | | | | 1 | | | 2 | | | 2 | 1 | | 3 | 9 | 1 | 3 | 2 | 9 | 1 | | 3 | 4 | 6 | 2 | 3 | 1 | |
| | *Heteronotia binoei* | Bynoe's Gecko | X | 5 | | | | | | | | | | | | | | 2 | | | | 3 | 1 | | | | | | | | | | 2 | |
| Pygopodidae | *Aprasia picturata* | Black-headed Worm-lizard | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Delma butleri* | Unbanded Delma | X | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| | *Delma nasuta* | Sharp-snouted Delma | X | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lialis burtonis* | Burton's Legless Lizard | X | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| | *Pygopus nigriceps* | Western Hooded Scaly-foot | X | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | 1 | | | | | | |
| Pythonidae | *Antaresia stimsoni* | Stimson's Python | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Scincidae | *Cryptoblepharus buchananii* | Buchanan's Snake-eyed Skink | X | 3 | | | | 1 | | | | | | | | 1 | | 1 | | | | 2 | 1 | | | | | 1 | 3 | | | 1 | | 3 | |
| | *Ctenotus ariadnae* | Ariadna's Ctenotus | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenotus atlas* | Southern Mallee Ctenotus | X | | | | | | | | | 3 | | | | | | | | | | | | | | | 3 | 1 | 4 | 3 | 2 | 3 | | | |
| | *Ctenotus brooksi* | Wedgsnout Ctenotus | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenotus calurus* | Blue-tailed Finesnout Ctenotus | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |
| | *Ctenotus grandis* | Grand Ctenotus | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenotus greeri* | Spotted-necked Ctenotus | X | | 2 | | | | | | | | | | | | | | 12 | | | | | | | | | | | | | | | |
| | *Ctenotus helenae* | Clay-soil Ctenotus | X | 3 | 3 | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |

| | | Surveys | A | B | | | | | | | | C | | | | | | | | D | | | | | | E | | | | | | | | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family | Species | Common Name | | Site 1E | Site LL4 | Site LL5 | Site LL3 | Site LL1 | Site LL2 | Site 7 | Site 8 | Site 13 | Site 9 | Site 9a | Site 12 | Site 21 | Site 14 | Site 21a | Site 19 | Site 12a | MME1 | MME2 | Opportunis | MME3 | MME7 | MME6 | GG27 | GG29 | GG28 | GS28 | GS29 | GS27 | GS30 | GG30 | Weebo |
| | *Ctenotus leae* | Orange-tailed Finesnout Ctenotus | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenotus leonhardii* | Leonhardi's Ctenotus | X | | | | | | | | | | 5 | 9 | | | | | | | | | | 1 | | | | | | | | | | |
| | *Ctenotus mimetes* | Checker-sided Ctenotus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenotus pantherinus* | Leopard Ctenotus | X | | 6 | | 1 | | | | | | | | | | | | 4 | | | | | | | | | | | | | | | |
| | *Ctenotus quattuordecimlineatus* | Fourteen-lined Ctenotus | | | | | | | | | | | | | | | | | 11 | | | | | | | | | | | | | | | |
| | *Ctenotus schomburgkii* | Barred Wedgesnout Ctenotus | X | | 3 | | | | | | | 9 | 1 | | | 3 | | | 11 | | 1 | | 1 | | | | 9 | 3 | 5 | 5 | 1 | 1 | | | |
| | *Ctenotus severus* | Stern Ctenotus | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenotus uber* | Spotted Ctenotus | X | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | 1 | | | | | 1 | 6 | |
| | *Ctenotus xenopleura* | Wide-striped Ctenotus | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Cyclodomorphus branchialis* | Common Slender Bluetongue | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| | *Cyclodomorphus melanops* | Spinifex Slender Blue-tongue | X | | | | | | | | | | | | | | | | | | | | | | | | | 10 | 2 | | 2 | | 2 | | |
| | *Egernia depressa* | Southern Pygmy Spiny-tailed Skink | X | | 3 | | | | | | | | | | | 2 | | | | | | | | | | 1 | | | | | | | | | |
| | *Egernia formosa* | Goldfields Crevice Skink | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 | 2 |
| | *Eremiascincus richardsonii* | Broad-banded Sand-swimmer | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lerista desertorum* | Central Desert Robust Slider | X | 1 | | 1 | 1 | 1 | | | | | | | | | | | 6 | | | | 1 | | | 1 | | | | | | | | | |
| | *Lerista kingi* | King's Slider | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lerista lineopunctulata* | Dotted-line Robust Slider | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lerista macropisthopus* | Unpatterned Robust Slider | X | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| | *Lerista muelleri* | Wood Mulch-slider | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lerista picturata* | Southern Robust Slider | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lerista timida* | Timid Slider | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Liopholis inornata* | Desert Skink | X | | | | | | | | | 1 | | | 1 | 1 | | 1 | | | | | | | | | 2 | 1 | | 2 | | 4 | | | |
| | *Menetia greyii* | Common Dwarf Skink | X | 2 | | | 1 | 1 | | | | 2 | 1 | | | 1 | | | | | 4 | | 1 | | | | 2 | 1 | 1 | 1 | 1 | 1 | | 1 | |
| | *Morethia butleri* | Woodland Morethia Skink | X | 2 | | | | | | | | | | | | | 2 | 2 | | | | 2 | 1 | | 1 | 3 | | | | | | | 2 | 1 |
| | *Tiliqua occipitalis* | Western Blue-tongued Lizard | X | 2 | | | | | | | | 1 | | | 1 | | | | | | | | | | | | 1 | | | | | 1 | | | |
| | *Tiliqua rugosa* | Bobtail | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Typhlopidae | *Anilios australis* | Austral Blind Snake | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | |
| | *Anilios bituberculatus* | Prong-snouted Blind Snake | X | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |

| | | Surveys | A | B | | | | | | | | C | | | | | | | | | D | | | | | | E | | | | | | | | | F |
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| Family | Species | Common Name | | Site 1E | Site LL4 | Site LL5 | Site LL3 | Site LL1 | Site LL2 | Site 7 | Site 8 | Site 13 | Site 9 | Site 9a | Site 12 | Site 21 | Site 14 | Site 21a | Site 19 | Site 12a | MME1 | MME2 | Opportunis | MME3 | MME7 | MME6 | GG27 | GG29 | GG28 | GS28 | GS29 | GS27 | GS30 | GG30 | Weebo |
| | *Anilios hamatus* | Pale-headed Blind Snake | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| Varanidae | *Varanus brevicauda* | Short-tailed Pygmy Monitor | X | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Varanus caudolineatus* | Stripe-tailed Monitor | X | 1 | | 1 | | | | | | | 1 | | | | | | | | | 1 | | | | 1 | | | | | | | | | |
| | *Varanus eremius* | Pygmy Desert Monitor | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Varanus giganteus* | Perentie | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Varanus gouldii* | Gould's Goanna | X | 1 | | | | | | | | | 1 | 1 | | 2 | | 2 | | | | | | | | | | 2 | | 1 | | | | | |
| | *Varanus panoptes* | Yellow-spotted Monitor | X | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | |
| | *Varanus tristis* | Black-headed Monitor | X | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | 1 | | | |
| Birds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Casuariidae | *Dromaius novaehollandiae* | Emu | | | | | 2 | | 1 | | | 8 | 1 | | | | | 1 | 2 | | 1 | 1 | 1 | | | 1 | | | | | | | | | |
| Anatidae | *Cygnus atratus* | Black Swan | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Tadorna tadornoides* | Australian Shelduck | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Chenonetta jubata* | Australian Wood Duck | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Anas superciliosa* | Pacific Black Duck | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Anas gracilis* | Grey Teal | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Malacorhynchus membranaceus* | Pink-eared Duck | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| Megapodiidae | *Leipoa ocellata* | Malleefowl | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| Podicipedidae | *Poliocephalus poliocephalus* | Hoary-headed Grebe | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Columbidae | *Phaps chalcoptera* | Common Bronzewing | | | | 4 | | | | | | | | | | | | 1 | | 1 | | | 1 | | | | | | | | | | | | |
| | *Ocyphaps lophotes* | Crested Pigeon | | | 5 | 4 | | 2 | | | | | 6 | | | | 1 | | | | 2 | | 1 | | | 2 | | | | | | | | | |
| | *Geopelia cuneata* | Diamond Dove | | | | 8 | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Cuculidae | *Chrysococcyx basalis* | Horsfield's Bronze-Cuckoo | | | | 1 | | | | | | 6 | 1 | | | | | 2 | 3 | | | | | | | | | | | | | | | | |
| | *Chrysococcyx osculans* | Black-eared Cuckoo | | | | | | | | | | 3 | | | | | | | 1 | | | | | | | | | | | | | | | | |
| Aegothelidae | *Aegotheles cristatus* | Australian Owlet-nightjar | | 1 | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | |
| Podargidae | *Podargus strigoides* | Tawny Frogmouth | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rallidae | *Tribonyx ventralis* | Black-tailed Nativehen | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Fulica atra* | Eurasian Coot | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Recurvirostridae | *Himantopus leucocephalus* | Pied Stilt | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Recurvirostra novaehollandiae* | Red-necked Avocet | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| Charadriidae | *Vanellus tricolor* | Banded Lapwing | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Charadrius ruficapillus* | Red-capped Plover | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |

| | | Surveys | A | B | | | | | | | | C | | | | | | | | | D | | | | | | E | | | | | | | | | F |
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| Family | Species | Common Name | | Site 1E | Site LL4 | Site LL5 | Site LL3 | Site LL1 | Site LL2 | Site 7 | Site 8 | Site 13 | Site 9 | Site 9a | Site 12 | Site 21 | Site 14 | Site 21a | Site 19 | Site 12a | MME1 | MME2 | Opportunis | MME3 | MME7 | MME6 | GG27 | GG29 | GG28 | GS28 | GS29 | GS27 | GS30 | GG30 | Weebo |
| | *Elseyornis melanops* | Black-fronted Dotterel | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| Scolopacidae | *Actitis hypoleucos* | Common Sandpiper | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Turnicidae | *Turnix velox* | Little Buttonquail | | | | | | | | | | 13 | | | | | | | | | | | | | | | | | | | | | | | | |
| Ardeidae | *Ardea pacifica* | White-necked Heron | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Egretta novaehollandiae* | White-faced Heron | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| Phalacrocoracidae | *Microcarbo melanoleucos* | Little Pied Cormorant | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Accipitridae | *Hieraaetus morphnoides* | Little Eagle | | 1 | | | | | | | | | | | | | | | 3 | | | 1 | | | | | | | | | | | | | |
| | *Aquila audax* | Wedge-tailed Eagle | | | | | 4 | 8 | 3 | | | | | | | | 6 | | | | | | | | | | | | | | | | | | |
| | *Circus assimilis* | Spotted Harrier | | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| | *Accipiter fasciatus* | Brown Goshawk | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| Cuculidae | *Heteroscenes pallidus* | Pallid Cuckoo | | 1 | | | | | | | | | | | | 4 | 2 | | 1 | | | | 1 | | | | | | | | | | | | |
| Alcedinidae | *Todiramphus pyrrhopygius* | Red-backed Kingfisher | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Meropidae | *Merops ornatus* | Rainbow Bee-eater | | | | | | | | | | 3 | | | | | | | 3 | | | | | | | | | | | | | | | | |
| Falconidae | *Falco cenchroides* | Nankeen Kestrel | | | | 1 | | 1 | 2 | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| | *Falco longipennis* | Australian Hobby | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | |
| | *Falco berigora* | Brown Falcon | | | | | 1 | | | | | | | | | | | | 5 | | | | | | | | | | | | | | | | |
| | *Falco peregrinus* | Peregrine Falcon | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| Cacatuidae | *Eolophus roseicapilla* | Galah | | | 26 | 4 | | 10 | | | | | | | | | 44 | 62 | 5 | | | | 1 | | | | | | | | | | | | |
| | *Nymphicus hollandicus* | Cockatiel | | | 15 | 12 | | 20 | | | | | | | | | | 4 | 3 | | | | | | | | | | | | | | | | |
| Psittaculidae | *Neopsephotus bourkii* | Bourke's Parrot | | | | 6 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Barnardius zonarius* | Australian Ringneck | | | 3 | 4 | 3 | 2 | | | | | 10 | | | 3 | 25 | | 16 | | | 1 | 1 | | 2 | 3 | | | | | | | | | |
| | *Psephotus varius* | Mulga Parrot | | | | 9 | | | | | | 4 | 3 | | | 2 | | | 2 | | | | 1 | 1 | 5 | 5 | | | | | | | | | |
| | *Melopsittacus undulatus* | Budgerigar | | | 6 | 9 | 6 | 5 | 8 | | | 1 | | | | 38 | 11 | | 29 | | | | | | | | | | | | | | | | |
| Ptilonorhynchidae | *Chlamydera guttata* | Western Bowerbird | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Climacteridae | *Climacteris affinis* | White-browed Treecreeper | X | 1 | | | | | | | | | | | | 1 | | 1 | | | | | 1 | | 2 | | | | | | | | | | |
| | *Climacteris rufus* | Rufous Treecreeper | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maluridae | *Malurus pulcherrimus* | Blue-breasted Fairywren | | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | |
| | *Malurus lamberti* | Variegated Fairywren | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Malurus splendens* | Splendid Fairywren | X | | | | | | | | | 24 | | | | | | | | | | | 1 | | 9 | | | | | | | | | | |
| | *Malurus leucopterus* | White-winged Fairywren | X | | | | 69 | | 57 | | | | 17 | | | | | | | | 3 | | | | | | | | | | | | | | |
| Meliphagidae | *Certhionyx variegatus* | Pied Honeyeater | X | | 2 | 4 | | | | | | 2 | | | | | 2 | | | | | | | | | | | | | | | | | | |
| | *Purnella albifrons* | White-fronted Honeyeater | X | | 33 | 17 | 40 | 81 | 99 | | | 69 | 16 | | | 7 | 3 | 6 | 4 | 4 | 80 | 100 | 1 | 12 | 10 | 1 | | | | | | | | | |
| | *Manorina flavigula* | Yellow-throated Miner | | | | | | | | | | | 109 | | | 3 | 10 | | 13 | | 10 | 5 | 1 | 7 | | 10 | | | | | | | | | |
| | *Manorina flavigula* | Yellow-throated Miner | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | Surveys | A | B | | | | | | | | C | | | | | | | | D | | | | | | E | | | | | | | | F |
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| Family | Species | Common Name | | Site 1E | Site LL4 | Site LL5 | Site LL3 | Site LL1 | Site LL2 | Site 7 | Site 8 | Site 13 | Site 9 | Site 9a | Site 12 | Site 21 | Site 14 | Site 21a | Site 19 | Site 12a | MME1 | MME2 | Opportunis | MME3 | MME7 | MME6 | GG27 | GG29 | GG28 | GS28 | GS29 | GS27 | GS30 | GG30 | Weebo |
| | *Acanthagenys rufogularis* | Spiny-cheeked Honeyeater | X | | 5 | 32 | 12 | | | | | 18 | 7 | | | 6 | 11 | 4 | 8 | | 25 | 20 | 1 | | 1 | 2 | | | | | | | | | |
| | *Anthochaera carunculata* | Red Wattlebird | X | | | | | | | | | | 1 | | | | | | 2 | | | | | | | | | | | | | | | | |
| | *Gavicalis virescens* | Singing Honeyeater | X | | | 20 | 1 | | | | | 2 | 4 | | | | 11 | | 2 | | | 4 | 1 | 2 | 1 | 1 | | | | | | | | | |
| | *Ptilotula ornata* | Yellow-plumed Honeyeater | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ptilotula plumula* | Grey-fronted Honeyeater | | | | | | | | | | | | | | | 56 | | 3 | | | | | | | | | | | | | | | | |
| | *Conopophila whitei* | Grey Honeyeater | | | | | | | | | | 2 | 1 | | | | | 17 | | | | | | | | | | | | | | | | | |
| | *Epthianura tricolor* | Crimson Chat | X | | | 11 | 43 | 20 | | | | | | | | | 154 | | | | | | | | | | | | | | | | | | |
| | *Epthianura aurifrons* | Orange Chat | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Epthianura albifrons* | White-fronted Chat | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Sugomel nigrum* | Black Honeyeater | X | 1 | | | | | | | | 7 | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lichmera indistincta* | Brown Honeyeater | X | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Nesoptilotis leucotis* | White-eared Honeyeater | X | | | | | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | |
| | *Melithreptus brevirostris* | Brown-headed Honeyeater | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pardalotidae | *Pardalotus striatus* | Striated Pardalote | X | | | | | 2 | | | | | | | | | | | 2 | | | | 1 | | | | | | | | | | | | |
| Acanthizidae | *Pyrrholaemus brunneus* | Redthroat | X | | | | | | | | | 16 | | | | 2 | | 1 | | | | | 1 | | | | | | | | | | | | |
| | *Acanthiza apicalis* | Inland Thornbill | X | | | 8 | | | | | | 32 | | | | 1 | | 2 | 3 | 2 | 2 | | 1 | | 6 | 2 | | | | | | | | | |
| | *Acanthiza chrysorrhoa* | Yellow-rumped Thornbill | X | | | 3 | | | | | | 2 | 4 | | | | | | 4 | | 5 | 6 | 1 | | 4 | 2 | | | | | | | | | |
| | *Acanthiza uropygialis* | Chestnut-rumped Thornbill | X | | 3 | 20 | 3 | | | | | 23 | 27 | | | | | 10 | 88 | 2 | 8 | 30 | 1 | 2 | 50 | 15 | | | | | | | | | |
| | *Acanthiza robustirostris* | Slaty-backed Thornbill | X | | | | | | | | | | | | | | | | 3 | | | | 1 | | 2 | | | | | | | | | | |
| | *Smicrornis brevirostris* | Weebill | X | | 8 | 6 | | | | | | 50 | | | | 2 | | 2 | 98 | | | | 1 | | | | | | | | | | | | |
| | *Gerygone fusca* | Western Gerygone | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Aphelocephala leucopsis* | Southern Whiteface | X | | | 9 | | | | | | | | | | | | 12 | 5 | | | | 1 | | 20 | 6 | | | | | | | | | |
| | *Pomatostomus superciliosus* | White-browed Babbler | X | | | 22 | | | | | | 1 | | | | | | 3 | | | | | 1 | | | | | | | | | | | | |
| Cinclosomatidae | *Cinclosoma castaneothorax* | Chestnut-breasted Quail-thrush | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Campephagidae | *Coracina maxima* | Ground Cuckooshrike | X | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Coracina novaehollandiae* | Black-faced Cuckooshrike | X | | | | 1 | 2 | 2 | | | | 3 | | | | 4 | | 9 | | | 2 | 1 | | | | | | | | | | | | |
| | *Lalage tricolor* | White-winged Triller | X | | | 1 | 11 | | | | | 2 | 2 | | | | | 6 | | | | | | | | | | | | | | | | | |
| Neosittidae | *Daphoenositta chrysoptera* | Varied Sittella | | | | | | | | | | 2 | | | | | | | 6 | | | | | | | | | | | | | | | | |
| Psophodidae | *Psophodes occidentalis* | Chiming Wedgebill | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Oreoicidae | *Oreoica gutturalis* | Crested Bellbird | X | | 2 | 18 | 17 | | | | | 11 | 2 | | | | 14 | 2 | 15 | 1 | 1 | 3 | 1 | 1 | 2 | 1 | | | | | | | | | |
| Pachycephalidae | *Colluricincla harmonica* | Grey Shrikethrush | X | | | 1 | | | | | | 6 | | | | | | 1 | 5 | | | | 1 | | 2 | 1 | | | | | | | | | |
| | *Pachycephala inornata* | Gilbert's Whistler | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | Surveys | A | B | | | | | | | | C | | | | | | | | | D | | | | | | E | | | | | | | | | F |
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| Family | Species | Common Name | | Site 1E | Site LL4 | Site LL5 | Site LL3 | Site LL1 | Site LL2 | Site 7 | Site 8 | Site 13 | Site 9 | Site 9a | Site 12 | Site 21 | Site 14 | Site 21a | Site 19 | Site 12a | MME1 | MME2 | Opportunis | MME3 | MME7 | MME6 | GG27 | GG29 | GG28 | GS28 | GS29 | GS27 | GS30 | GG30 | Weebo |
| | *Pachycephala rufiventris* | Rufous Whistler | X | | 1 | 18 | | | | | | | | | | | | 1 | 8 | | | | 1 | | 1 | 1 | | | | | | | | | |
| Artamidae | *Artamus personatus* | Masked Woodswallow | X | | | 1 | | | | | | 1 | | | | | 2 | | 2 | | | | | | | | | | | | | | | | |
| | *Artamus superciliosus* | White-browed Woodswallow | | | | | | | | | | | | | | | | | | | | | 1 | 4 | | 1 | | | | | | | | | |
| | *Artamus cinereus* | Black-faced Woodswallow | X | | 1 | 1 | 23 | 43 | 1 | | | | | | | | 55 | 1 | | | | | | | | | | | | | | | | | |
| | *Cracticus torquatus* | Grey Butcherbird | X | | 1 | | | | | | | 2 | 1 | | | | 2 | | 8 | | 1 | 1 | 1 | 1 | 1 | 1 | | | | | | | | | |
| | *Cracticus nigrogularis* | Pied Butcherbird | X | | 1 | 3 | 15 | 5 | 2 | | | 3 | 14 | | | | 6 | 2 | 4 | | 2 | 1 | 1 | 1 | | | | | | | | | | | |
| | *Gymnorhina tibicen* | Australian Magpie | X | 1 | | | | | | | | | 5 | | | | | | | | 3 | | 1 | | | | | | | | | | | | |
| | *Strepera versicolor* | Grey Currawong | X | 1 | | | | | | | | | 4 | | | | | 1 | 2 | | | | | 1 | | | | | | | | | | | |
| Rhipiduridae | *Rhipidura leucophrys* | Willie Wagtail | X | | 1 | 7 | 3 | 2 | | | | | 1 | | | | | | | | 1 | | 1 | | | | | | | | | | | | |
| | *Rhipidura albiscapa* | Grey Fantail | X | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| Monarchidae | *Grallina cyanoleuca* | Magpie-lark | X | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | 2 | | 2 | | | | | | | | | |
| Corvidae | *Corvus orru* | Torresian Crow | X | | | | | | | | | | | | | | | | | | | 1 | 1 | 2 | | 1 | | | | | | | | | |
| | *Corvus bennetti* | Little Crow | X | | | | | | 10 | | | | 149 | | | | 29 | | 24 | | | 2 | 1 | | 1 | | | | | | | | | | |
| | *Corvus coronoides* | Australian Raven | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Petroicidae | *Microeca fascinans* | Jacky Winter | X | | | 3 | 1 | | | | | | | | | | | | 22 | | | | | | | | | | | | | | | | |
| | *Petroica goodenovii* | Red-capped Robin | X | | | 33 | 12 | | | | | 8 | 4 | | | | 1 | 4 | 29 | | 1 | 2 | 1 | | 6 | 2 | | | | | | | | | |
| | *Melanodryas cucullata* | Hooded Robin | X | | | 5 | 3 | | | | | | | | | | 2 | 1 | | | | | 1 | 3 | | | | | | | | | | | |
| | *Eopsaltria griseogularis* | Western Yellow Robin | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Locustellidae | *Cincloramphus cruralis* | Brown Songlark | X | 1 | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | |
| | *Cincloramphus mathewsi* | Rufous Songlark | X | 1 | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | |
| Hirundinidae | *Hirundo rustica* | Barn Swallow | | | | | | | | | | | | | | | | | | | | | | | | 5 | | | | | | | | | |
| | *Hirundo neoxena* | Welcome Swallow | X | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | |
| | *Petrochelidon ariel* | Fairy Martin | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Petrochelidon nigricans* | Tree Martin | X | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Cheramoeca leucosterna* | White-backed Swallow | X | 1 | | | | | | | | | | | | | | | | | | | 1 | 2 | | | | | | | | | | | |
| Dicaeidae | *Dicaeum hirundinaceum* | Mistletoebird | X | | 4 | 7 | | | | | | 3 | 4 | | | 1 | | | | | | | | | | | | | | | | | | | |
| Estrildidae | *Taeniopygia guttata* | Zebra Finch | X | | | 22 | | | | | | | | | | | 12 | | 5 | | | | 1 | | | | | | | | | | | | |
| Motacillidae | *Anthus novaeseelandiae* | Australasian Pipit | X | | | 2 | 5 | | 4 | | | | 2 | | | | | | | | | | 1 | 4 | | | | | | | | | | | |
| Mammals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tachyglossidae | *Tachyglossus aculeatus* | Short-beaked Echidna | X | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | |
| Bovidae | *Capra hircus* | Goat | | | | | | | | | | | | | | | 1 | | 1 | | | | 1 | | | | | | | | | | | | |
| | *Ovis aries* | Sheep | | | | | | | | | | | 1 | 1 | | 1 | | | 1 | | | | | | | | | | | | | | | | |
| Camelidae | *Camelus dromedarius* | Dromedary | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Suidae | *Sus scrofa* | Pig | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Canidae | *Canis lupus* | Dingo | X | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | *Vulpes vulpes* | Red Fox | | 1 | | | | | | | | 1 | | | | | | 1 | 1 | | | | 1 | | | | | | | | | | | | |
| Felidae | *Felis catus* | Cat | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | Surveys | A | B | | | | | | | | C | | | | | | | | | D | | | | | | E | | | | | | | | | F |
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| Family | Species | Common Name | | Site 1E | Site LL4 | Site LL5 | Site LL3 | Site LL1 | Site LL2 | Site 7 | Site 8 | Site 13 | Site 9 | Site 9a | Site 12 | Site 21 | Site 14 | Site 21a | Site 19 | Site 12a | MME1 | MME2 | Opportunis | MME3 | MME7 | MME6 | GG27 | GG29 | GG28 | GS28 | GS29 | GS27 | GS30 | GG30 | Weebo |
| Molossidae | *Austronomus australis* | White-striped Freetail Bat | X | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Mormopterus planiceps* | Southern Free-tail Bat | X | 2 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pteropodidae | *Syconycteris australis* | Common Blossom-bat | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vespertilionidae | *Chalinolobus gouldii* | Gould's Wattled Bat | X | 5 | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | *Nyctophilus geoffroyi* | Lesser Long-eared Bat | X | 5 | | 4 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Scotorepens balstoni* | Inland Broad-nosed Bat | X | 6 | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Vespadelus baverstocki* | Inland Forest Bat | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dasyuridae | *Antechinomys laniger* | Kultarr | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | *Ningaui ridei* | Wongai Ningaui | X | | 5 | | | | | | | 1 | | | | | | | 5 | | | | | | | | | | | 4 | 3 | | | | | |
| | *Ningaui yvonneae* | Mallee Ningaui | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Pseudantechinus woolleyae* | Woolley's False Antechinus | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Sminthopsis crassicaudata* | Fat-tailed Dunnart | X | | | | 1 | 4 | 7 | | | | | 1 | | | | | | | 1 | | | 1 | | | | | | | 1 | | | | | |
| | *Sminthopsis dolichura* | Little Long-tailed Dunnart | X | | | | | | | | | 3 | | | | 1 | | | 1 | | | | | | | | 1 | 1 | 1 | | 1 | 2 | 12 | | | |
| | *Sminthopsis hirtipes* | Hairy-footed Dunnart | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Sminthopsis macroura* | Stripe-faced Dunnart | X | | | 3 | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Sminthopsis ooldea* | Ooldea Dunnart | X | | 2 | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Macropodidae | *Osphranter robustus* | Euro | X | 3 | | | | | | | | | | | | 1 | | | 1 | | | | 1 | | | | | | | | | | | | | |
| | *Osphranter rufus* | Red Kangaroo | X | 38 | | 1 | 2 | 4 | | | | | | | | | 1 | | | | | | 1 | 5 | | | | | | | | | | | | 1 |
| Leporidae | *Oryctolagus cuniculus* | Rabbit | | 3 | | | | 1 | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| Equidae | *Equus asinus* | Donkey | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| Muridae | *Mus musculus* | House Mouse | X | | 2 | 3 | 3 | 3 | 8 | | | 4 | | | | | | | 3 | | 1 | 2 | | 2 | | 2 | | | | 1 | | 4 | | | | |
| | *Notomys alexis* | Spinifex Hopping Mouse | X | | | | | | | | | 2 | | | | 2 | | | | | 7 | | | | 2 | | 3 | 1 | 1 | | 2 | | | | | |
| | *Notomys mitchellii* | Mitchell's Hopping Mouse | X | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| | *Pseudomys albocinereus* | Ash-grey Mouse | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Pseudomys bolami* | Bolam's Mouse | X | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | |
| | *Pseudomys hermannsburgensis* | Sandy Inland Mouse | X | 1 | 8 | 1 | 6 | 1 | | | | 2 | | | | | | | 7 | | | | | | | 1 | 2 | | | | 4 | | | | | |

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| | | Surveys | A | | | | B | | C | D | | | | | | | | E | | F | | | | | | | | | G | | | | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family | Species | Common Name | Site 6 | Site 5 | Site 7 | Opportunistic | Site 7 | Site 6 | Jump Up Dam | MC06 | MC05 | MC07 | BIF | 15 | 7 | 18 | Mine (Tarmoola Operations) | Pipeline (proposed) | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 | Site 6 | Site 9 | Site 8 | Allan's Pool and Mid Gum | TSF3 | Leinster Nickel Operations | Gum Pool | Unknown | Unknown | Unknown | Goongarrie |
| Reptiles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agamidae | *Ctenophorus reticulatus* | Western Netted Dragon | 1 | 3 | | | 1 | | 1 | 1 | 1 | | | | | | X | | | | | | 1 | | | | | | | | | | | | |
| | *Ctenophorus scutulatus* | Lozenge-marked Dragon | | 1 | 2 | | 15 | | | 1 | 16 | 3 | | | | | | | 1 | 3 | 5 | 3 | 1 | | | | | | | | | | | | |
| | *Diporiphora amphiboluroides* | Mulga Dragon | | 1 | | | | | 1 | | | | | | | | | | | | 2 | | | | | | | | | | | | | | |
| | *Pogona minor* | Western Bearded Dragon | | 1 | | | | 6 | | 2 | 1 | 1 | | | | | | | | 1 | | 1 | | | | | | | | | | | | | |
| Carphodactylidae | *Underwoodisaurus milii* | Barking Gecko | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diplodactylidae | *Diplodactylus granariensis* | Wheatbelt Stone Gecko | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Diplodactylus pulcher* | Beautiful Gecko | | 1 | | | 1 | 4 | | 4 | 9 | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | |
| | *Lucasium maini* | Main's Ground Gecko | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Rhynchoedura ornata* | Beaked Gecko | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Strophurus assimilis* | Goldfields Spiny-tailed Gecko | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| Elapidae | *Brachyurophis semifasciata* | Half-girdled Snake | | | | | | | 1 | 1 | | 2 | | | | | | | | | | | | | | | | | | | | | | | |
| | *Demansia psammophis* | Yellow-faced Whipsnake | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Suta monachus* | Hooded Snake | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Gekkonidae | *Gehyra variegata* | Variegated Gehyra | | | | | | | 1 | | 3 | | | | | | X | | | | | | 1 | | | | | | | | | | | | |
| | *Heteronotia binoei* | Bynoe's Gecko | | | | | | | 1 | | 1 | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| Scincidae | *Ctenotus grandis* | Grand Ctenotus | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenotus leonhardii* | Leonhardi's Ctenotus | | | | | | 1 | | | | | | | | | | | 1 | 8 | 2 | 1 | | | | | | | | | | | | | |
| | *Ctenotus mimetes* | Checker-sided Ctenotus | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Ctenotus schomburgkii* | Barred Wedgesnout Ctenotus | | | 2 | | | | | | | 2 | | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| | *Ctenotus uber* | Spotted Ctenotus | | | | | 2 | | | 13 | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Egernia depressa* | Southern Pygmy Spiny-tailed Skink | | | | | | | 1 | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| | *Egernia formosa* | Goldfields Crevice Skink | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lerista kingi* | King's Slider | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lerista lineopunctulata* | Dotted-line Robust Slider | | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Lerista timida* | Timid Slider | | | | | | | | 3 | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| | *Liopholis inornata* | Desert Skink | | | | | 2 | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | |
| | *Menetia greyii* | Common Dwarf Skink | | | | | | | | | | | | | | | | | | 1 | | | 3 | | | | | | | | | | | | |

| | | Surveys | A | | | | B | | C | D | | | | | | | E | | F | | | | | | | | G | | | | H | I | J | K |
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| Family | Species | Common Name | Site 6 | Site 5 | Site 7 | Opportunistic | Site 7 | Site 6 | Jump Up Dam | MC06 | MC05 | MC07 | BIF | 15 | 7 | 18 | Mine (Tarmoola Operations) | Pipeline (proposed) | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 | Site 6 | Site 9 | Site 8 | Allan's Pool and Mid Gum | TSF3 | Leinster Nickel Operations | Gum Pool | Unknown | Unknown | Unknown | Goongarrie |
| | *Morethia butleri* | Woodland Morethia Skink | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Typhlopidae | *Anilios bituberculatus* | Prong-snouted Blind Snake | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | |
| | *Anilios hamatus* | Pale-headed Blind Snake | | | | | 1 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | |
| Varanidae | *Varanus caudolineatus* | Stripe-tailed Monitor | | | | | | | | 1 | 1 | | | | | | | | 3 | 2 | | | | | | | | | | | | | | |
| | *Varanus giganteus* | Perentie | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | |
| | *Varanus gouldii* | Gould's Goanna | | | | | 2 | | | 1 | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Varanus panoptes* | Yellow-spotted Monitor | | | | | | | 1 | | | | | | | | | | 1 | | 2 | 1 | 2 | | | | | | | | | | | |
| Birds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Casuariidae | *Dromaius novaehollandiae* | Emu | | | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Anatidae | *Tadorna tadornoides* | Australian Shelduck | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Chenonetta jubata* | Australian Wood Duck | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| | *Anas superciliosa* | Pacific Black Duck | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Anas gracilis* | Grey Teal | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| Megapodiidae | *Leipoa ocellata* | Malleefowl | | | | X | | | 1 | | | | | X | X | X | | | | | | | | | | | | | | | X | X | 2 | |
| Columbidae | *Phaps chalcoptera* | Common Bronzewing | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Ocyphaps lophotes* | Crested Pigeon | | | | | | | 1 | | | | | | | | X | X | | | | | | | | | 1 | | | | | | | |
| | *Geopelia cuneata* | Diamond Dove | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| Cuculidae | *Chrysococcyx basalis* | Horsfield's Bronze-Cuckoo | | | | | | | 1 | | | | | | | | | | 1 | 2 | 2 | 1 | | | | | | | | | | | | |
| | *Chrysococcyx osculans* | Black-eared Cuckoo | | | | | | | 1 | | | | | | | | | X | 1 | | | | 1 | | | | | | | | | | | |
| Aegothelidae | *Aegotheles cristatus* | Australian Owlet-nightjar | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| Caprimulgidae | *Eurostopodus argus* | Spotted Nightjar | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Apodidae | *Apus pacificus* | Pacific Swift | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rallidae | *Tribonyx ventralis* | Black-tailed Nativehen | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| Charadriidae | *Charadrius ruficapillus* | Red-capped Plover | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Erythrogonys cinctus* | Red-kneed Dotterel | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Elseyornis melanops* | Black-fronted Dotterel | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| Scolopacidae | *Calidris ruficollis* | Red-necked Stint | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Tringa nebularia* | Common Greenshank | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Tringa glareola* | Wood Sandpiper | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| Turnicidae | *Turnix velox* | Little Buttonquail | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Otididae | *Ardeotis australis* | Australian Bustard | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | Surveys | A | | | | B | | C | D | | | | | | | E | | F | | | | | | | | G | | | | H | I | J | K |
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| Family | Species | Common Name | Site 6 | Site 5 | Site 7 | Opportunistic | Site 7 | Site 6 | Jump Up Dam | MC06 | MC05 | MC07 | BIF | 15 | 7 | 18 | Mine (Tarmoola Operations) | Pipeline (proposed) | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 | Site 6 | Site 9 | Site 8 | Allan's Pool and Mid Gum | TSF3 | Leinster Nickel Operations | Gum Pool | Unknown | Unknown | Unknown | Goongarrie |
| Ardeidae | *Egretta novaehollandiae* | White-faced Heron | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| Accipitridae | *Hieraaetus morphnoides* | Little Eagle | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Aquila audax* | Wedge-tailed Eagle | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| | *Accipiter fasciatus* | Brown Goshawk | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| | *Accipiter cirrocephalus* | Collared Sparrowhawk | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Haliastur sphenurus* | Whistling Kite | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| Cuculidae | *Heteroscenes pallidus* | Pallid Cuckoo | | | | | | | | 1 | 1 | | | | | | | X | | 1 | 2 | 2 | 1 | | | | | | | | | | | |
| Alcedinidae | *Dacelo novaeguineae* | Laughing Kookaburra | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | *Todiramphus pyrrhopygius* | Red-backed Kingfisher | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| Meropidae | *Merops ornatus* | Rainbow Bee-eater | | | | | | | 1 | | 2 | | | | | | | | | | | | | | | | | | | | | | 7 | |
| Falconidae | *Falco cenchroides* | Nankeen Kestrel | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| | *Falco longipennis* | Australian Hobby | | | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Falco berigora* | Brown Falcon | | | | | | | 1 | | | | | | | | X | X | | | | | | | | | | | | | | | | |
| Cacatuidae | *Eolophus roseicapilla* | Galah | | | | | | | 1 | | | | | | | | X | X | | 2 | | | 2 | | | | 1 | | | | | | | |
| | *Nymphicus hollandicus* | Cockatiel | | | | | | | 1 | 1 | 5 | | | | | | X | | 13 | 3 | | 21 | 3 | | | | | | | | | | | |
| Psittaculidae | *Neopsephotus bourkii* | Bourke's Parrot | | | | | | | 1 | | | | | | | | | | | | | 5 | | | | | | | | | | | | |
| | *Neophema elegans* | Elegant Parrot | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Barnardius zonarius* | Australian Ringneck | 4 | 8 | 2 | | | | 1 | | | | | | | | X | X | 8 | 5 | 8 | 5 | 5 | | | | | | | | | | | 1 |
| | *Psephotus varius* | Mulga Parrot | | | 2 | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Melopsittacus undulatus* | Budgerigar | | | | | | | 1 | 10 | 10 | 20 | | | | | | | 10 | | 20 | 15 | | | | | | | | | | | | |
| Ptilonorhynchidae | *Chlamydera guttata* | Western Bowerbird | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | |
| | *Ptilonorhynchus maculata* | Spotted Bowerbird | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Climacteridae | *Climacteris affinis* | White-browed Treecreeper | | | 1 | | | | 1 | | | | | | | | | X | | | | | | | | | | | | | | | | |
| Maluridae | *Malurus assimilis* | Purple-backed Fairywren | 6 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Malurus splendens* | Splendid Fairywren | 17 | 15 | 7 | | | | 1 | 8 | 4 | 3 | | | | | X | X | 15 | 10 | 20 | 14 | 21 | | | | | | | | | | | 1 |
| | *Malurus leucopterus* | White-winged Fairywren | | | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Meliphagidae | *Certhionyx variegatus* | Pied Honeyeater | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| | *Purnella albifrons* | White-fronted Honeyeater | | | | | | | 1 | 2 | 2 | 10 | | | | | | | | | | | | | | | | | | | | | | |
| | *Manorina flavigula* | Yellow-throated Miner | | | | | | | 1 | | | | | | | | X | X | | | 1 | 7 | | | | | 1 | | | | | | | 1 |
| | *Acanthagenys rufogularis* | Spiny-cheeked Honeyeater | | | | | | | 1 | 2 | 4 | 10 | | | | | X | X | 1 | 1 | 5 | 5 | 6 | | | | | | | | | | | 1 |
| | *Anthochaera carunculata* | Red Wattlebird | | | | | | | 1 | | | | | | | | | | | | 2 | 5 | | | | | | | | | | | | 1 |

| | | Surveys | A | | | | B | | C | D | | | | | | | E | | F | | | | | | | | G | | | | H | I | J | K |
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| Family | Species | Common Name | Site 6 | Site 5 | Site 7 | Opportunistic | Site 7 | Site 6 | Jump Up Dam | MC06 | MC05 | MC07 | BIF | 15 | 7 | 18 | Mine (Tarmoola Operations) | Pipeline (proposed) | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 | Site 6 | Site 9 | Site 8 | Allan's Pool and Mid Gum | TSF3 | Leinster Nickel Operations | Gum Pool | Unknown | Unknown | Unknown | Goongarrie |
| | *Gavicalis virescens* | Singing Honeyeater | | 2 | 1 | | | | 1 | | 2 | 1 | | | | | X | X | 1 | 1 | 1 | 2 | 2 | | | | | | | | | | | 1 |
| | *Epthianura tricolor* | Crimson Chat | | | | | | | 1 | | | | | | | | | | | 2 | | | | | | | | | | | | | | |
| | *Epthianura albifrons* | White-fronted Chat | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Lichmera indistincta* | Brown Honeyeater | | 4 | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Nesoptilotis leucotis* | White-eared Honeyeater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | *Melithreptus brevirostris* | Brown-headed Honeyeater | | | | | | | | | 6 | | | | | | | | | | | | | | | | | | | | | | | |
| Pardalotidae | *Pardalotus striatus* | Striated Pardalote | | | | | | | 1 | | 2 | | | | | | X | | | | | | | | | | | | | | | | | 1 |
| Acanthizidae | *Pyrrholaemus brunneus* | Redthroat | 2 | 2 | | | | | 1 | 4 | 4 | 2 | | | | | | | | 1 | | | 2 | | | | | | | | | | | 1 |
| | *Acanthiza iredalei* | Slender-billed Thornbill | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | *Acanthiza apicalis* | Inland Thornbill | 5 | 3 | 2 | | | | 1 | 4 | 2 | 4 | | | | | | X | 19 | 10 | 18 | 11 | 16 | | | | | | | | | | | 1 |
| | *Acanthiza chrysorrhoa* | Yellow-rumped Thornbill | | | | | | | 1 | | | | | | | | X | X | | 2 | | | | | | | | | | | | | | |
| | *Acanthiza uropygialis* | Chestnut-rumped Thornbill | 5 | 9 | 3 | | | | 1 | 6 | 6 | 6 | | | | | X | X | | | | | | | | | 1 | | | | | | | 1 |
| | *Acanthiza robustirostris* | Slaty-backed Thornbill | | | | | | | | | | | | | | | | | 5 | 5 | 14 | 8 | 12 | | | | | | | | | | | |
| | *Smicrornis brevirostris* | Weebill | 9 | 11 | 16 | | | | 1 | 2 | 6 | 2 | | | | | X | | 2 | | 10 | 5 | | | | | | | | | | | | |
| | *Gerygone fusca* | Western Gerygone | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Aphelocephala leucopsis* | Southern Whiteface | | 2 | | | | | 1 | | | | | | | | X | X | | | | | | | | | | | | | | | | |
| Pomatostomidae | *Pomatostomus superciliosus* | White-browed Babbler | | 8 | 3 | | | | 1 | 2 | 4 | 2 | | | | | | X | | 3 | | | | | | | | | | | | | | 1 |
| Cinclosomatidae | *Cinclosoma castaneothorax* | Chestnut-breasted Quail-thrush | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Campephagidae | *Coracina novaehollandiae* | Black-faced Cuckooshrike | | | 5 | | | | 1 | | | 2 | | | | | X | X | | | 2 | | | | | | 1 | | | | | | | 1 |
| | *Lalage tricolor* | White-winged Triller | | | | | | | 1 | | | 2 | | | | | | | | | | | | | | | | | | | | | | |
| Neosittidae | *Daphoenositta chrysoptera* | Varied Sittella | | | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | | | |
| Oreoicidae | *Oreoica gutturalis* | Crested Bellbird | 3 | 6 | 3 | | | | 1 | 1 | 1 | 1 | | | | | X | X | 6 | 8 | 6 | 5 | 5 | | | | | | | | | | | 1 |
| Pachycephalidae | *Colluricincla harmonica* | Grey Shrikethrush | 1 | 1 | 1 | | | | 1 | 2 | 1 | 1 | | | | | X | X | 2 | 2 | 2 | 1 | 3 | | | | | | | | | | | 1 |
| | *Pachycephala rufiventris* | Rufous Whistler | | 1 | 1 | | | | 1 | | | | | | | | X | X | 2 | | 1 | | | | | | | | | | | | | 1 |
| Artamidae | *Artamus personatus* | Masked Woodswallow | | | | | | | 1 | 8 | 20 | 500 | | | | | | | | | | | | | | | | | | | | | | |
| | *Artamus cinereus* | Black-faced Woodswallow | | | | | | | | | | | | | | | X | X | | | | | | | | | 1 | | | | | | | |
| | *Cracticus torquatus* | Grey Butcherbird | | | | | | | | | | | | | | | X | X | | | | | | | | | 1 | | | | | | | 1 |
| | *Cracticus nigrogularis* | Pied Butcherbird | | | | | | | 1 | | | | | | | | X | | | 1 | 1 | 2 | 1 | | | | 1 | | | | | | | 1 |
| | *Gymnorhina tibicen* | Australian Magpie | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Strepera versicolor* | Grey Currawong | 2 | 2 | 1 | | | | 1 | | | | | | | | | | 3 | 1 | 5 | 1 | 4 | | | | | | | | | | | 1 |
| Rhipiduridae | *Rhipidura leucophrys* | Willie Wagtail | | | | | | | 1 | | | | | | | | X | X | | | | | | | | | | | | | | | | 1 |

| | | Surveys | A | | | | B | | C | D | | | | | | | E | | F | | | | | | | | G | | | | H | I | J | K |
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| Family | Species | Common Name | Site 6 | Site 5 | Site 7 | Opportunistic | Site 7 | Site 6 | Jump Up Dam | MC06 | MC05 | MC07 | BIF | 15 | 7 | 18 | Mine (Tarmoola Operations) | Pipeline (proposed) | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 | Site 6 | Site 9 | Site 8 | Allan's Pool and Mid Gum | TSF3 | Leinster Nickel Operations | Gum Pool | Unknown | Unknown | Unknown | Goongarrie |
| | *Rhipidura albiscapa* | Grey Fantail | 1 | 1 | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | | | | | | | 1 |
| Monarchidae | *Grallina cyanoleuca* | Magpie-lark | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| Corvidae | *Corvus orru* | Torresian Crow | | | | | | | | | | | | | | | X | X | 3 | 2 | 4 | | | | | | | | | | | | | |
| | *Corvus bennetti* | Little Crow | | | | | | | 1 | | | | | | | | | | 1 | | 1 | 1 | | | | | | | | | | | | 1 |
| Petroicidae | *Petroica goodenovii* | Red-capped Robin | 1 | | 2 | | | | 1 | 2 | 3 | 2 | | | | | X | X | | 4 | 4 | 5 | 3 | | | | | | | | | | | 1 |
| | *Melanodryas cucullata* | Hooded Robin | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Hirundinidae | *Hirundo neoxena* | Welcome Swallow | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| | *Petrochelidon nigricans* | Tree Martin | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| | *Cheramoeca leucosterna* | White-backed Swallow | | | | | | | | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| Dicaeidae | *Dicaeum hirundinaceum* | Mistletoebird | | | | | | | 1 | | 2 | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Estrildidae | *Taeniopygia guttata* | Zebra Finch | | | | | | | 1 | | 6 | 2 | | | | | X | X | | | | | | | | | | | | | | | | |
| Motacillidae | *Motacilla alba* | White Wagtail | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| | *Anthus novaeseelandiae* | Australasian Pipit | | | | | | | 1 | | | | | | | | X | | | | | | | | | | 1 | | | | | | | |
| Mammal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tachyglossidae | *Tachyglossus aculeatus* | Short-beaked Echidna | | | | | 1 | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Bovidae | *Bos taurus* | Cow | | | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Capra hircus* | Goat | | | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Ovis aries* | Sheep | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Camelidae | *Camelus dromedarius* | Dromedary | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | |
| Canidae | *Canis lupus* | Dingo | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Vulpes vulpes* | Red Fox | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Felidae | *Felis catus* | Cat | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Molossidae | *Austronomus australis* | White-striped Freetail Bat | X | X | X | | | | | X | | | X | | | | | | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | |
| | *Mormopterus* sp. 4 | South-western Free-tail Bat | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vespertilionidae | *Chalinolobus gouldii* | Gould's Wattled Bat | X | X | | | | | 1 | X | | | X | | | | | | 1 | 1 | 1 | 1 | 1 | | | | | 1 | 1 | 1 | | | | |
| | *Chalinolobus morio* | Chocolate Wattled Bat | X | X | X | | | | 1 | | | | X | | | | | | | | | | | | | | | | | | | | | |
| | *Scotorepens balstoni* | Inland Broad-nosed Bat | | | | | | | 1 | | | | | | | | | | 1 | 1 | 1 | 1 | | | | | | 1 | 1 | | | | | |
| | *Vespadelus baverstocki* | Inland Forest Bat | | X | X | | | | | X | | | | | | | | | | | | | | | | | | 1 | 1 | 1 | | | | |
| | *Vespadelus finlaysoni* | Finlayson's Cave Bat | | | | | | | | X | | | X | | | | | | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | |
| Dasyuridae | *Pseudantechinus woolleyae* | Woolley's False Antechinus | | | | | | | | | | | 9 | | | | | | | | | | | | 1 | | | | | | | | | |
| | *Sminthopsis crassicaudata* | Fat-tailed Dunnart | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | Surveys | A | | | | B | | C | D | | | | | | | E | | F | | | | | | | | G | | | | H | I | J | K |
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| Family | Species | Common Name | Site 6 | Site 5 | Site 7 | Opportunistic | Site 7 | Site 6 | Jump Up Dam | MC06 | MC05 | MC07 | BIF | 15 | 7 | 18 | Mine (Tarmoola Operations) | Pipeline (proposed) | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 | Site 6 | Site 9 | Site 8 | Allan's Pool and Mid Gum | TSF3 | Leinster Nickel Operations | Gum Pool | Unknown | Unknown | Unknown | Goongarrie |
| | *Sminthopsis dolichura* | Little Long-tailed Dunnart | | | | | | | | | | | | | | | | | 1 | 2 | 3 | 4 | 3 | | | | | | | | | | | |
| | *Sminthopsis longicaudata* | Long-tailed Dunnart | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | |
| Macropodidae | *Osphranter robustus* | Euro | | | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| | *Osphranter rufus* | Red Kangaroo | | | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Leporidae | *Oryctolagus cuniculus* | Rabbit | | | | | | | 1 | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Muridae | *Leporillus apicalis* | Lesser Stick-nest Rat | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | |
| | *Mus musculus* | House Mouse | | | | | | | | 10 | 4 | 5 | | | | | | | 4 | 2 | 2 | 23 | 10 | | 1 | 2 | | | | | | | | |
| | *Notomys alexis* | Spinifex Hopping Mouse | | | | | | | | | 1 | | | | | | | | 5 | | | | | | | | | | | | | | | |
| | *Pseudomys hermannsburgensis* | Sandy Inland Mouse | | | | | | | | | 1 | | | | | | | | 3 | | 1 | 2 | 1 | | | | | | | | | | | |

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| | | Survey | A | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family | Species | Common name | 9 | 8 | 15 | 7 | 10 | 4 | 2 | 1 | 12 | 11 | 14 | 3 | 13 | 5 | 6 | Opportunistic |
| Amphibians | | | | | | | | | | | | | | | | | | |
| Limnodynastidae | *Neobatrachus sutor* | Shoemaker Frog | 16 | 11 | 5 | 1 | 14 | 6 | | | | | | | | | | 1 |
| Myobatrachidae | *Pseudophryne occidentalis* | Western Toadlet | 4 | | | | | | | | | | | | | | | 1 |
| Pelodryadidae | *Cyclorana occidentalis* | Western Water-holding Frog | | | | | | | | | | | | | | | | 1 |
| | *Litoria rubella* | Desert Tree Frog | 1 | | | | 1 | | | | | | | | | | | 1 |
| Birds | | | | | | | | | | | | | | | | | | |
| Aegothelidae | *Aegotheles cristatus* | Australian Owlet-nightjar | | | | | | | | | | | | | | | | 1 |
| | *Accipiter cirrocephalus* | Collared Sparrowhawk | | | | | | | | | | | | | | | | 1 |
| | *Accipiter fasciatus* | Brown Goshawk | | | | | | | | | | | | | | | | 1 |
| Accipitridae | *Aquila audax* | Wedge-tailed Eagle | | | | | | | | | | | | | | | | 1 |
| Columbidae | *Ocyphaps lophotes* | Crested Pigeon | | | | | | | | | | | | | | | | 1 |
| | *Phaps chalcoptera* | Common Bronzewing | | | | | | | | | | | | | | | | 1 |
| Alcedinidae | *Todiramphus pyrrhopygius* | Red-backed Kingfisher | | | | | | | | | | | | | | | | 1 |
| Meropidae | *Merops ornatus* | Rainbow Bee-eater | | | | | | | | | | | | | | | | 1 |
| Cuculidae | *Chrysococcyx basalis* | Horsfield's Bronze-Cuckoo | | | | | | | | | | | | | | | | 1 |
| Falconidae | *Falco berigora* | Brown Falcon | | | | | | | | | | | | | | | | 1 |
| | *Falco cenchroides* | Nankeen Kestrel | | | | | | | | | | | | | | | | 1 |
| Acanthizidae | *Acanthiza chrysorrhoa* | Yellow-rumped Thornbill | | | | | | | | | | | | | | | | 1 |
| | *Acanthiza robustirostris* | Slaty-backed Thornbill | | | | | | | | | | | | | | | | 1 |
| | *Acanthiza uropygialis* | Chestnut-rumped Thornbill | | | | | | | | | | | | | | | | 1 |
| | *Aphelocephala leucopsis* | Southern Whiteface | | | | | | | | | | | | | | | | 1 |
| | *Gerygone fusca* | Western Gerygone | | | | | | | | | | | | | | | | 1 |
| | *Pyrrholaemus brunneus* | Redthroat | | | | | | | | | | | | | | | | 1 |
| | *Smicrornis brevirostris* | Weebill | | | | | | | | | | | | | | | | 1 |
| Artamidae | *Artamus cinereus* | Black-faced Woodswallow | | | | | | | | | | | | | | | | 1 |
| | *Cracticus nigrogularis* | Pied Butcherbird | | | | | | | | | | | | | | | | 1 |
| | *Gymnorhina tibicen* | Australian Magpie | | | | | | | | | | | | | | | | 1 |
| | *Strepera versicolor* | Grey Currawong | | | | | | | | | | | | | | | | 1 |
| Campephagidae | *Coracina maxima* | Ground Cuckooshrike | | | | | | | | | | | | | | | | 1 |
| | *Coracina novaehollandiae* | Black-faced Cuckooshrike | | | | | | | | | | | | | | | | 1 |
| Climacteridae | *Climacteris affinis* | White-browed Treecreeper | | | | | | | | | | | | | | | | 1 |

| | | Survey | A | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family | Species | Common name | 9 | 8 | 15 | 7 | 10 | 4 | 2 | 1 | 12 | 11 | 14 | 3 | 13 | 5 | 6 | Opportunistic |
| Corvidae | *Corvus bennetti* | Little Crow | | | | | | | | | | | | | | | | 1 |
| | *Corvus orru* | Torresian Crow | | | | | | | | | | | | | | | | 1 |
| Estrildidae | *Taeniopygia guttata* | Zebra Finch | | | | | | | | | | | | | | | | 1 |
| Hirundinidae | *Hirundo neoxena* | Welcome Swallow | | | | | | | | | | | | | | | | 1 |
| Maluridae | *Malurus leucopterus* | White-winged Fairywren | | | | | | | | | | | | | | | | 1 |
| | *Malurus splendens* | Splendid Fairywren | | | | | | | | | | | | | | | | 1 |
| Meliphagidae | *Acanthagenys rufogularis* | Spiny-cheeked Honeyeater | | | | | | | | | | | | | | | | 1 |
| | *Epthianura tricolor* | Crimson Chat | | | | | | | | | | | | | | | | 1 |
| | *Lichenostomus virescens* | Singing Honeyeater | | | | | | | | | | | | | | | | 1 |
| | *Manorina flavigula* | Yellow-throated Miner | | | | | | | | | | | | | | | | 1 |
| | *Purnella albifrons* | White-fronted Honeyeater | | | | | | | | | | | | | | | | 1 |
| Monarchidae | *Grallina cyanoleuca* | Magpie-lark | | | | | | | | | | | | | | | | 1 |
| Motacillidae | *Anthus novaeseelandiae* | Australasian Pipit | | | | | | | | | | | | | | | | 1 |
| Neosittidae | *Daphoenositta chrysoptera* | Varied Sittella | | | | | | | | | | | | | | | | 1 |
| Oreoicidae | *Oreoica gutturalis* | Crested Bellbird | | | | | | | | | | | | | | | | 1 |
| Pachycephalidae | *Colluricincla harmonica* | Grey Shrikethrush | | | | | | | | | | | | | | | | 1 |
| | *Pachycephala rufiventris* | Rufous Whistler | | | | | | | | | | | | | | | | 1 |
| Pardalotidae | *Pardalotus striatus* | Striated Pardalote | | | | | | | | | | | | | | | | 1 |
| Petroicidae | *Melanodryas cucullata* | Hooded Robin | | | | | | | | | | | | | | | | 1 |
| | *Petroica goodenovii* | Red-capped Robin | | | | | | | | | | | | | | | | 1 |
| Pomatostomidae | *Pomatostomus superciliosus* | White-browed Babbler | | | | | | | | | | | | | | | | 1 |
| Ptilinorhynchidae | *Ptilonorhynchus guttatus* | Western Bowerbird | | | | | | | | | | | | | | | | 1 |
| Rhipiduridae | *Rhipidura albiscapa* | Grey Fantail | | | | | | | | | | | | | | | | 1 |
| | *Rhipidura leucophrys* | Willie Wagtail | | | | | | | | | | | | | | | | 1 |
| Cacatuidae | *Eolophus roseicapilla* | Galah | | | | | | | | | | | | | | | | 1 |
| Psittaculidae | *Barnardius zonarius* | Australian Ringneck | | | | | | | | | | | | | | | | 1 |
| | *Neopsephotus bourkii* | Bourke's Parrot | | | | | | | | | | | | | | | | 1 |
| Mammals | | | | | | | | | | | | | | | | | | |
| Canidae | *Canis lupus* | Dingo | | | 1 | | | | | | | | | | | | | 1 |
| Dasyuridae | *Ningaui ridei* | Wongai Ningaui | | | | | | | | | | | | | 1 | | | 1 |
| | *Sminthopsis dolichura* | Little Long-tailed Dunnart | | | 1 | | | | 1 | 2 | | 3 | 2 | 1 | 2 | 2 | 2 | 1 |
| | *Sminthopsis macroura* | Stripe-faced Dunnart | | | 3 | | | | 1 | | | | | | | | | 1 |
| Macropodidae | *Osphranter robustus* | Euro | | | | | | | | | | | | | | | | 1 |

| | | Survey | A | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family | Species | Common name | 9 | 8 | 15 | 7 | 10 | 4 | 2 | 1 | 12 | 11 | 14 | 3 | 13 | 5 | 6 | Opportunistic |
| | *Osphranter rufus* | Red Kangaroo | | | | | | | | | | | | | | | | 1 |
| Leporidae | *Oryctolagus cuniculus* | Rabbit | | | | | | | | | | | | | | | | 1 |
| Muridae | *Pseudomys hermannsburgensis* | Sandy Inland Mouse | | | | | | | | | | | | | 1 | | 9 | 1 |
| Reptiles | | | | | | | | | | | | | | | | | | | |
| Agamidae | *Ctenophorus reticulatus* | Western Netted Dragon | | | 1 | | | | 6 | 1 | 1 | 2 | 1 | 1 | | | | 1 |
| | *Ctenophorus scutulatus* | Lozenge-marked Dragon | | | | | | | | | | 3 | | | 1 | | | 1 |
| | *Diporiphora amphiboluroides* | Mulga Dragon | | | | | | | 2 | | 1 | | | | | | | 1 |
| | *Pogona minor* | Western Bearded Dragon | 1 | | | | 1 | 1 | | | | | | | | | | 1 |
| Carphodactylidae | *Nephrurus vertebralis* | Midline Knob-tail | | | | | | | | | | 5 | | | | | | 1 |
| | *Underwoodisaurus milii* | Barking Gecko | 11 | 9 | | 7 | 20 | 5 | | | | | | 2 | | | | 1 |
| Diplodactylidae | *Diplodactylus granariensis* | Wheatbelt Stone Gecko | 2 | 2 | 6 | 4 | 9 | 10 | 14 | 18 | 7 | 5 | 2 | 12 | 10 | 12 | 12 | 1 |
| | *Diplodactylus pulcher* | Beautiful Gecko | | | 33 | | | | 8 | 17 | 10 | 11 | 4 | 3 | 16 | 11 | 12 | 1 |
| | *Rhynchoedura ornata* | Beaked Gecko | | | 1 | | | | 2 | | 1 | | 7 | | | 8 | 1 | 1 |
| | *Strophurus wellingtonae* | Western Shield Spiny-tailed Gecko | | | | | | | 3 | 2 | 2 | 1 | 4 | 2 | | 3 | 1 | 1 |
| Elapidae | *Brachyurophis semifasciata* | Half-girdled Snake | 1 | | | 1 | 4 | | | 1 | | | | | | | | 1 |
| | *Pseudechis butleri* | Spotted Mulga Snake | | | | | | | | 1 | | | | 1 | | | | 1 |
| | *Pseudonaja modesta* | Ringed Brown Snake | | | | | | | 1 | | | | | | | | | 1 |
| | *Simoselaps bertholdi* | Jan's Banded Snake | 1 | 1 | | 2 | | 1 | | | | | | 1 | | | | 1 |
| | *Suta fasciata* | Rosen's Snake | | | | | | | | | | | | | | | | 1 |
| | *Suta monachus* | Hooded Snake | 1 | | | | | | | | 2 | | 1 | | 1 | | | 1 |
| | *Suta punctata* | Spotted-headed Snake | 1 | | | | | | | | | | | | | | | 1 |
| Gekkonidae | *Gehyra variegata* | Variegated Gehyra | 10 | 5 | 5 | 4 | 9 | 16 | 5 | 5 | 3 | 6 | 3 | 1 | 15 | 11 | 5 | 1 |
| | *Heteronotia binoei* | Bynoe's Gecko | 20 | 31 | | 27 | 26 | 32 | | | 4 | 8 | 4 | 3 | 12 | 2 | 1 | 1 |
| Pygopodidae | *Lialis burtonis* | Burton's Legless Lizard | | | | | 1 | 1 | | | | | | | | | | 1 |
| | *Pygopus nigriceps* | Western Hooded Scaly-foot | | | | | | | | | | | 1 | | 1 | | 2 | 1 |
| Pythonidae | *Antaresia stimsoni* | Stimson's Python | | | | 1 | | | | | | | | | | | | 1 |
| Scincidae | *Cryptoblepharus buchananii* | Buchanan's Snake-eyed Skink | 5 | 2 | | 3 | 5 | | | | | | | | | | | 1 |
| | *Ctenotus schomburgkii* | Barred Wedgesnout Ctenotus | | | | | | | 11 | 1 | | 6 | 9 | | | | | 1 |
| | *Ctenotus severus* | Stern Ctenotus | 4 | 16 | | 16 | 11 | 11 | | | | | | | | | | 1 |
| | *Ctenotus uber* | Spotted Ctenotus | 2 | 13 | 9 | 5 | 1 | 9 | 35 | 14 | 1 | 12 | 19 | 13 | 9 | 4 | 2 | 1 |
| | *Egernia depressa* | Southern Pygmy Spiny-tailed Skink | | | | | | | 5 | 6 | 6 | 3 | | 1 | 4 | 2 | 5 | 1 |

| | | Survey | A | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family | Species | Common name | 9 | 8 | 15 | 7 | 10 | 4 | 2 | 1 | 12 | 11 | 14 | 3 | 13 | 5 | 6 | Opportunistic |
| | *Eremiascincus richardsonii* | Broad-banded Sand-swimmer | 2 | | 1 | 2 | 13 | 2 | | | | 3 | | | | 1 | 2 | 1 |
| | *Lerista desertorum* | Central Desert Robust Slider | 20 | 23 | 1 | 15 | 40 | 24 | 1 | 4 | | | | 3 | | | 5 | 1 |
| | *Lerista muelleri* | Wood Mulch-slider | 3 | 1 | | 5 | 4 | 2 | 2 | 3 | 1 | 1 | 3 | | | 1 | | 1 |
| | *Menetia greyii* | Common Dwarf Skink | | | 2 | | 4 | | | | 2 | 3 | 3 | | 1 | 2 | | 1 |
| | *Morethia butleri* | Woodland Morethia Skink | 20 | 12 | | 14 | 15 | 20 | 5 | 3 | 3 | 1 | 2 | 3 | 2 | 1 | 3 | 1 |
| Typhlopidae | *Anilios hamatus* | Pale-headed Blind Snake | | | | | | | | | | 1 | | | | | | 1 |
| Varanidae | *Varanus caudolineatus* | Stripe-tailed Monitor | | | 3 | | 2 | | 3 | 2 | 2 | | 1 | | | | 5 | 1 |
| | *Varanus panotes* | Ye3llow-spotted Monitor | | | | | 1 | | | | 1 | 1 | 1 | | 1 | 2 | 1 | 1 |

A Terrestrial Ecosystems (2020) *Level 2 Vertebrate Fauna Assessment for the King of the Hills Project*, Unpublished report for Red 5, Perth.

# Appendix C.

## Definitions of Significant Fauna under the WA *Biodiversity Conservation Act 2016* and Priority Species

**Basic Vertebrate Fauna Reconnaissance Survey and Risk Assessment**
**St Barbara Leonora Province Expansion**

**ATTACHMENT C**
**DEFINITIONS OF SIGNIFICANT FAUNA UNDER THE WA BIODIVERSITY CONSERVATION ACT 2016**

Threatened, Extinct and Specially Protected fauna or flora[1] are species[2] 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 pwild. 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 assessments

**Basic Vertebrate Fauna Reconnaissance Survey and Risk Assessment**
**St Barbara Leonora Province Expansion**

Date: 12-Sep-22 Habitat Assessment #: 0 Observer: Joel Wilson

GDA94 51; 335551 mE 6805836 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 1 Observer: Joel Wilson

GDA94 51; 335783 mE 6806018 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 12-Sep-22 Habitat Assessment #: 2 Observer: Joel Wilson

GDA94 51; 335536 mE 6806084 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 3 Observer: Joel Wilson

GDA94 51; 335428 mE 6806349 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 4 Observer: Joel Wilson

GDA94 51; 335393 mE 6806007 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 5 Observer: Joel Wilson

GDA94 51; 335187 mE 6806054 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Few stones

Habitat Type: Disturbed

TERRESTRIAL ECOSYSTEMS

Date: 12-Sep-22 Habitat Assessment #: 6 Observer: Joel Wilson

GDA94 51; 333987 mE 6805603 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 7 Observer: Joel Wilson

GDA94 51; 334087 mE 6805211 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 8 Observer: Joel Wilson

GDA94 51; 334200 mE 6805482 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 9 Observer: Joel Wilson

GDA94 51; 334254 mE 6805874 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 10 Observer: Joel Wilson

GDA94 51; 334407 mE 6805669 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 11 Observer: Joel Wilson

GDA94 51; 334382 mE 6805179 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 12-Sep-22 Habitat Assessment #: 12 Observer: Joel Wilson

GDA94 51; 334390 mE 6804834 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 13 Observer: Joel Wilson

GDA94 51; 334610 mE 6805084 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 14 Observer: Joel Wilson

GDA94 51; 334613 mE 6805471 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 15 Observer: Joel Wilson

GDA94 51; 334796 mE 6804960 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 16 Observer: Joel Wilson

GDA94 51; 334594 mE 6804663 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 17 Observer: Joel Wilson

GDA94 51; 334356 mE 6804494 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 18 Observer: Joel Wilson

GDA94 51; 334983 mE 6805142 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 12-Sep-22 Habitat Assessment #: 19 Observer: Joel Wilson

GDA94 51; 335720 mE 6805720 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 20 Observer: Joel Wilson

GDA94 51; 335975 mE 6805545 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

Date: 13-Sep-22 Habitat Assessment #: 21 Observer: Joel Wilson

GDA94 51; 336298 mE 6805644 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 22 Observer: Joel Wilson

GDA94 51; 336502 mE 6805388 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 23 Observer: Joel Wilson

GDA94 51; 336664 mE 6805191 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 24 Observer: Joel Wilson

GDA94 51; 336869 mE 6804765 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 25 Observer: Joel Wilson

GDA94 51; 336944 mE 6804548 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

Date: 13-Sep-22 Habitat Assessment #: 26 Observer: Joel Wilson

GDA94 51; 336950 mE 6804333 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

Date: 13-Sep-22 Habitat Assessment #: 27 Observer: Joel Wilson

GDA94 51; 336586 mE 6804126 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Ephemeral creekline

Date: 13-Sep-22 Habitat Assessment #: 28 Observer: Joel Wilson

GDA94 51; 338859 mE 6799644 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

Date: 13-Sep-22 Habitat Assessment #: 29 Observer: Joel Wilson

GDA94 51; 338965 mE 6799811 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Ephemeral creekline

Date: 13-Sep-22 Habitat Assessment #: 30 Observer: Joel Wilson

GDA94 51; 339054 mE 6800158 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 31 Observer: Joel Wilson

GDA94 51; 339209 mE 6800147 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 32 Observer: Joel Wilson

GDA94 51; 339200 mE 6799862 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 33 Observer: Joel Wilson

GDA94 51; 339178 mE 6799588 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Stoney

Habitat Type: Disturbed

Date: 13-Sep-22 Habitat Assessment #: 34 Observer: Joel Wilson

GDA94 51; 339394 mE 6799693 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 35 Observer: Joel Wilson

GDA94 51; 339403 mE 6799964 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

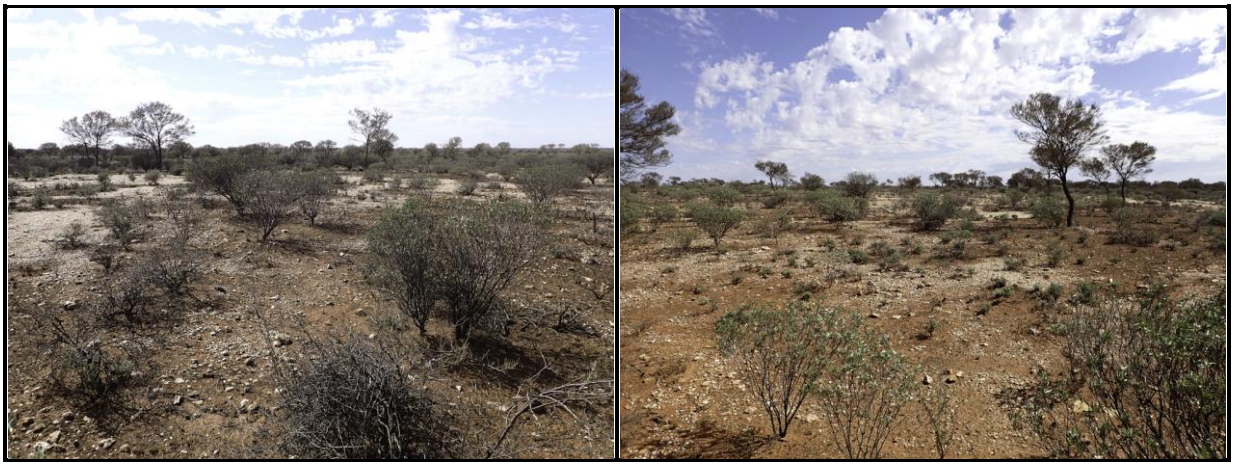
Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 36 Observer: Joel Wilson

GDA94 51; 339412 mE 6800413 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 13-Sep-22 Habitat Assessment #: 37 Observer: Joel Wilson

GDA94 51; 339400 mE 6800808 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 38 Observer: Joel Wilson

GDA94 51; 339423 mE 6801202 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 39 Observer: Joel Wilson

GDA94 51; 339540 mE 6801818 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 40 Observer: Joel Wilson

GDA94 51; 339597 mE 6801418 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 41 Observer: Joel Wilson

GDA94 51; 339593 mE 6800989 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 42 Observer: Joel Wilson

GDA94 51; 339589 mE 6800635 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 43 Observer: Joel Wilson

GDA94 51; 339592 mE 6800275 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 44 Observer: Joel Wilson

GDA94 51; 339584 mE 6799952 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 45 Observer: Joel Wilson

GDA94 51; 339574 mE 6799691 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 46 Observer: Joel Wilson

GDA94 51; 339800 mE 6799886 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 47 Observer: Joel Wilson

GDA94 51; 339797 mE 6800144 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 48 Observer: Joel Wilson

GDA94 51; 339800 mE 6800527 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 49 Observer: Joel Wilson

GDA94 51; 339796 mE 6800845 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 50 Observer: Joel Wilson

GDA94 51; 339789 mE 6801320 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 51 Observer: Joel Wilson

GDA94 51; 339815 mE 6801855 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 52 Observer: Joel Wilson

GDA94 51; 340010 mE 6802167 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 53 Observer: Joel Wilson

GDA94 51; 339999 mE 6801672 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 54 Observer: Joel Wilson

GDA94 51; 339995 mE 6801180 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 55 Observer: Joel Wilson

GDA94 51; 340001 mE 6800646 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 56 Observer: Joel Wilson

GDA94 51; 340004 mE 6800297 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

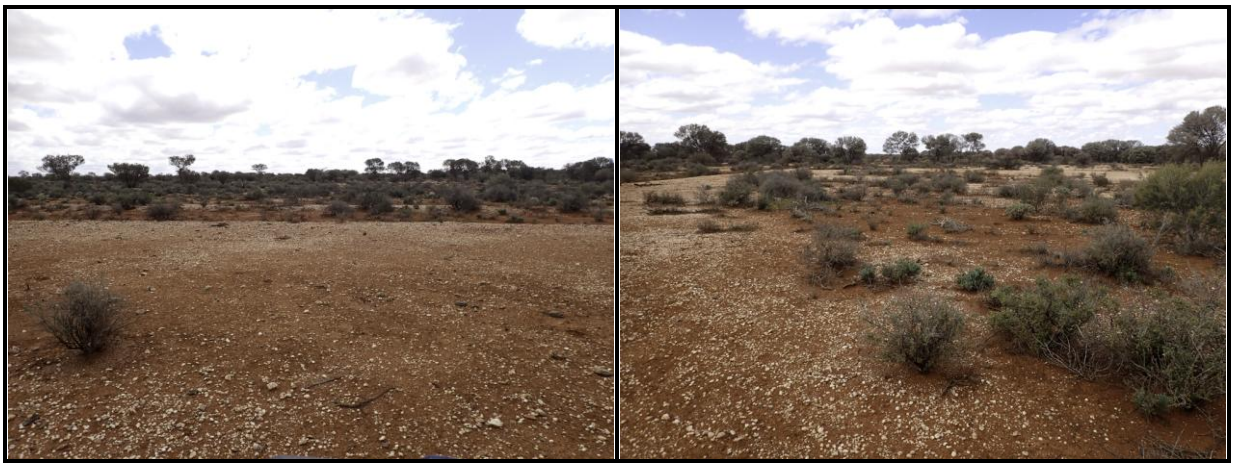
Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 57 Observer: Joel Wilson

GDA94 51; 339986 mE 6799783 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 58 Observer: Joel Wilson

GDA94 51; 340202 mE 6799720 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 59 Observer: Joel Wilson

GDA94 51; 340217 mE 6800226 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 60 Observer: Joel Wilson

GDA94 51; 340212 mE 6800667 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 61 Observer: Joel Wilson

GDA94 51; 340226 mE 6801168 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 62 Observer: Joel Wilson

GDA94 51; 340178 mE 6801972 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 63 Observer: Joel Wilson

GDA94 51; 341543 mE 6799042 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 64 Observer: Joel Wilson

GDA94 51; 341570 mE 6798823 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 65 Observer: Joel Wilson

GDA94 51; 341576 mE 6798548 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 66 Observer: Joel Wilson

GDA94 51; 341580 mE 6798147 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 67 Observer: Joel Wilson

GDA94 51; 341578 mE 6797616 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 68 Observer: Joel Wilson

GDA94 51; 341588 mE 6797120 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 69 Observer: Joel Wilson

GDA94 51; 341590 mE 6796658 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 70 Observer: Joel Wilson

GDA94 51; 341588 mE 6796164 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 71 Observer: Joel Wilson

GDA94 51; 341599 mE 6795707 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 72 Observer: Joel Wilson

GDA94 51; 341604 mE 6795306 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 73 Observer: Joel Wilson

GDA94 51; 341407 mE 6795616 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 74 Observer: Joel Wilson

GDA94 51; 341357 mE 6796149 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 75 Observer: Joel Wilson

GDA94 51; 341386 mE 6796515 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

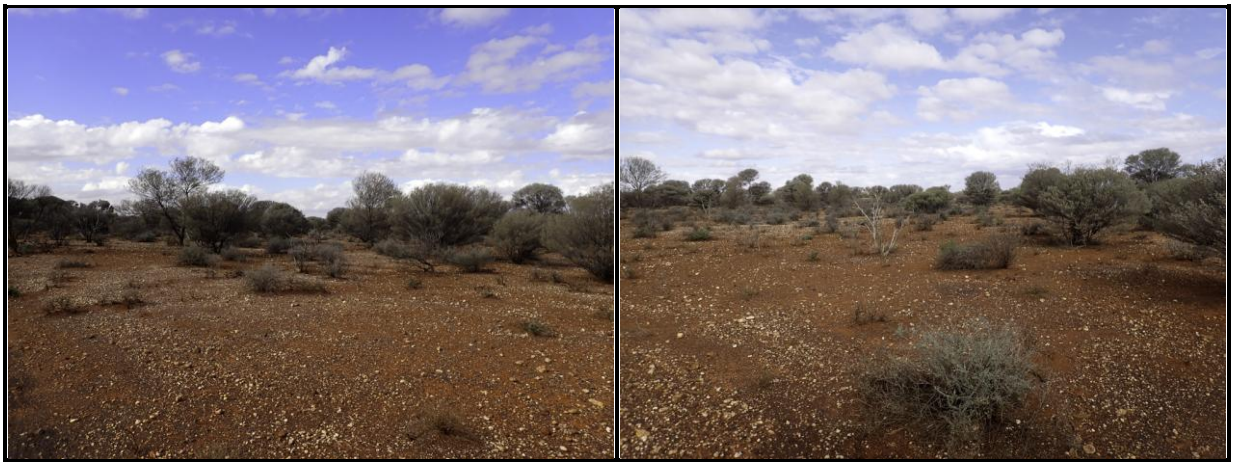
Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 76 Observer: Joel Wilson

GDA94 51; 341377 mE 6797074 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland



Date: 13-Sep-22 Habitat Assessment #: 77 Observer: Joel Wilson

GDA94 51; 341390 mE 6797459 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 78 Observer: Joel Wilson

GDA94 51; 341416 mE 6798204 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 79 Observer: Joel Wilson

GDA94 51; 341389 mE 6798730 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 80 Observer: Joel Wilson

GDA94 51; 341387 mE 6799162 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Stoney

Habitat Type: Disturbed

Date: 13-Sep-22 Habitat Assessment #: 81 Observer: Joel Wilson

GDA94 51; 341205 mE 6799357 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 13-Sep-22 Habitat Assessment #: 82 Observer: Joel Wilson

GDA94 51; 341196 mE 6798742 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 83 Observer: Joel Wilson

GDA94 51; 341210 mE 6798185 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 84 Observer: Joel Wilson

GDA94 51; 341234 mE 6797437 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 85 Observer: Joel Wilson

GDA94 51; 341204 mE 6796956 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 86 Observer: Joel Wilson

GDA94 51; 341184 mE 6796536 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 13-Sep-22 Habitat Assessment #: 87 Observer: Joel Wilson

GDA94 51; 341166 mE 6796208 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 88 Observer: Joel Wilson

GDA94 51; 340998 mE 6799177 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 89 Observer: Joel Wilson

GDA94 51; 341009 mE 6798845 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 90 Observer: Joel Wilson

GDA94 51; 340987 mE 6798536 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 91 Observer: Joel Wilson

GDA94 51; 340992 mE 6798049 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 92 Observer: Joel Wilson

GDA94 51; 340995 mE 6797408 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 93 Observer: Joel Wilson

GDA94 51; 340998 mE 6796951 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 94 Observer: Joel Wilson

GDA94 51; 341005 mE 6796527 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 95 Observer: Joel Wilson

GDA94 51; 341011 mE 6796292 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 96 Observer: Joel Wilson

GDA94 51; 340803 mE 6795985 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 97 Observer: Joel Wilson

GDA94 51; 340816 mE 6796626 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 98 Observer: Joel Wilson

GDA94 51; 340778 mE 6797153 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 99 Observer: Joel Wilson

GDA94 51; 340779 mE 6798028 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 100 Observer: Joel Wilson

GDA94 51; 340788 mE 6798483 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 101 Observer: Joel Wilson

GDA94 51; 340805 mE 6798894 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 102 Observer: Joel Wilson

GDA94 51; 340776 mE 6799219 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

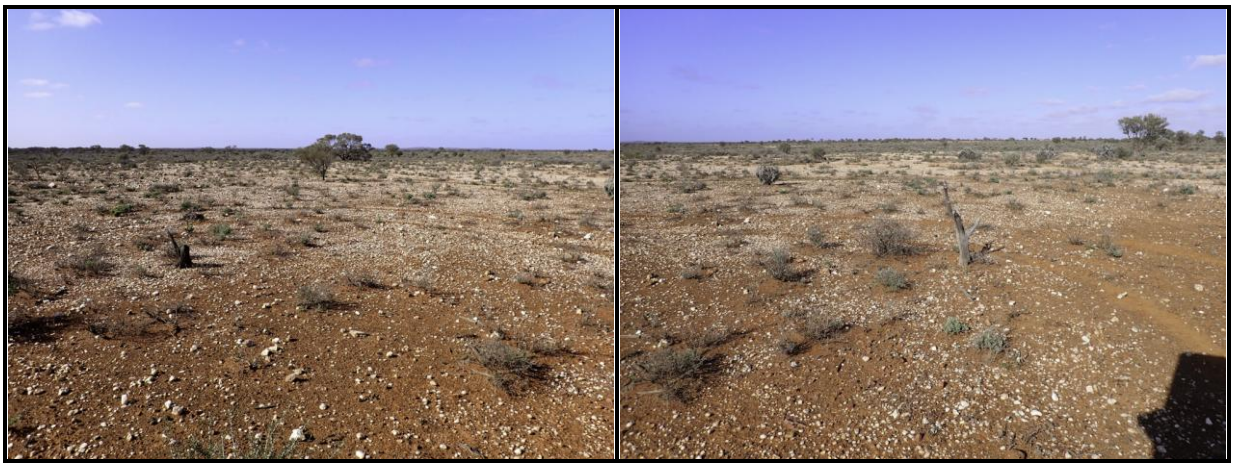
Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 103 Observer: Joel Wilson

GDA94 51; 340592 mE 6799105 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 14-Sep-22 Habitat Assessment #: 104 Observer: Joel Wilson

GDA94 51; 340583 mE 6798888 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 105 Observer: Joel Wilson

GDA94 51; 340604 mE 6798499 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 106 Observer: Joel Wilson

GDA94 51; 340590 mE 6798066 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 107 Observer: Joel Wilson

GDA94 51; 340593 mE 6797658 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

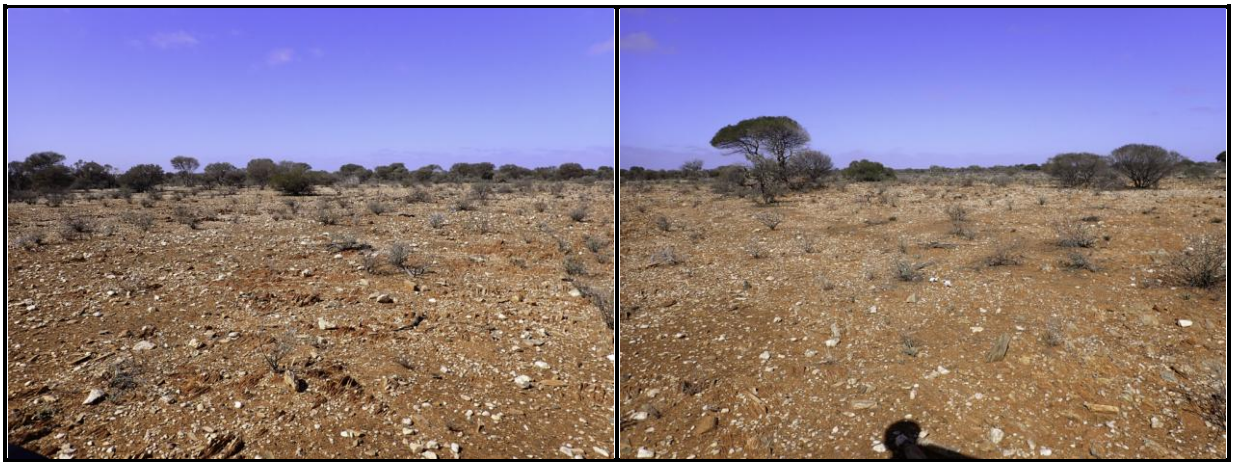
TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 108 Observer: Joel Wilson

GDA94 51; 340599 mE 6797325 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 14-Sep-22 Habitat Assessment #: 109 Observer: Joel Wilson

GDA94 51; 340588 mE 6796978 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

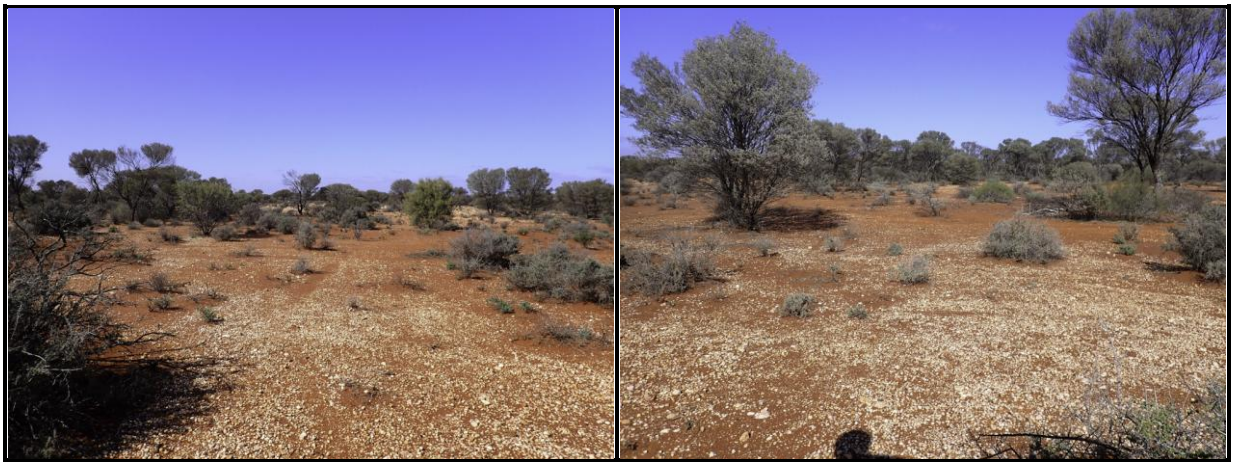
Habitat Type: Tall shrubland

Date: 14-Sep-22 Habitat Assessment #: 110 Observer: Joel Wilson

GDA94 51; 340585 mE 6796537 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

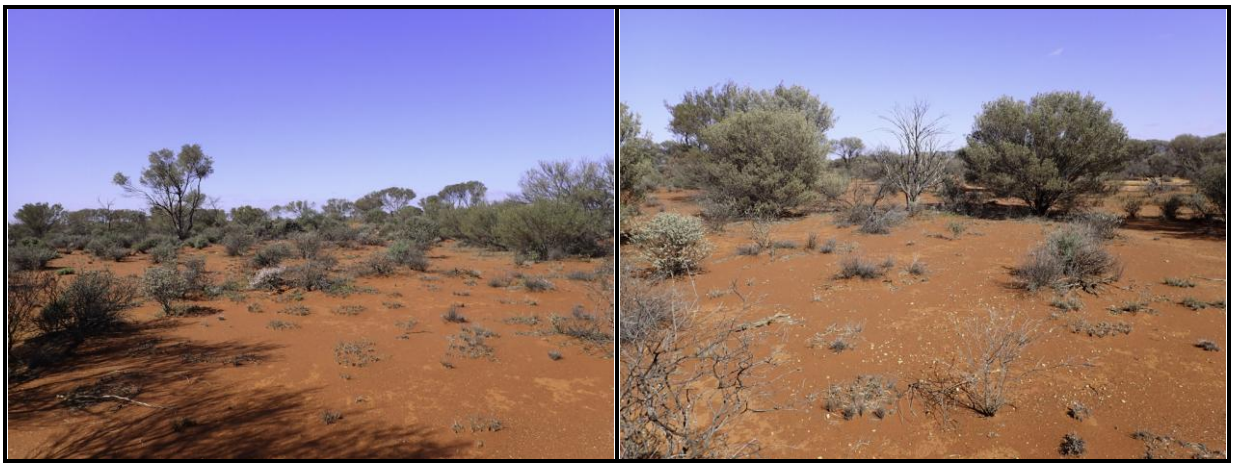


Date: 14-Sep-22 Habitat Assessment #: 111 Observer: Joel Wilson

GDA94 51; 340597 mE 6796200 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 112 Observer: Joel Wilson

GDA94 51; 340572 mE 6795994 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 113 Observer: Joel Wilson

GDA94 51; 340396 mE 6796010 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 114 Observer: Joel Wilson

GDA94 51; 340400 mE 6796298 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 115 Observer: Joel Wilson

GDA94 51; 340359 mE 6796636 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Tall shrubland

Date: 14-Sep-22 Habitat Assessment #: 116 Observer: Joel Wilson

GDA94 51; 340407 mE 6797446 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 117 Observer: Joel Wilson

GDA94 51; 340400 mE 6797904 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 118 Observer: Joel Wilson

GDA94 51; 340395 mE 6798416 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 119 Observer: Joel Wilson

GDA94 51; 340375 mE 6799089 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

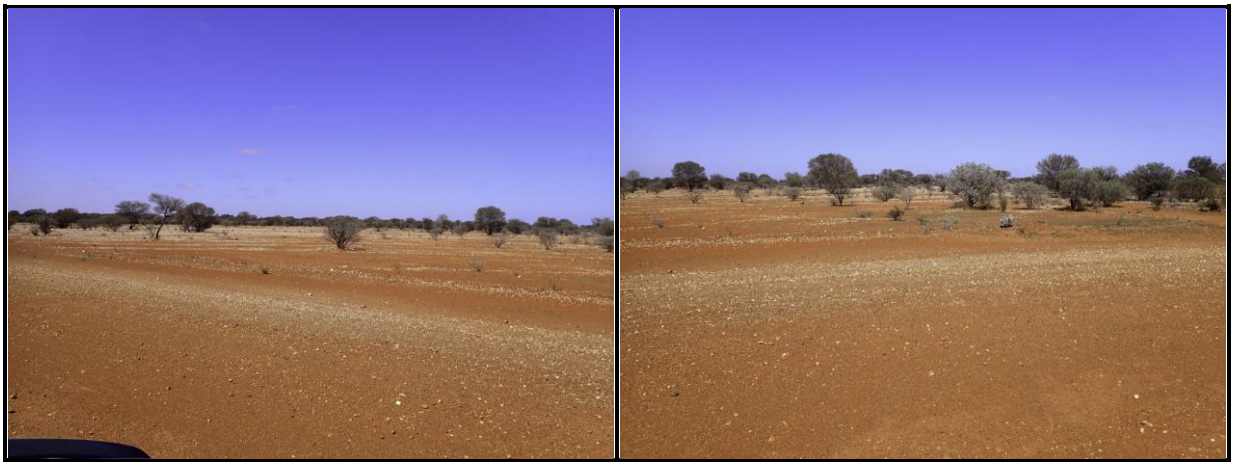
Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 120 Observer: Joel Wilson

GDA94 51; 340388 mE 6799288 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 14-Sep-22 Habitat Assessment #: 121 Observer: Joel Wilson

GDA94 51; 340207 mE 6799405 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Stoney

Habitat Type: Disturbed

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 122 Observer: Joel Wilson

GDA94 51; 340197 mE 6798946 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 123 Observer: Joel Wilson

GDA94 51; 340208 mE 6798594 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 124 Observer: Joel Wilson

GDA94 51; 340206 mE 6797793 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 125 Observer: Joel Wilson

GDA94 51; 340191 mE 6797497 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

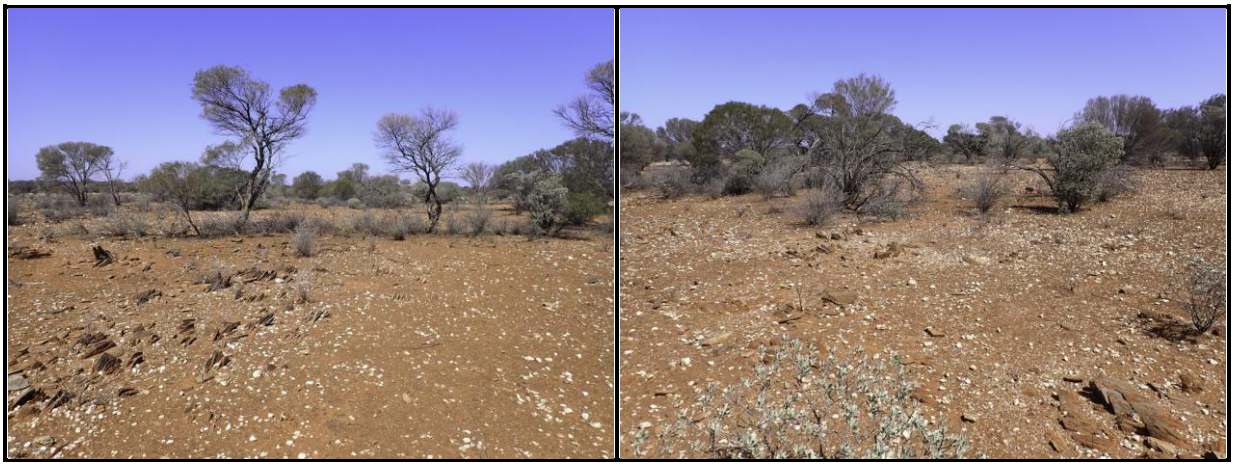
TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 126 Observer: Joel Wilson

GDA94 51; 340213 mE 6797207 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland



Date: 14-Sep-22 Habitat Assessment #: 127 Observer: Joel Wilson

GDA94 51; 340195 mE 6796735 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

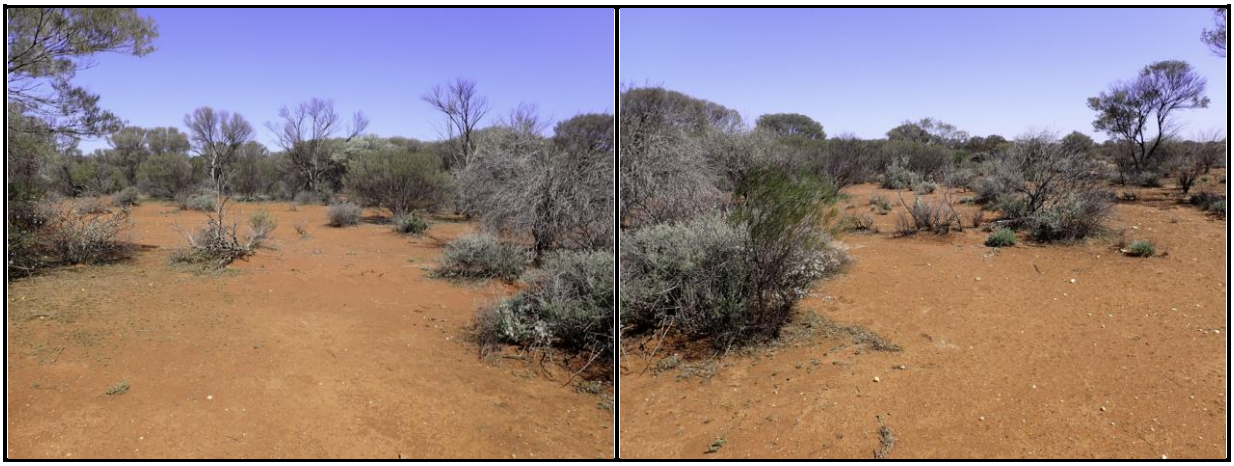
TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 128 Observer: Joel Wilson

GDA94 51; 340208 mE 6796462 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 14-Sep-22 Habitat Assessment #: 129 Observer: Joel Wilson

GDA94 51; 340208 mE 6796161 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 130 Observer: Joel Wilson

GDA94 51; 339979 mE 6796217 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 131 Observer: Joel Wilson

GDA94 51; 340006 mE 6796566 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 132 Observer: Joel Wilson

GDA94 51; 340016 mE 6796916 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 133 Observer: Joel Wilson

GDA94 51; 339986 mE 6797525 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 134 Observer: Joel Wilson

GDA94 51; 340009 mE 6797844 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

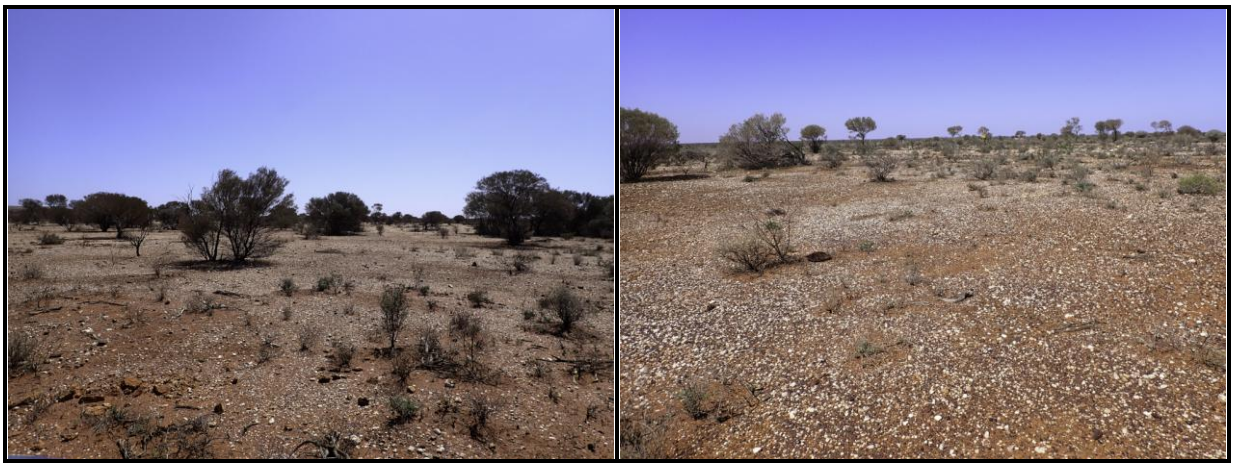
Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 135 Observer: Joel Wilson

GDA94 51; 340013 mE 6798423 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland



TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 136 Observer: Joel Wilson

GDA94 51; 340009 mE 6798908 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

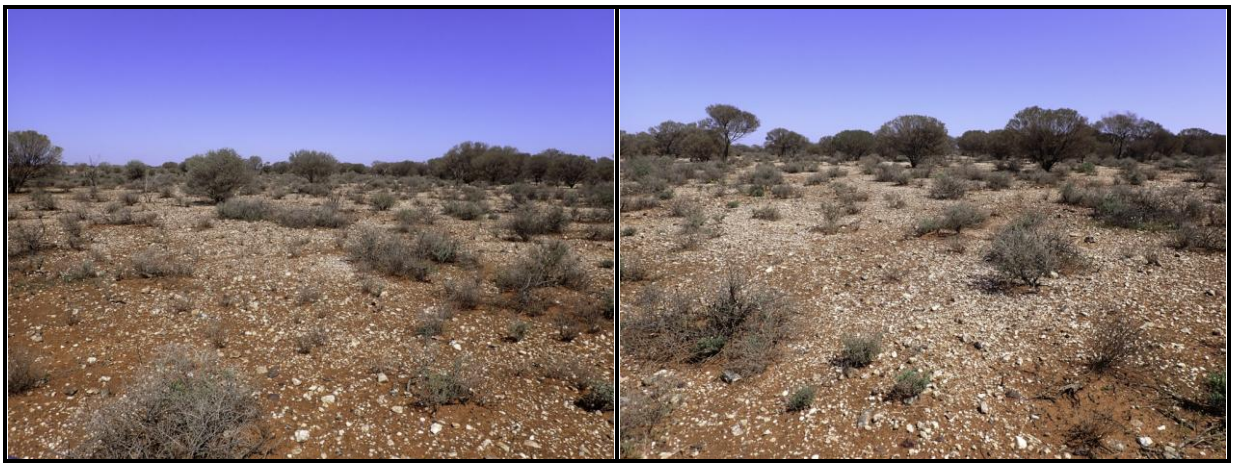
Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 137 Observer: Joel Wilson

GDA94 51; 339787 mE 6799272 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 138 Observer: Joel Wilson

GDA94 51; 339786 mE 6798822 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 139 Observer: Joel Wilson

GDA94 51; 339808 mE 6798284 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 140 Observer: Joel Wilson

GDA94 51; 339812 mE 6797856 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 141 Observer: Joel Wilson

GDA94 51; 339820 mE 6797294 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 142 Observer: Joel Wilson

GDA94 51; 339814 mE 6796790 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

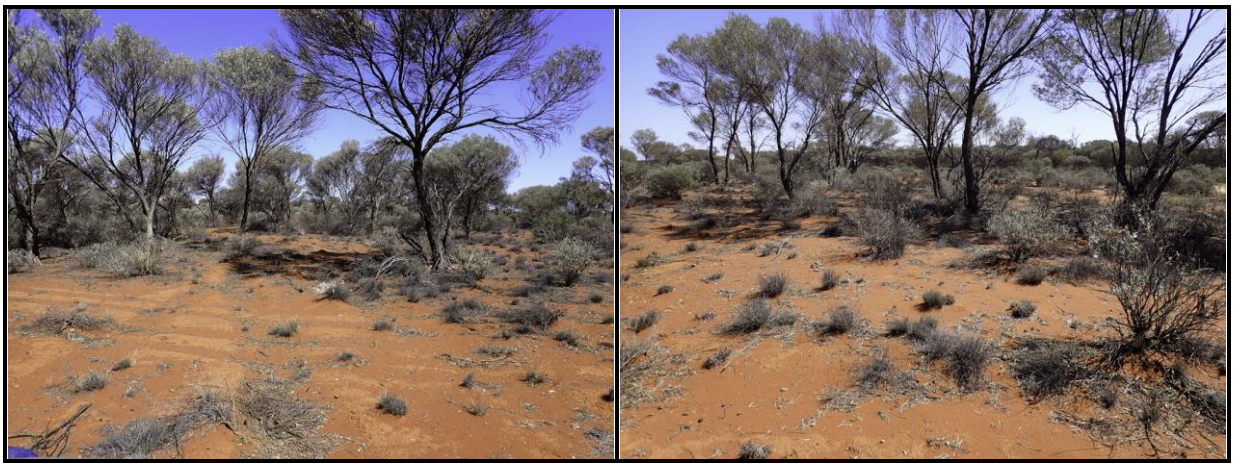
Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 143 Observer: Joel Wilson

GDA94 51; 339795 mE 6796392 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 14-Sep-22 Habitat Assessment #: 144 Observer: Joel Wilson

GDA94 51; 339793 mE 6796177 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 145 Observer: Joel Wilson

GDA94 51; 339630 mE 6796349 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 146 Observer: Joel Wilson

GDA94 51; 339593 mE 6796697 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 147 Observer: Joel Wilson

GDA94 51; 339629 mE 6797093 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 148 Observer: Joel Wilson

GDA94 51; 339609 mE 6797702 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

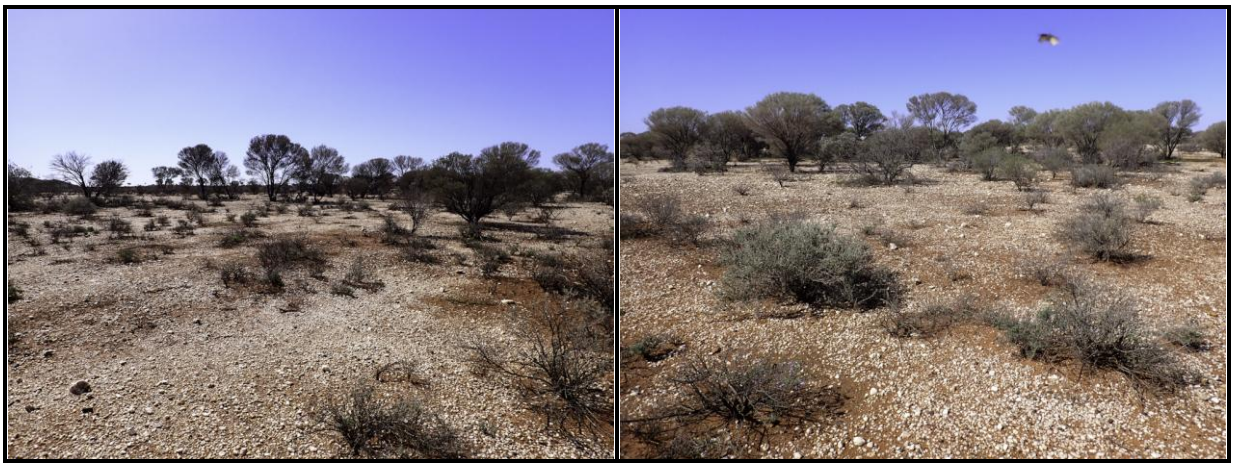
Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 149 Observer: Joel Wilson

GDA94 51; 339621 mE 6798039 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 14-Sep-22 Habitat Assessment #: 150 Observer: Joel Wilson

GDA94 51; 339610 mE 6798546 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 151 Observer: Joel Wilson

GDA94 51; 339597 mE 6799093 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

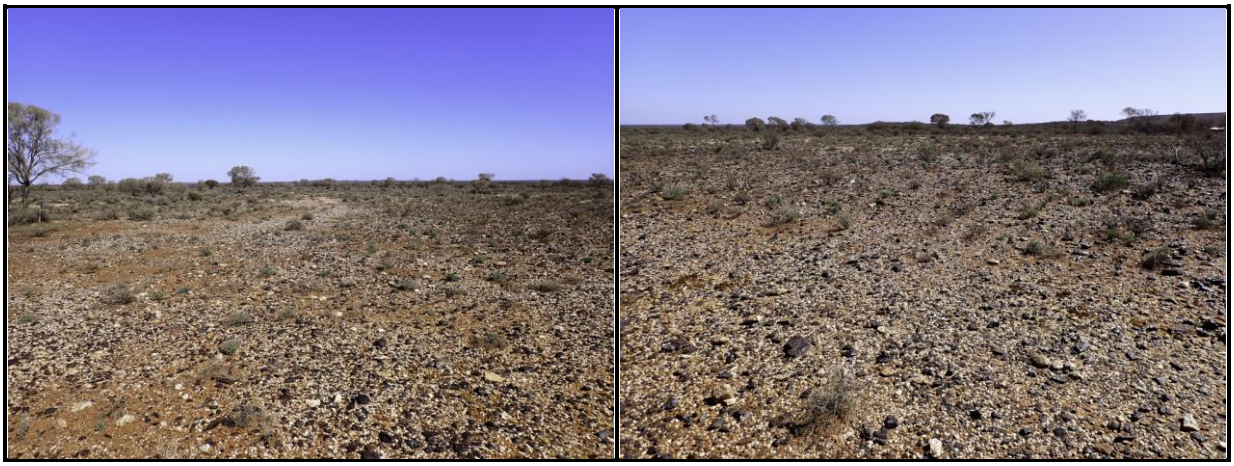
Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 152 Observer: Joel Wilson

GDA94 51; 339418 mE 6799434 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

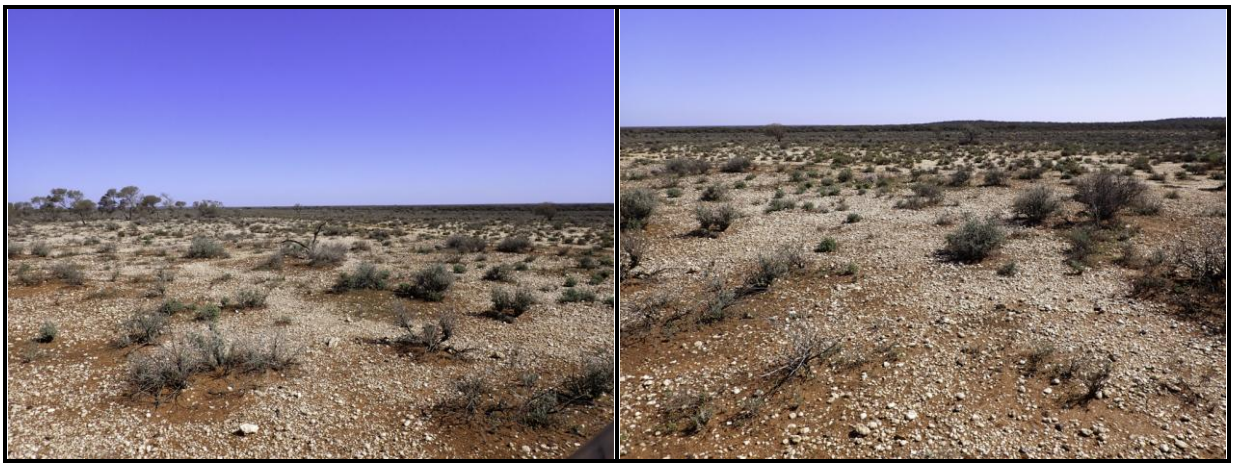


Date: 14-Sep-22 Habitat Assessment #: 153 Observer: Joel Wilson

GDA94 51; 339408 mE 6798831 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

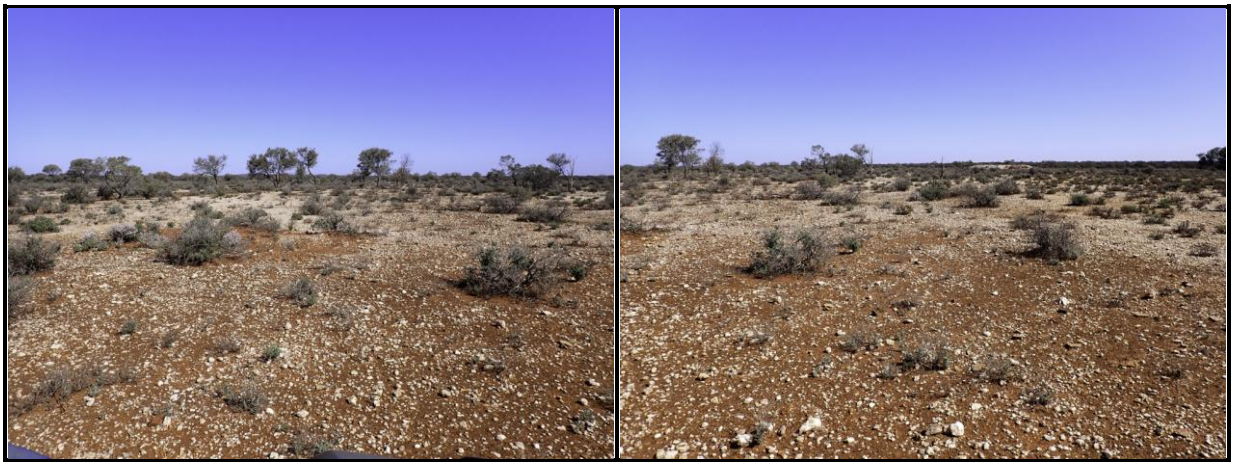


Date: 14-Sep-22 Habitat Assessment #: 154 Observer: Joel Wilson

GDA94 51; 339401 mE 6798405 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 14-Sep-22 Habitat Assessment #: 155 Observer: Joel Wilson

GDA94 51; 339399 mE 6797575 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 156 Observer: Joel Wilson

GDA94 51; 339431 mE 6797087 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

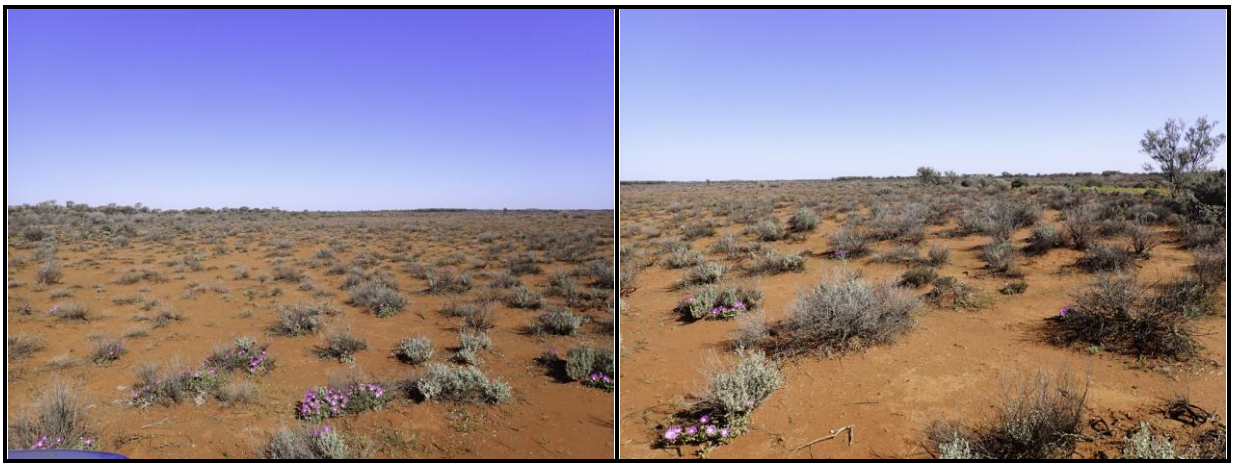
Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 157 Observer: Joel Wilson

GDA94 51; 339423 mE 6796442 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland



Date: 14-Sep-22 Habitat Assessment #: 158 Observer: Joel Wilson

GDA94 51; 339448 mE 6796220 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 159 Observer: Joel Wilson

GDA94 51; 339212 mE 6796228 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 160 Observer: Joel Wilson

GDA94 51; 339209 mE 6796358 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 161 Observer: Joel Wilson

GDA94 51; 339216 mE 6796777 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 162 Observer: Joel Wilson

GDA94 51; 339228 mE 6797258 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 14-Sep-22 Habitat Assessment #: 163 Observer: Joel Wilson

GDA94 51; 339207 mE 6797805 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

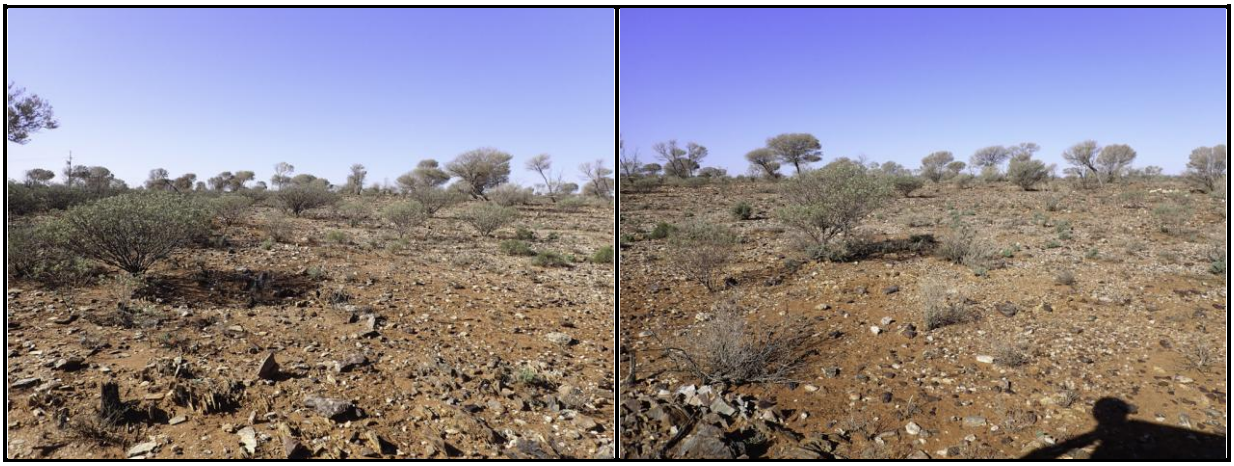
TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 164 Observer: Joel Wilson

GDA94 51; 339210 mE 6798232 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland



Date: 14-Sep-22 Habitat Assessment #: 165 Observer: Joel Wilson

GDA94 51; 339230 mE 6798707 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 166 Observer: Joel Wilson

GDA94 51; 339230 mE 6799227 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 167 Observer: Joel Wilson

GDA94 51; 338997 mE 6799046 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 168 Observer: Joel Wilson

GDA94 51; 338979 mE 6798467 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 169 Observer: Joel Wilson

GDA94 51; 338985 mE 6797960 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

Date: 14-Sep-22 Habitat Assessment #: 170 Observer: Joel Wilson

GDA94 51; 338953 mE 6797444 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 171 Observer: Joel Wilson

GDA94 51; 338986 mE 6797041 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

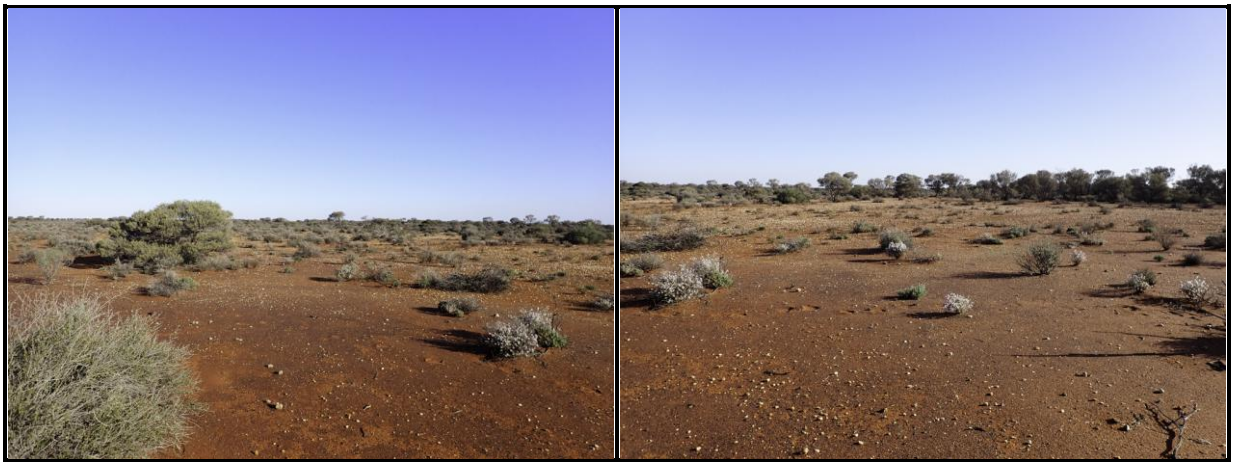
TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 172 Observer: Joel Wilson

GDA94 51; 339017 mE 6796586 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland



Date: 14-Sep-22 Habitat Assessment #: 173 Observer: Joel Wilson

GDA94 51; 339014 mE 6796265 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 14-Sep-22 Habitat Assessment #: 174 Observer: Joel Wilson

GDA94 51; 338779 mE 6797369 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 175 Observer: Joel Wilson

GDA94 51; 338793 mE 6797872 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 176 Observer: Joel Wilson

GDA94 51; 338796 mE 6798401 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Ephemeral creekline

Date: 14-Sep-22 Habitat Assessment #: 177 Observer: Joel Wilson

GDA94 51; 338802 mE 6799368 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 178 Observer: Joel Wilson

GDA94 51; 338600 mE 6799430 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 179 Observer: Joel Wilson

GDA94 51; 338611 mE 6798969 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 180 Observer: Joel Wilson

GDA94 51; 338572 mE 6798495 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 181 Observer: Joel Wilson

GDA94 51; 338571 mE 6798102 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 182 Observer: Joel Wilson

GDA94 51; 338535 mE 6797534 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 183 Observer: Joel Wilson

GDA94 51; 338403 mE 6797151 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 184 Observer: Joel Wilson

GDA94 51; 338398 mE 6797450 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 185 Observer: Joel Wilson

GDA94 51; 338429 mE 6798064 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 14-Sep-22 Habitat Assessment #: 186 Observer: Joel Wilson

GDA94 51; 338398 mE 6798531 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 187 Observer: Joel Wilson

GDA94 51; 338189 mE 6798549 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 188 Observer: Joel Wilson

GDA94 51; 338183 mE 6798117 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 189 Observer: Joel Wilson

GDA94 51; 338160 mE 6797698 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 190 Observer: Joel Wilson

GDA94 51; 338186 mE 6797369 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 191 Observer: Joel Wilson

GDA94 51; 338216 mE 6797122 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 192 Observer: Joel Wilson

GDA94 51; 338015 mE 6797152 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 193 Observer: Joel Wilson

GDA94 51; 338057 mE 6797515 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 194 Observer: Joel Wilson

GDA94 51; 337974 mE 6797955 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 195 Observer: Joel Wilson

GDA94 51; 337958 mE 6798520 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 196 Observer: Joel Wilson

GDA94 51; 337790 mE 6798204 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 197 Observer: Joel Wilson

GDA94 51; 337822 mE 6797803 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 198 Observer: Joel Wilson

GDA94 51; 337800 mE 6797515 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

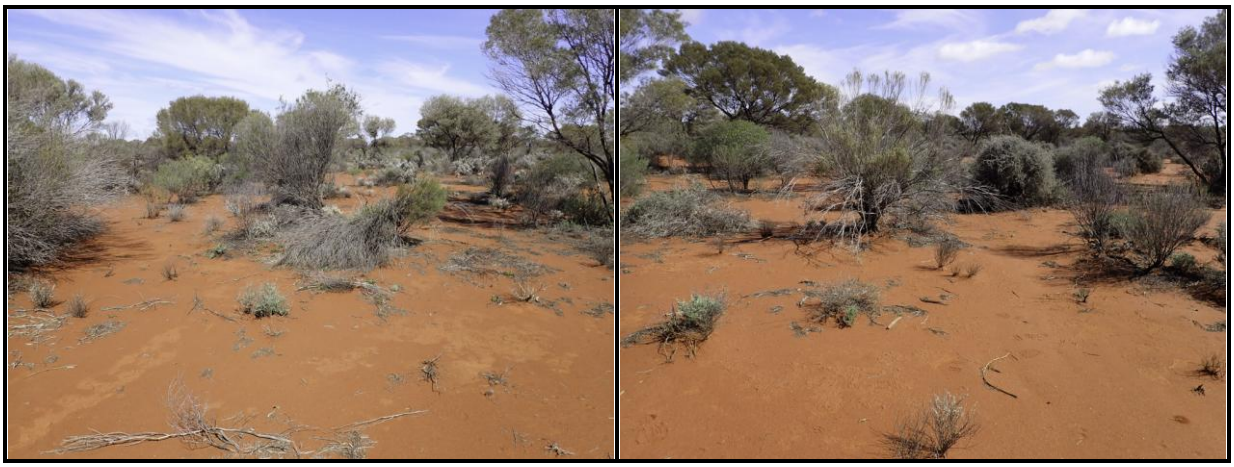
Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 199 Observer: Joel Wilson

GDA94 51; 337812 mE 6797144 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland



TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 200 Observer: Joel Wilson

GDA94 51; 337604 mE 6797065 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Tall shrubland

Date: 15-Sep-22 Habitat Assessment #: 201 Observer: Joel Wilson

GDA94 51; 337597 mE 6797533 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 202 Observer: Joel Wilson

GDA94 51; 337614 mE 6797785 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 203 Observer: Joel Wilson

GDA94 51; 337578 mE 6798108 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Sandy clay

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 204 Observer: Joel Wilson

GDA94 51; 337398 mE 6798301 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Sandy clay

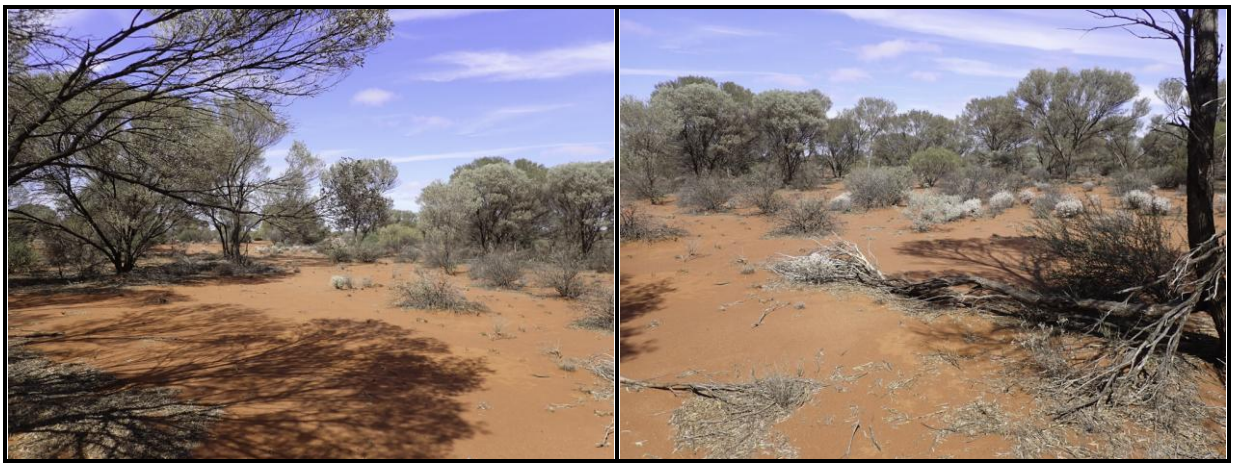
Habitat Type: Low shrubland

Date: 15-Sep-22 Habitat Assessment #: 205 Observer: Joel Wilson

GDA94 51; 337425 mE 6797864 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland



Date: 15-Sep-22 Habitat Assessment #: 206 Observer: Joel Wilson

GDA94 51; 337380 mE 6797569 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 207 Observer: Joel Wilson

GDA94 51; 337366 mE 6797249 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Tall shrubland

TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 208 Observer: Joel Wilson

GDA94 51; 337207 mE 6797317 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 209 Observer: Joel Wilson

GDA94 51; 337195 mE 6797734 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 210 Observer: Joel Wilson

GDA94 51; 337168 mE 6798012 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Few stones

Habitat Type: Disturbed

Date: 15-Sep-22 Habitat Assessment #: 211 Observer: Joel Wilson

GDA94 51; 336997 mE 6797880 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Sandy clay

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 212 Observer: Joel Wilson

GDA94 51; 337095 mE 6797382 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Few stones

Habitat Type: Disturbed

Date: 15-Sep-22 Habitat Assessment #: 213 Observer: Joel Wilson

GDA94 51; 336798 mE 6797869 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

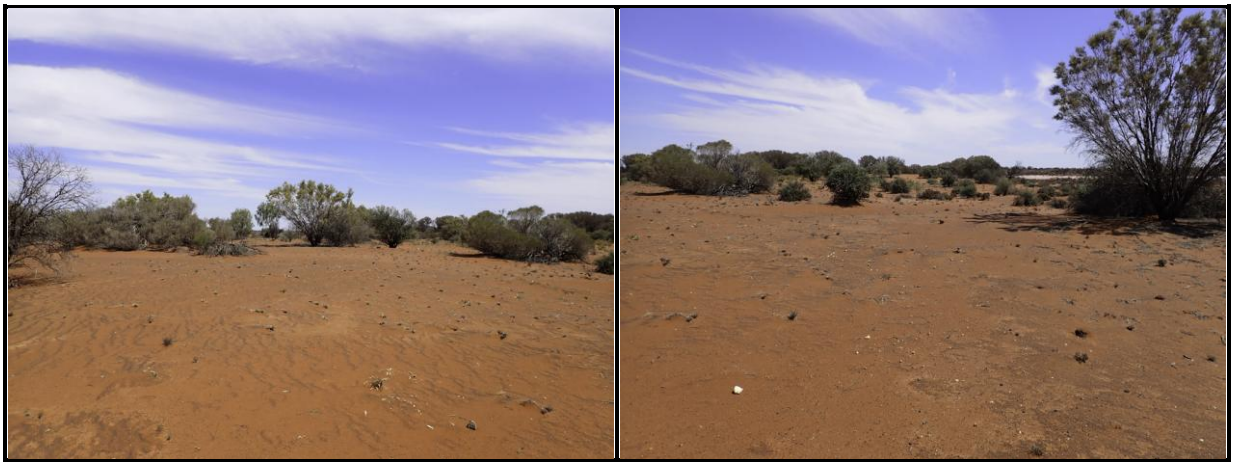
TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 214 Observer: Joel Wilson

GDA94 51; 336629 mE 6798053 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Stoney

Habitat Type: Disturbed

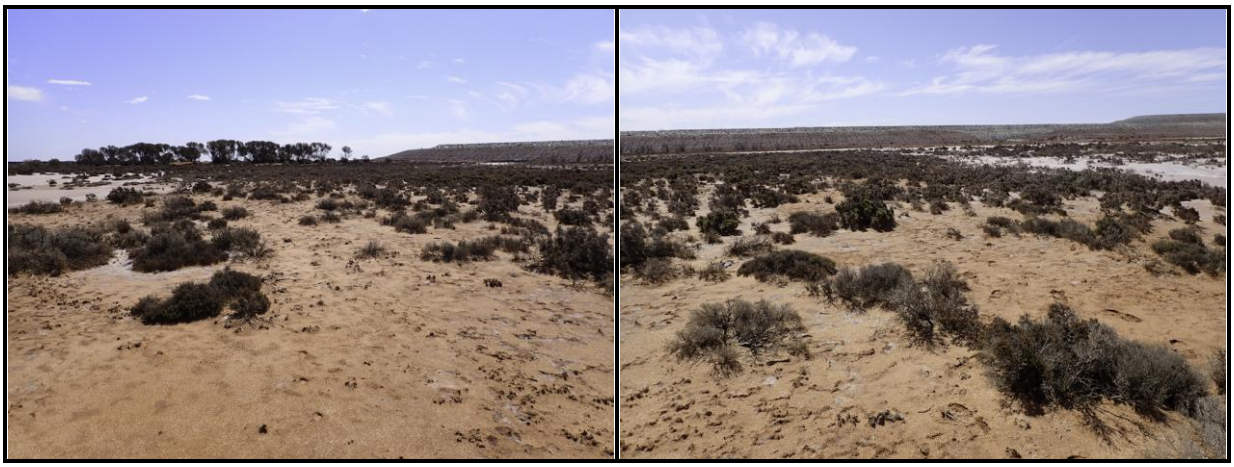


Date: 15-Sep-22 Habitat Assessment #: 215 Observer: Joel Wilson

GDA94 51; 336582 mE 6797779 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

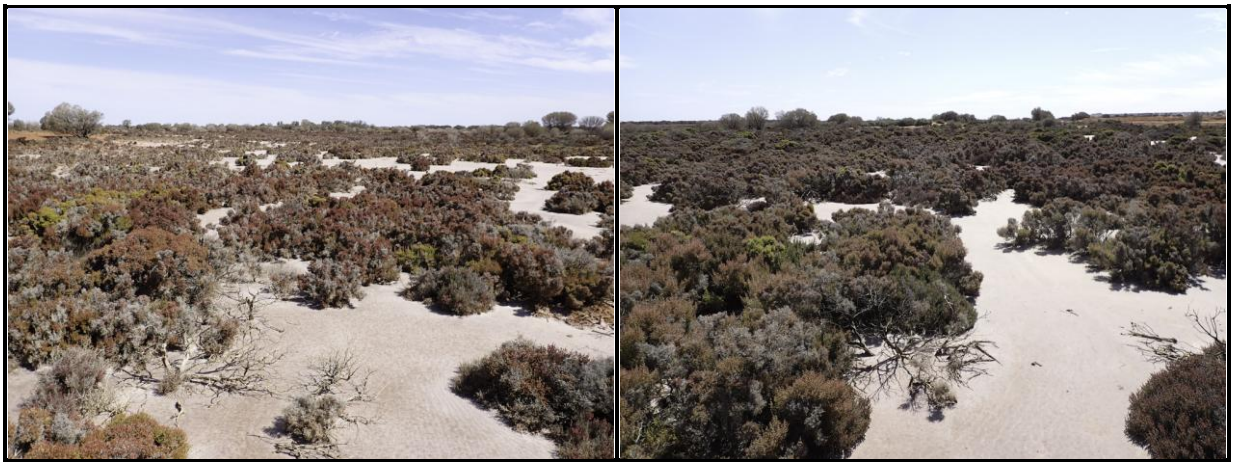


Date: 15-Sep-22 Habitat Assessment #: 216 Observer: Joel Wilson

GDA94 51; 336406 mE 6797865 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

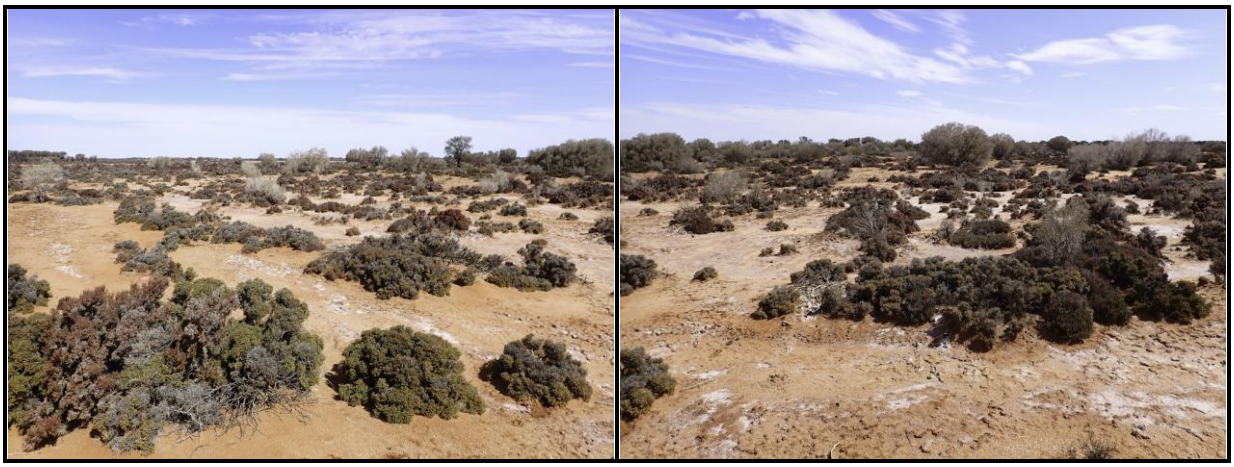


Date: 15-Sep-22 Habitat Assessment #: 217 Observer: Joel Wilson

GDA94 51; 336219 mE 6798051 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland



TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 218 Observer: Joel Wilson

GDA94 51; 336190 mE 6797913 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

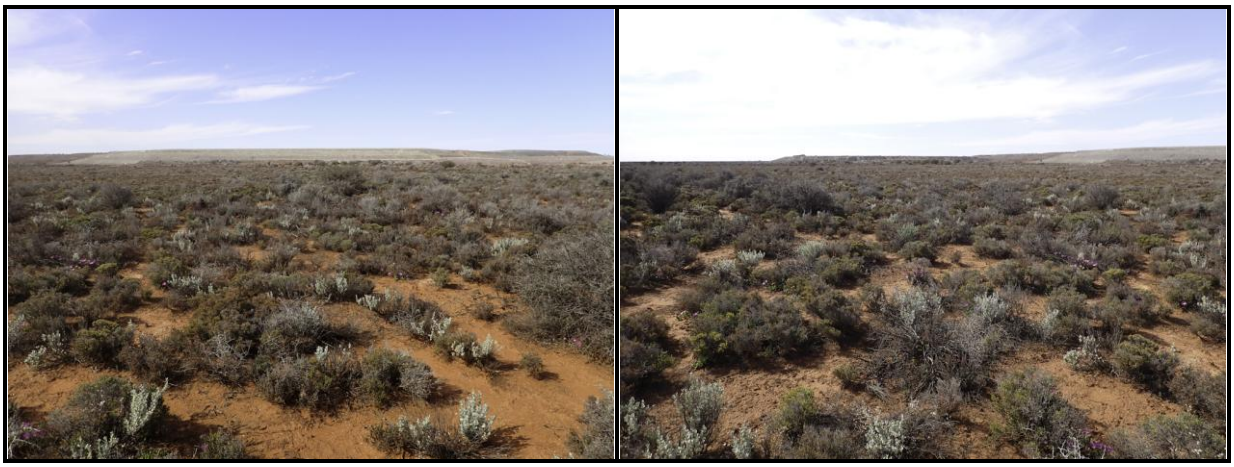
Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 219 Observer: Joel Wilson

GDA94 51; 335191 mE 6798717 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland



TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 220 Observer: Joel Wilson

GDA94 51; 335402 mE 6798226 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland

Date: 15-Sep-22 Habitat Assessment #: 221 Observer: Joel Wilson

GDA94 51; 335397 mE 6798440 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Tall shrubland

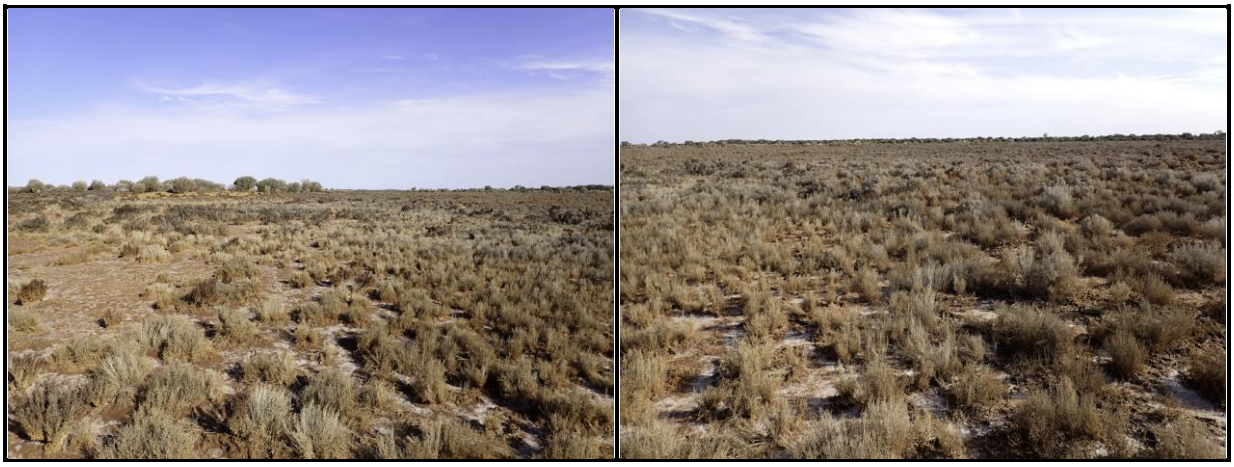
TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 222 Observer: Joel Wilson

GDA94 51; 335389 mE 6798593 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Tall shrubland



Date: 15-Sep-22 Habitat Assessment #: 223 Observer: Joel Wilson

GDA94 51; 335550 mE 6798496 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 224 Observer: Joel Wilson

GDA94 51; 335635 mE 6798113 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

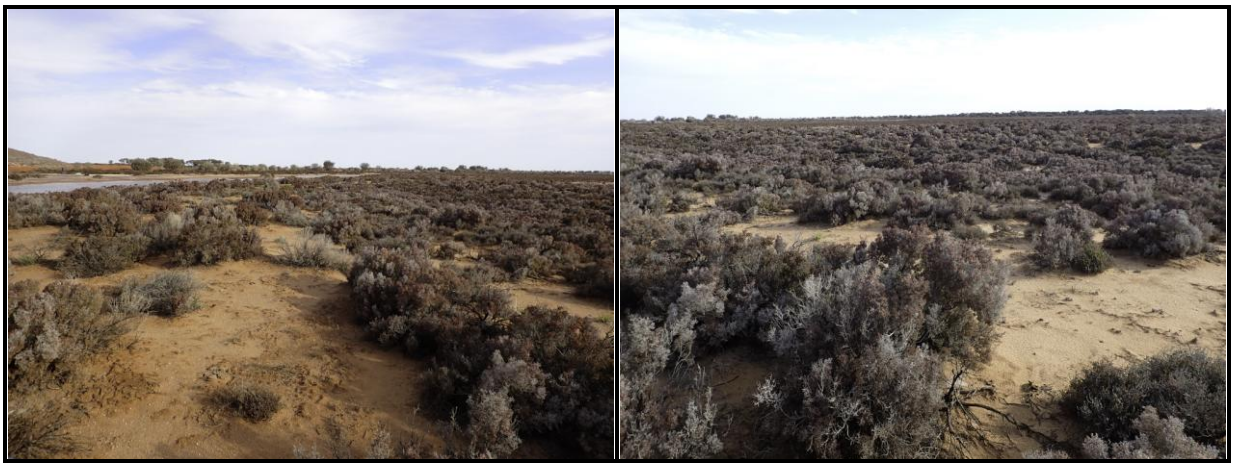
Habitat Type: Low shrubland

Date: 15-Sep-22 Habitat Assessment #: 225 Observer: Joel Wilson

GDA94 51; 335824 mE 6798210 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland



TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 226 Observer: Joel Wilson

GDA94 51; 336023 mE 6798308 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 15-Sep-22 Habitat Assessment #: 227 Observer: Joel Wilson

GDA94 51; 335133 mE 6799023 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 228 Observer: Joel Wilson

GDA94 51; 335226 mE 6799144 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: d Surface: No stones

Habitat Type: Disturbed

Date: 15-Sep-22 Habitat Assessment #: 229 Observer: Joel Wilson

GDA94 51; 335595 mE 6799292 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland

Date: 15-Sep-22 Habitat Assessment #: 230 Observer: Joel Wilson

GDA94 51; 335582 mE 6799068 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

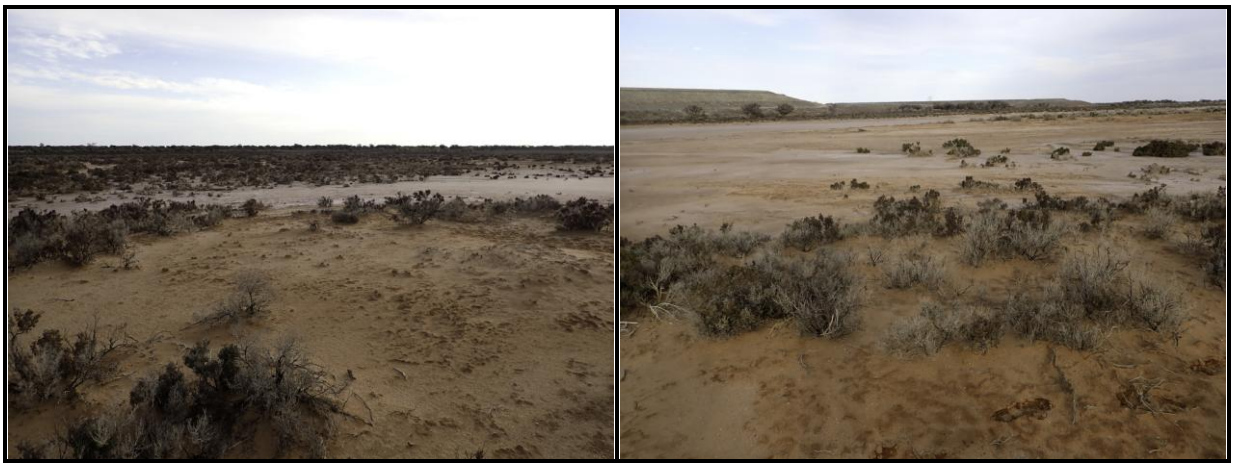
Habitat Type: Low shrubland

Date: 15-Sep-22 Habitat Assessment #: 231 Observer: Joel Wilson

GDA94 51; 335514 mE 6798978 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 15-Sep-22 Habitat Assessment #: 232 Observer: Joel Wilson

GDA94 51; 335587 mE 6798714 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland

Date: 15-Sep-22 Habitat Assessment #: 233 Observer: Joel Wilson

GDA94 51; 335869 mE 6798533 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 15-Sep-22 Habitat Assessment #: 234 Observer: Joel Wilson

GDA94 51; 335797 mE 6798732 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 235 Observer: Joel Wilson

GDA94 51; 337395 mE 6801214 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 236 Observer: Joel Wilson

GDA94 51; 337392 mE 6801658 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 237 Observer: Joel Wilson

GDA94 51; 337358 mE 6801981 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 238 Observer: Joel Wilson

GDA94 51; 337367 mE 6802408 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 239 Observer: Joel Wilson

GDA94 51; 337374 mE 6802805 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 240 Observer: Joel Wilson

GDA94 51; 337214 mE 6802855 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Tall shrubland

Date: 16-Sep-22 Habitat Assessment #: 241 Observer: Joel Wilson

GDA94 51; 337170 mE 6802507 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 242 Observer: Joel Wilson

GDA94 51; 337199 mE 6802034 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Ephemeral creekline

Date: 16-Sep-22 Habitat Assessment #: 243 Observer: Joel Wilson

GDA94 51; 337199 mE 6801732 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 244 Observer: Joel Wilson

GDA94 51; 337208 mE 6801411 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 245 Observer: Joel Wilson

GDA94 51; 337033 mE 6801202 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: d Surface: Stoney

Habitat Type: Disturbed

Date: 16-Sep-22 Habitat Assessment #: 246 Observer: Joel Wilson

GDA94 51; 337013 mE 6801600 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: d Surface: Stoney

Habitat Type: Disturbed

Date: 16-Sep-22 Habitat Assessment #: 247 Observer: Joel Wilson

GDA94 51; 337037 mE 6801944 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

Date: 16-Sep-22 Habitat Assessment #: 248 Observer: Joel Wilson

GDA94 51; 337009 mE 6802329 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 249 Observer: Joel Wilson

GDA94 51; 337002 mE 6802703 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 250 Observer: Joel Wilson

GDA94 51; 336705 mE 6803666 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 251 Observer: Joel Wilson

GDA94 51; 336686 mE 6803899 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 252 Observer: Joel Wilson

GDA94 51; 336484 mE 6803801 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

Date: 16-Sep-22 Habitat Assessment #: 253 Observer: Joel Wilson

GDA94 51; 334788 mE 6803329 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 254 Observer: Joel Wilson

GDA94 51; 334472 mE 6803207 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 255 Observer: Joel Wilson

GDA94 51; 333914 mE 6802370 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 256 Observer: Joel Wilson

GDA94 51; 333929 mE 6802011 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 257 Observer: Joel Wilson

GDA94 51; 333942 mE 6801638 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 258 Observer: Joel Wilson

GDA94 51; 333979 mE 6801283 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Ephemeral creekline

Date: 16-Sep-22 Habitat Assessment #: 259 Observer: Joel Wilson

GDA94 51; 333973 mE 6800931 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Ephemeral creekline

Date: 16-Sep-22 Habitat Assessment #: 260 Observer: Joel Wilson

GDA94 51; 333988 mE 6800573 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

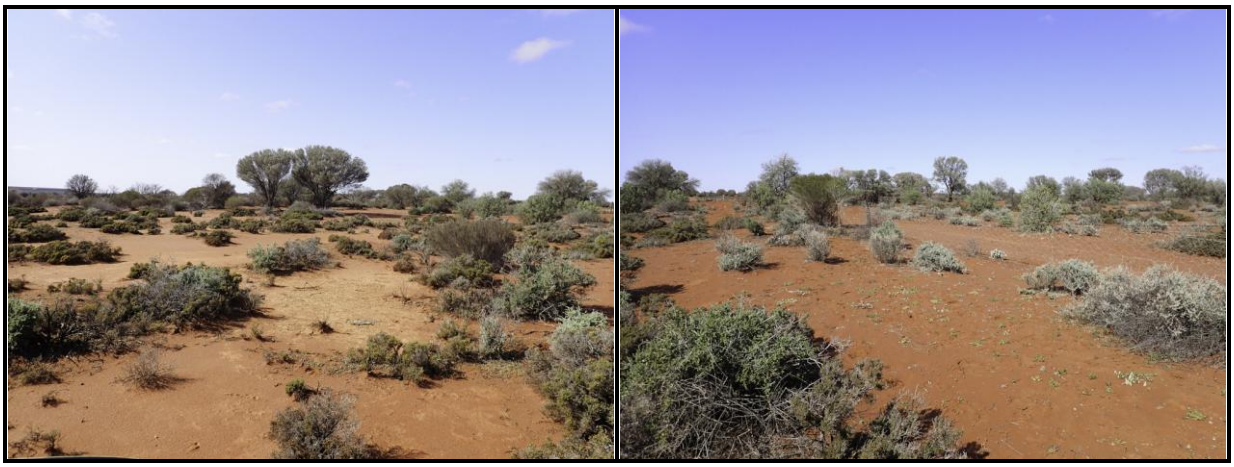
Habitat Type: Ephemeral creekline

Date: 16-Sep-22 Habitat Assessment #: 261 Observer: Joel Wilson

GDA94 51; 333997 mE 6800271 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Ephemeral creekline



Date: 16-Sep-22 Habitat Assessment #: 262 Observer: Joel Wilson

GDA94 51; 334013 mE 6799946 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 263 Observer: Joel Wilson

GDA94 51; 334180 mE 6799857 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 264 Observer: Joel Wilson

GDA94 51; 334172 mE 6800169 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 265 Observer: Joel Wilson

GDA94 51; 334176 mE 6800525 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 266 Observer: Joel Wilson

GDA94 51; 334216 mE 6800910 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 267 Observer: Joel Wilson

GDA94 51; 334194 mE 6801202 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 268 Observer: Joel Wilson

GDA94 51; 334194 mE 6801644 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 269 Observer: Joel Wilson

GDA94 51; 334091 mE 6801997 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 270 Observer: Joel Wilson

GDA94 51; 334230 mE 6802339 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 271 Observer: Joel Wilson

GDA94 51; 334417 mE 6802321 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 272 Observer: Joel Wilson

GDA94 51; 334415 mE 6802036 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 273 Observer: Joel Wilson

GDA94 51; 334412 mE 6801644 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 274 Observer: Joel Wilson

GDA94 51; 334364 mE 6801173 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 275 Observer: Joel Wilson

GDA94 51; 334386 mE 6800880 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

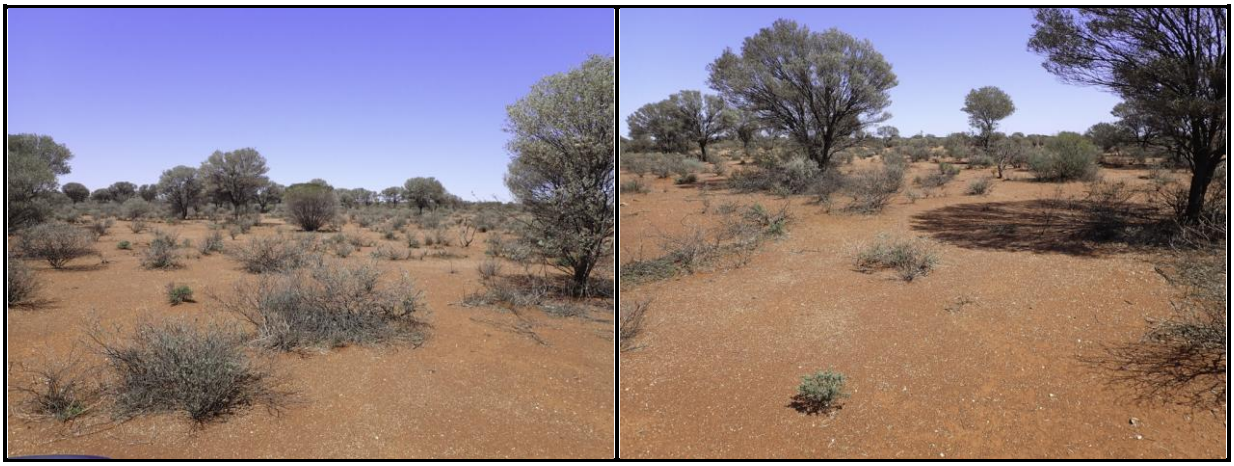
Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 276 Observer: Joel Wilson

GDA94 51; 334399 mE 6800506 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

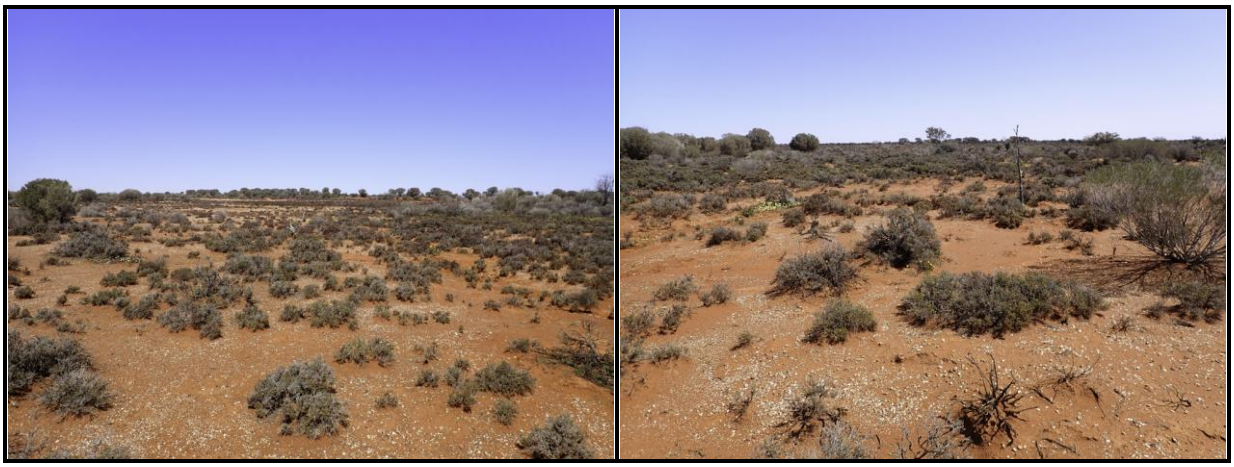


Date: 16-Sep-22 Habitat Assessment #: 277 Observer: Joel Wilson

GDA94 51; 334393 mE 6800241 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 16-Sep-22 Habitat Assessment #: 278 Observer: Joel Wilson

GDA94 51; 334392 mE 6799849 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 279 Observer: Joel Wilson

GDA94 51; 334581 mE 6799842 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 280 Observer: Joel Wilson

GDA94 51; 334596 mE 6800178 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 281 Observer: Joel Wilson

GDA94 51; 334579 mE 6800507 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 282 Observer: Joel Wilson

GDA94 51; 334594 mE 6800906 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 283 Observer: Joel Wilson

GDA94 51; 334586 mE 6801204 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 284 Observer: Joel Wilson

GDA94 51; 334595 mE 6802006 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 285 Observer: Joel Wilson

GDA94 51; 334595 mE 6802259 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 286 Observer: Joel Wilson

GDA94 51; 334392 mE 6802738 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 287 Observer: Joel Wilson

GDA94 51; 335122 mE 6799315 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: d Surface: No stones

Habitat Type: Disturbed

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 288 Observer: Joel Wilson

GDA94 51; 335100 mE 6799629 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: d Surface: Stoney

Habitat Type: Disturbed

Date: 16-Sep-22 Habitat Assessment #: 289 Observer: Joel Wilson

GDA94 51; 334951 mE 6800151 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 290 Observer: Joel Wilson

GDA94 51; 334789 mE 6799869 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 291 Observer: Joel Wilson

GDA94 51; 334811 mE 6800174 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 292 Observer: Joel Wilson

GDA94 51; 334815 mE 6800521 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 293 Observer: Joel Wilson

GDA94 51; 334819 mE 6800912 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

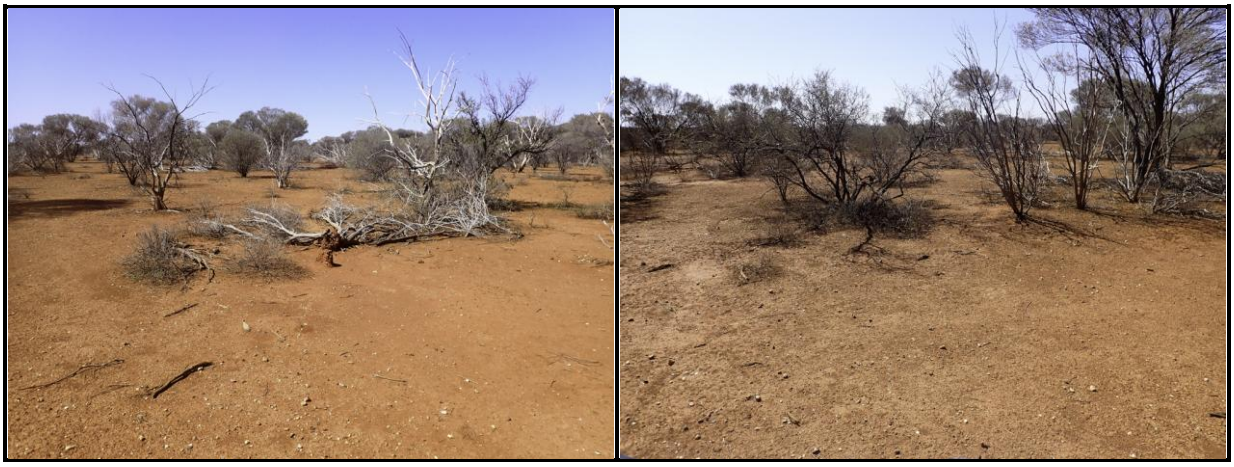
Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 294 Observer: Joel Wilson

GDA94 51; 334785 mE 6801189 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 16-Sep-22 Habitat Assessment #: 295 Observer: Joel Wilson

GDA94 51; 334794 mE 6802061 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 296 Observer: Joel Wilson

GDA94 51; 334787 mE 6802356 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Ephemeral creekline

Date: 16-Sep-22 Habitat Assessment #: 297 Observer: Joel Wilson

GDA94 51; 334837 mE 6802605 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 298 Observer: Joel Wilson

GDA94 51; 335025 mE 6802871 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 299 Observer: Joel Wilson

GDA94 51; 335014 mE 6802513 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 300 Observer: Joel Wilson

GDA94 51; 334967 mE 6802263 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 301 Observer: Joel Wilson

GDA94 51; 334986 mE 6801165 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 302 Observer: Joel Wilson

GDA94 51; 334960 mE 6800878 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 303 Observer: Joel Wilson

GDA94 51; 335007 mE 6800533 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 304 Observer: Joel Wilson

GDA94 51; 334982 mE 6799942 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

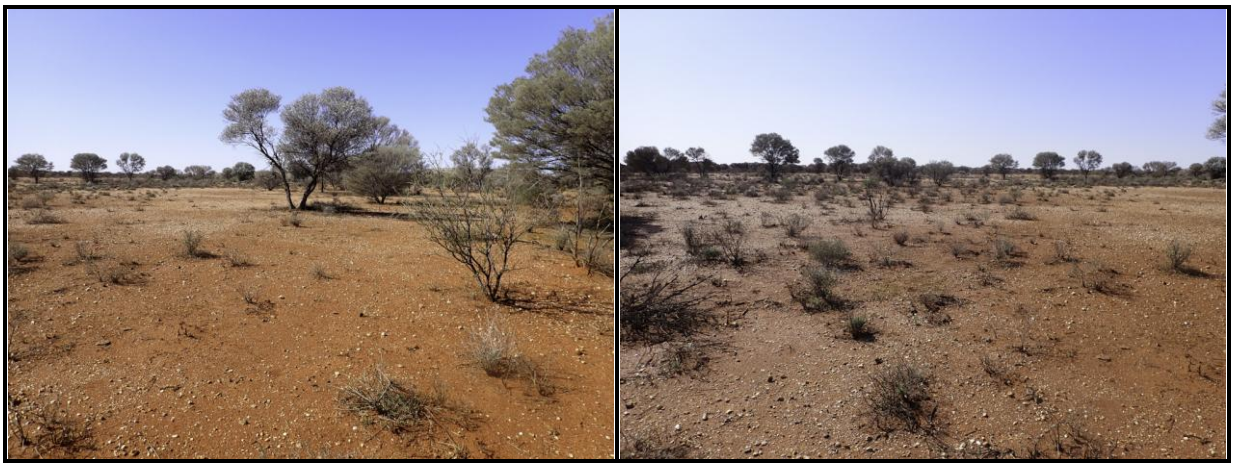
Habitat Type: Tall shrubland

Date: 16-Sep-22 Habitat Assessment #: 305 Observer: Joel Wilson

GDA94 51; 335194 mE 6800489 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Tall shrubland



TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 306 Observer: Joel Wilson

GDA94 51; 335188 mE 6800891 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

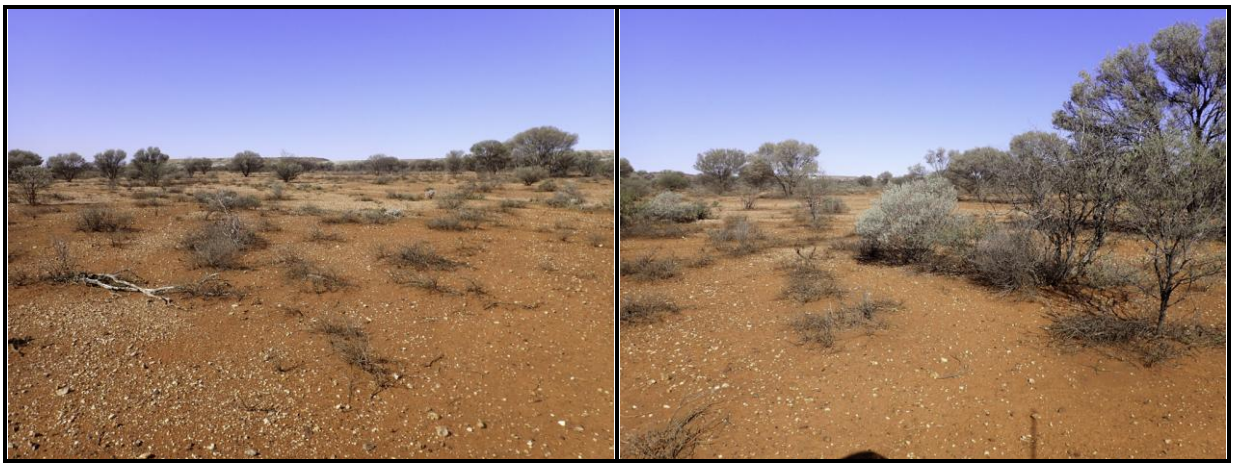
Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 307 Observer: Joel Wilson

GDA94 51; 335186 mE 6801229 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 16-Sep-22 Habitat Assessment #: 308 Observer: Joel Wilson

GDA94 51; 335206 mE 6801665 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 309 Observer: Joel Wilson

GDA94 51; 335196 mE 6802116 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

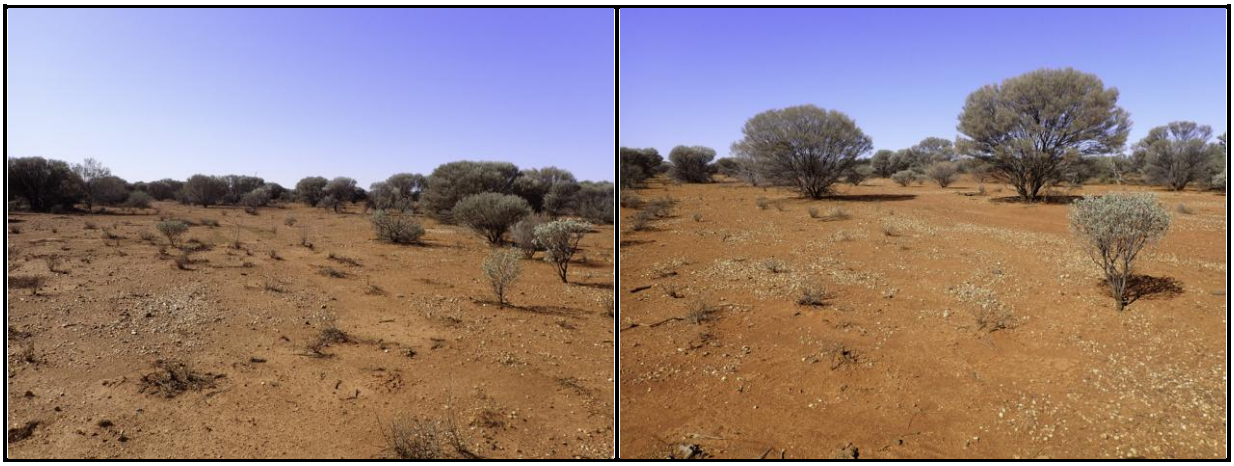
TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 310 Observer: Joel Wilson

GDA94 51; 335226 mE 6802448 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Open mulga woodland



Date: 16-Sep-22 Habitat Assessment #: 311 Observer: Joel Wilson

GDA94 51; 335206 mE 6802819 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

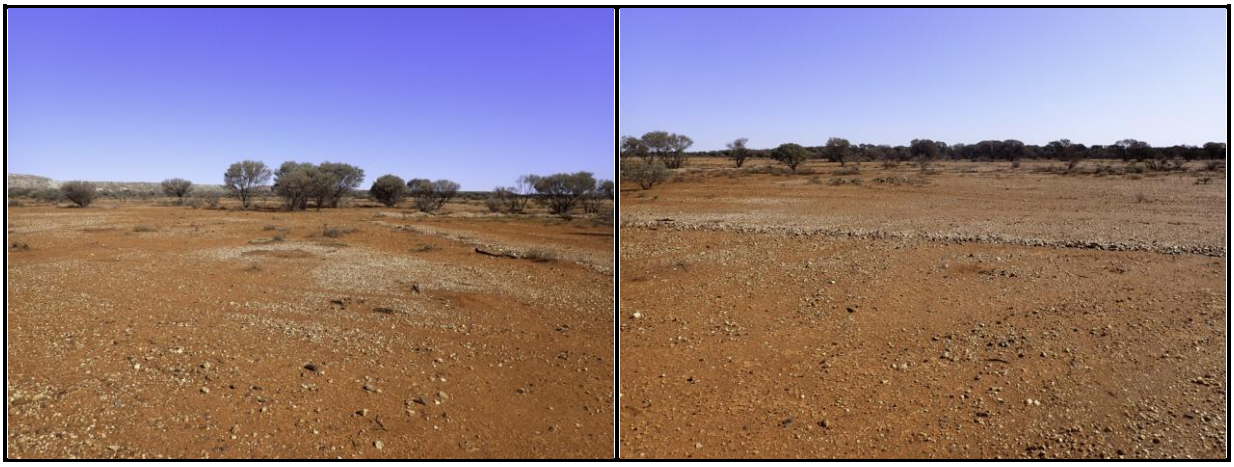
Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 312 Observer: Joel Wilson

GDA94 51; 335427 mE 6802861 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Ephemeral creekline



Date: 16-Sep-22 Habitat Assessment #: 313 Observer: Joel Wilson

GDA94 51; 335406 mE 6802165 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 314 Observer: Joel Wilson

GDA94 51; 335390 mE 6801750 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

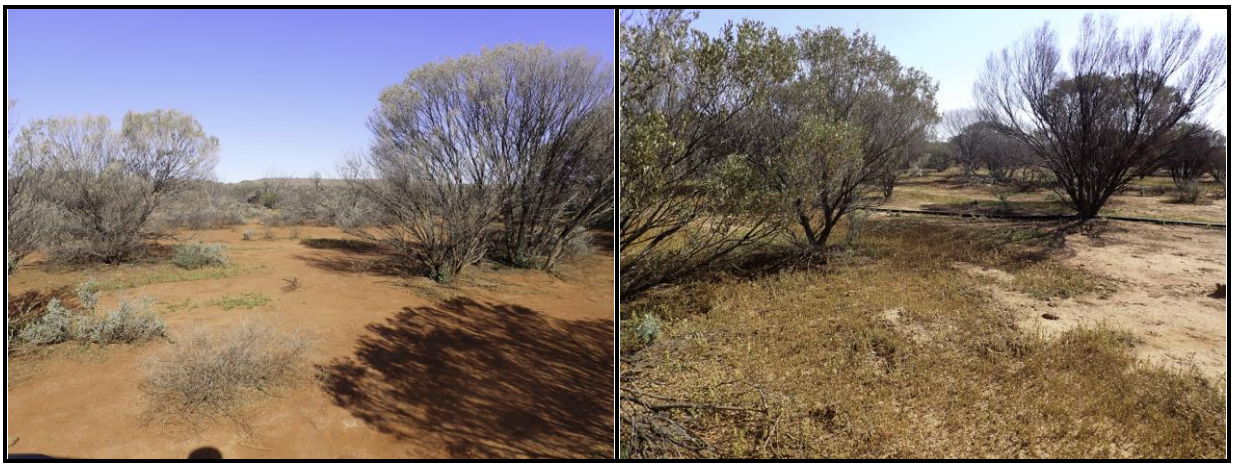
Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 315 Observer: Joel Wilson

GDA94 51; 335408 mE 6801304 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

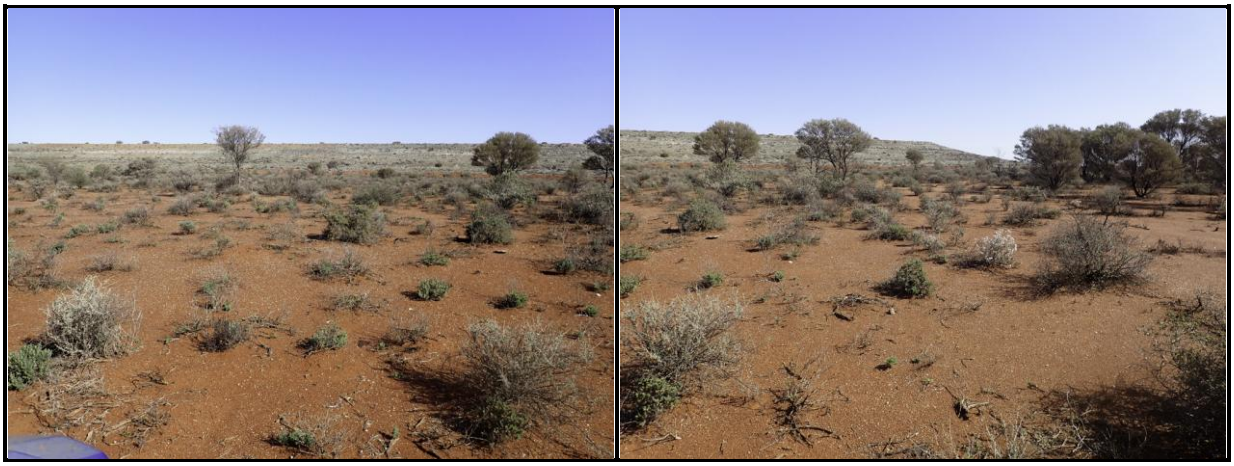


Date: 16-Sep-22 Habitat Assessment #: 316 Observer: Joel Wilson

GDA94 51; 335384 mE 6800986 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Ephemeral creekline



Date: 16-Sep-22 Habitat Assessment #: 317 Observer: Joel Wilson

GDA94 51; 335409 mE 6800519 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

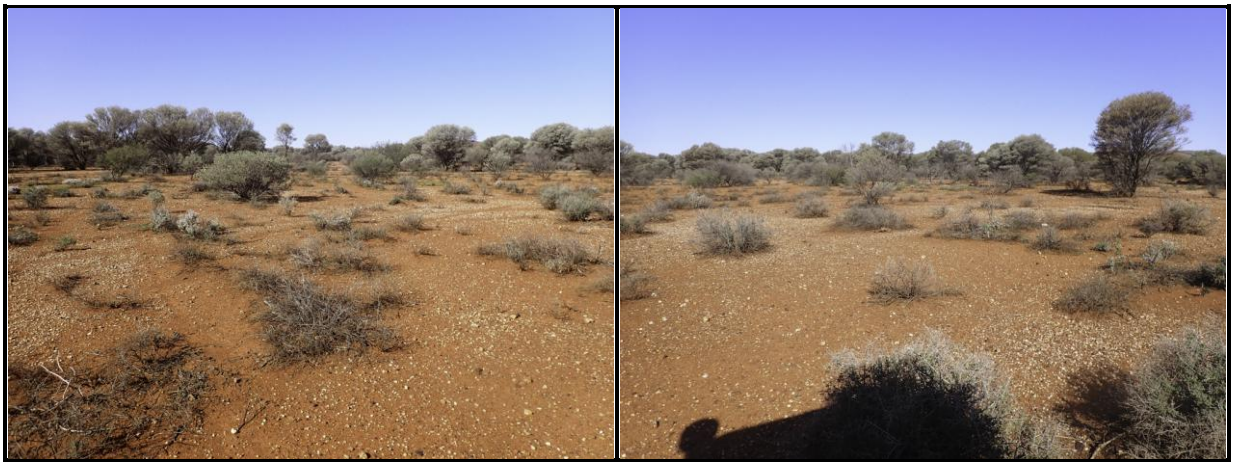
TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 318 Observer: Joel Wilson

GDA94 51; 335591 mE 6800509 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

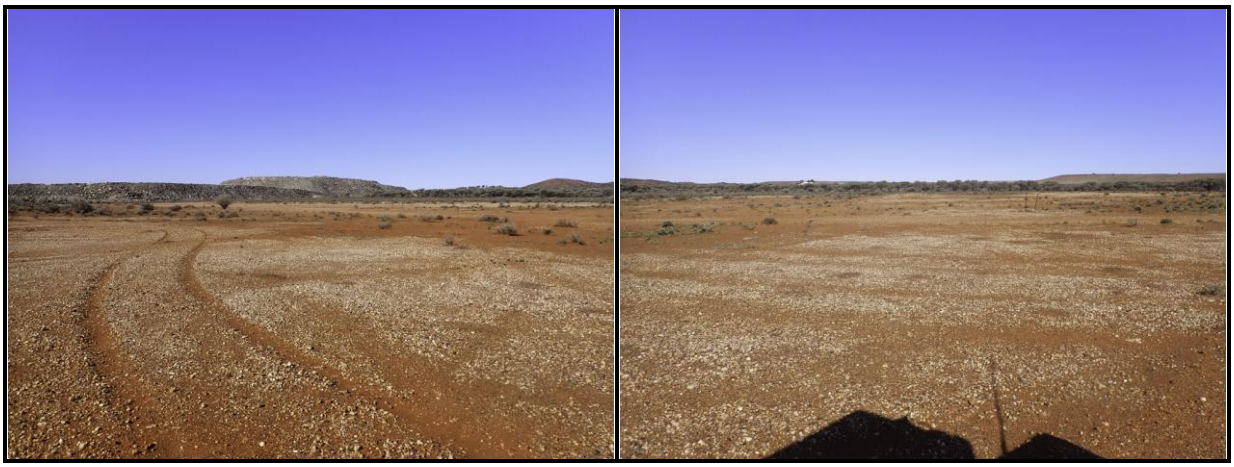


Date: 16-Sep-22 Habitat Assessment #: 319 Observer: Joel Wilson

GDA94 51; 335596 mE 6800922 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 16-Sep-22 Habitat Assessment #: 320 Observer: Joel Wilson

GDA94 51; 335595 mE 6801248 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 321 Observer: Joel Wilson

GDA94 51; 335585 mE 6801621 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Stoney

Habitat Type: Disturbed

Date: 16-Sep-22 Habitat Assessment #: 322 Observer: Joel Wilson

GDA94 51; 335695 mE 6801981 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 323 Observer: Joel Wilson

GDA94 51; 335649 mE 6802352 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 324 Observer: Joel Wilson

GDA94 51; 335596 mE 6802850 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 325 Observer: Joel Wilson

GDA94 51; 335982 mE 6803000 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 326 Observer: Joel Wilson

GDA94 51; 335968 mE 6802685 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Ephemeral creekline

Date: 16-Sep-22 Habitat Assessment #: 327 Observer: Joel Wilson

GDA94 51; 335803 mE 6802644 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Ephemeral creekline

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 328 Observer: Joel Wilson

GDA94 51; 335819 mE 6803028 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 329 Observer: Joel Wilson

GDA94 51; 336186 mE 6803055 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 330 Observer: Joel Wilson

GDA94 51; 336208 mE 6802761 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 331 Observer: Joel Wilson

GDA94 51; 336584 mE 6802786 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 332 Observer: Joel Wilson

GDA94 51; 335805 mE 6801283 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 333 Observer: Joel Wilson

GDA94 51; 335836 mE 6800956 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 334 Observer: Joel Wilson

GDA94 51; 335793 mE 6800501 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 335 Observer: Joel Wilson

GDA94 51; 335999 mE 6800447 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Low shrubland

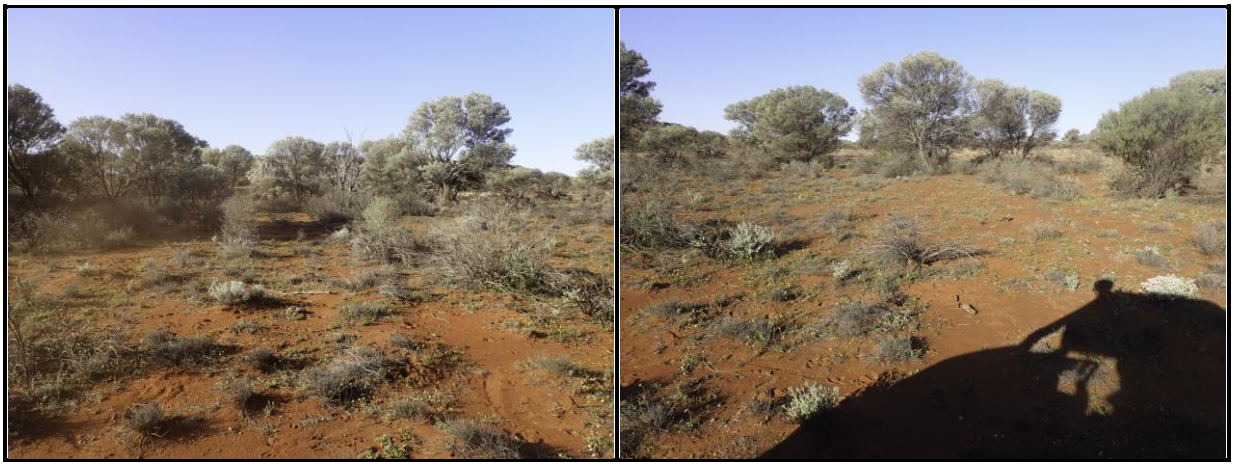
TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 336 Observer: Joel Wilson

GDA94 51; 335990 mE 6800927 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland



Date: 16-Sep-22 Habitat Assessment #: 337 Observer: Joel Wilson

GDA94 51; 336005 mE 6801245 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 338 Observer: Joel Wilson

GDA94 51; 336228 mE 6801273 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 339 Observer: Joel Wilson

GDA94 51; 336201 mE 6800838 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 340 Observer: Joel Wilson

GDA94 51; 336155 mE 6800494 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 341 Observer: Joel Wilson

GDA94 51; 336389 mE 6800385 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: No stones

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 342 Observer: Joel Wilson

GDA94 51; 336435 mE 6800937 mN Fire History: > 5 years Landform: Stoney rise

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 343 Observer: Joel Wilson

GDA94 51; 336427 mE 6801256 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

Date: 16-Sep-22 Habitat Assessment #: 344 Observer: Joel Wilson

GDA94 51; 336590 mE 6801144 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 345 Observer: Joel Wilson

GDA94 51; 336573 mE 6800852 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Open mulga woodland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 346 Observer: Joel Wilson

GDA94 51; 336580 mE 6800251 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Few stones

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 347 Observer: Joel Wilson

GDA94 51; 336548 mE 6799995 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Disturbed Surface: Few stones

Habitat Type: Disturbed

Date: 16-Sep-22 Habitat Assessment #: 348 Observer: Joel Wilson

GDA94 51; 336830 mE 6800003 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

Date: 16-Sep-22 Habitat Assessment #: 349 Observer: Joel Wilson

GDA94 51; 336793 mE 6800322 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland

TERRESTRIAL ECOSYSTEMS

Date: 16-Sep-22 Habitat Assessment #: 350 Observer: Joel Wilson

GDA94 51; 336806 mE 6800943 mN Fire History: > 5 years Landform: Plain

Soil Type: Sandy clay Habitat Quality: Very good Surface: Stoney

Habitat Type: Low shrubland


DETECTION DOG