

Desktop Vertebrate Fauna Assessment

Expansion of the Solar Power Farm Project Area

Prepared for: Granny Smith Mining Company

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REPORT CONTENTS

EXECUTIVE SUMMARY

1.	INTRODUCTION	1
1.1	Background	1
1.1	Project objectives and scope of works	1
2	EXISTING ENVIRONMENT	1
2.1	Location of project area	3
2.2	Land use history	3
2.3	Climate	3
2.4	Regional biological fauna context of project area	4
2.4.1	Fauna species at risk	6
3	METHODOLOGY	7
3.1	Database searches	7
3.2	reporting staff	7
3.3	Taxonomy and nomenclature	8
3.4	Limitations	8
2.	RESULTS	9
2.1	Fauna habitat	9
2.2	Fauna assemblage	9
2.3	Bioregional vertebrate fauna	15
2.4	Conservation significant fauna	4
3.	DISCUSSION	10
3.1	Adequacy of the fauna survey data for fauna habitats represented in the project area	10
3.1.1	Amphibians	10
3.1.2	Reptiles	10
3.1.3	Birds	11
3.1.4	Mammals	11
3.2	Biodiversity value	11
3.2.1	Ecological functional value at the ecosystem level	11
3.2.2	Maintenance of threatened ecological communities	11
3.2.3	Ecological linkages	12
3.2.4	Size and scale of the proposed disturbance	12
3.2.5	Abundance and distribution of similar habitat in the adjacent areas	12
3.2.6	Potential impacts on ecosystem function	12
3.3	Risk assessment	12
3.4	Native vegetation clearing principles as they pertain to vertebrate fauna	16
3.5	Referral under the EPBC Act	16
4.	SUMMARY	17
5.	REFERENCES	19

LIST OF CHARTS

Chart 1. Climatic averages for Laverton	3
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LIST OF TABLES

Table 1. Fauna survey limitations and constraints	8
Table 2. Granny Smith terrestrial fauna survey results	12
Table 3. Bird survey results for Granny Smith mining area	13
Table 4. Birds potentially found near the project area	15
Table 5. Amphibians potentially found near the project area	1
Table 6. Mammals potentially found near the project area	1
Table 7. Reptiles potentially found in the project area	2
Table 8. Potential conservation significant species found around the project area	4
Table 9. Fauna impact risk assessment descriptors	13
Table 10. Risk assessment matrix	13
Table 11. Assessed risk of potential impacts on the vertebrate fauna assemblage	14
Table 12. Assessment of impact using the native vegetation clearing principles	16

LIST OF FIGURES

Figure 1. Regional location	24
Figure 2. Project area and surrounds showing fauna habitats	24

LIST OF APPENDICES

Appendix A. Results of the EPBC Act Protected Matters Search
Appendix B. Vertebrate Fauna Recorded in Biological Surveys in the Region
Appendix C. Definitions of Significant Fauna under the WA <i>Biodiversity Conservation Act 2016</i> and Priority Species

EXECUTIVE SUMMARY

The Granny Smith Mining Company is proposing to expand the area for its solar power farm. The project area is approximately 240ha, and surrounds an area approximately 150ha that was the subject of an earlier fauna assessment (Terrestrial Ecosystems 2018b).

Based on a desktop analysis and information provided from the botanical assessment of the project area, there are six broad fauna habitats in the project area:

- Open Mulga woodland over scattered low shrubs and grasses;
- Mulga and chenopod shrubland;
- Open Mulga woodland over scattered low shrubs and grasses on a banded ironstone formation;
- Samphire shrubland;
- Chenopod shrubland; and
- Disturbed areas.

The density of Mulga trees and shrubs varies across the project area, being more-dense around the ephemeral creek line.

Clearing native vegetation is likely to result in the loss of very few small vertebrate fauna that are unable to move away during the clearing process. The few larger animals, such as kangaroos and large goannas and snakes, and most of the birds will move into adjacent areas once clearing commences. There will be a small loss of native fauna to vehicle strikes on access tracks, but this will be very low. There are a few low banded ironstone formations (BIFs) in the project area, with a low possibility that they support a very low density of Long-tailed Dunnarts, a priority 4 species with the Department of Biodiversity, Conservation and Attractions (DBCA). The proposed vegetation clearing is not considered to be a significant impact on this species when considered in a bioregional context, as they are present on other BIFs in the Goldfields.

Impacts associated with clearing vegetation in the project area in a local, landscape and bioregional context on the vertebrate fauna are likely to be low as it is a very small amount of clearing and there are vast tracts of similar habitat in adjacent areas.

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

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1. INTRODUCTION

1.1 BACKGROUND

Gold Fields is an Australian mineral exploration and gold producing company with major tenements in the eastern Goldfields of Western Australia. The Granny Smith Mining Company, a subsidiary of Gold Fields, requested a desktop vertebrate fauna risk assessment to support the preparation of documentation seeking environmental approvals for the expansion of the area for its solar power farm (i.e. project area) in the eastern Goldfields (Figure 1). Terrestrial Ecosystems undertook the vertebrate fauna assessment for the original area (i.e. ~ 150ha; Terrestrial Ecosystems 2018b) and the Granny Smith Mining Company is now proposing to enlarge that area to approximately 390ha, of which approximately 240ha is assessed in this report.

1.1 PROJECT OBJECTIVES AND SCOPE OF WORKS

Terrestrial Ecosystems was commissioned to undertake a Basic vertebrate fauna risk assessment development of the expansion of solar farm project. The purpose of this Basic fauna risk assessment was to provide information to the Department of Mines, Industry Regulation and Safety (DMIRS) regarding 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 Fauna Surveys.

A typical Basic fauna risk assessment involves undertaking a desktop review and site visit. The objectives of this fauna risk assessment were to:

- provide an indication of the vertebrate fauna assemblage (reptiles, amphibians, mammals and birds) 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 fauna assemblage;
- determine if any additional surveys are required to assess the potential impact on fauna assemblages 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 Department of Biodiversity, Conservation and Attractions (DBCA) records in NatureMap] to identify potential vertebrate fauna within the area;
- searched the DBCA's NatureMap for Threatened and Priority Species;
- 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);
- used information provided by Native Vegetation Solutions who undertook the botanical assessment of the project area for fauna habitats and their condition;
- 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;

- discussed the likelihood of *EPBC Act 1999* and *Biodiversity Conservation Act 2016* 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 (2003) described the subregion as mostly dominated by mulga woodlands that are often rich in ephemerals; hummock grasslands, salt bush shrub lands and haloscargia shrub lands. Cowan (2003) recorded no threatened ecological communities in the vicinity of the project areas. Threatening process for conservation significant fauna were listed by Cowan (2003) 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. The area surrounding the Granny Smith project area has been extensively explored for minerals and there are many operational and non-operational mining projects.

The project area is on Mt Weld Station which continues to graze cattle near the project area. An active haul road runs through the project area from east to west (Figure 2).

2.3 CLIMATE

The project area is characterised as semi-arid. Laverton, 25km to the north, has an annual rainfall of approximately 235mm, although this varies considerably from year-to-year. The highest mean maximum and minimum temperatures in Laverton are in January with an average of 35.8°C and 20.5°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.

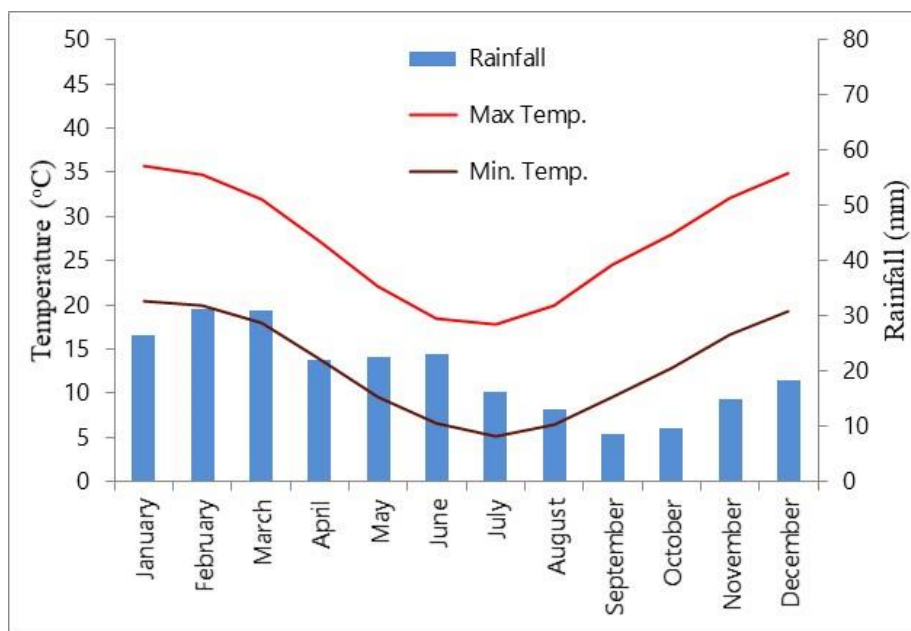


Chart 1. Climatic averages for Laverton

2.4 REGIONAL BIOLOGICAL FAUNA CONTEXT OF PROJECT AREA

Numerous fauna surveys and assessments have been undertaken near the project area and in similar habitats in the region. These 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 (2008c) *Level 2 Fauna Assessment for Moolart Well, Dogbolter and Erlistoun*. Unpublished report for Regis Resources, Ltd, 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 (2005) *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. (1994) 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.
- 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. (1994) Vertebrate fauna. In: The Biological Survey of the Eastern Goldfields of Western Australia Part 10, Sandstone-Sir Samuel and Laverton-Leonora Study Areas. *Records of the Western Australian Museum*, Supplement No 47, pp. 51-85.
- MBS Environmental (2004) *Vegetation and Habitat Assessment of the Euro, Sickie and Admiral Hill Project Areas, Laverton*. Unpublished report for Crescent Gold Limited.

- 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.
- Onus, M. L., Rolfe, J.K., and Algar, D. (2011) Assessment of feral cat abundance and control options at Barrick, Granny Smith. 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) Investigation of Short-Range Endemic Invertebrates for the Granny Deeps Project Area. Perth.
- Terrestrial Ecosystems (2011b) *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 Fauna Risk Assessment for the Anchor Project*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2012b) *Level 1 Fauna Risk Assessment for the Moolart Well to Garden Well Access Road on M38/354, M38/302, M38/303 and L38/216*. Perth.
- Terrestrial Ecosystems (2012c) *Level 1 Fauna Risk Assessment for the Petra Project*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2012d) *Level 1 Fauna Risk Assessment for the Reichelt Project*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2012e) *Level 1 Fauna Risk Assessment for the Rosemont Project Area*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2012f) *Level 1 Fauna Risk Assessment for the Russell Find Project*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2012g) *Level 1 Vertebrate Fauna Risk Assessment for the Proposed Exploration Areas around the Granny Open Pit Project Area*. Perth.
- Terrestrial Ecosystems (2012h) *Level 1 Vertebrate Fauna Risk Assessment for the Proposed Mining Areas around the Granny Open Pit Project Area*. Perth.
- Terrestrial Ecosystems (2013) *Level 1 Fauna Risk Assessment for Two Waste Dumps either side of the proposed Rosemont Project Area (G38/29, G38/30, G38/31, G38/32) and a Slurry Pipeline from the Rosemont mine to the Garden Well processing plant (L38/219)*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2015b) *Level 1 Fauna Risk Assessment for the Gloster Project and haul road*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2016a) *Level 1 Fauna Risk Assessment for the Anchor Project Area*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2016b) *Level 1 Fauna Risk Assessment for the Baneygo Project*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2016c) *Level 1 Fauna Risk Assessment for the Dogbolter-Coopers Project Area*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2016c) *Level 1 Fauna Risk Assessment for the Petra Project Area*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2016d) *Level 1 Fauna Risk Assessment for the Tooheys Project Area*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2017b) *Level 1 Fauna Risk Assessment for the proposal Haul Road to the Baneygo Project Area*. Unpublished report for Regis Resources Ltd, Perth.

- Terrestrial Ecosystems (2017c) *Level 1 Fauna Risk Assessment for the proposal Haul Road to the proposed Petra Mining area*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2018a) *Level 1 Fauna Risk Assessment for the proposal Haul Road to the proposed Petra Mining area*. Unpublished report for Regis Resources Ltd, Perth.
- Terrestrial Ecosystems (2018c) *Vertebrate Fauna Risk Assessment for the Petra Mining Project*, Perth.
- Terrestrial Ecosystems (2020) *Vertebrate fauna risk assessment for the Granny Smith Tailing Storage Facility Expansion*. Unpublished letter report for Granny Smith Gold Mine, Perth.
- Terrestrial Ecosystems (2021) *Potential impact on Long-tailed Dunnarts by the proposed vegetation clearing and construction of a new TSF west of Cell 3 at Granny Smith Mine*. Unpublished letter report for Granny Smith Gold Mine, Perth.

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

The most relevant and useful data are those from the two Terrestrial Ecosystems' (2011b, c) surveys in the area. These two surveys were undertaken in 2011 and were undertaken in similar habitat and in areas adjacent to the project areas. These surveys included pit trapping, funnel traps, echolocation bat detection surveys, avifauna surveys and short-range invertebrate surveys. One of Terrestrial Ecosystems surveys was a Level 2 fauna assessment, and the other was an extensive targeted trapping program for Long-tailed Dunnarts (*Sminthopsis longicaudata*). Terrestrial Ecosystems has also completed multiple Level 1 fauna risk assessments in adjacent areas for Granny Smith mining area (Terrestrial Ecosystems 2014, 2015a, 2017a, 2020, 2021).

Western Australian Museum (WAM) regional eastern goldfields biological surveys were undertaken in the Duketon-Sir Samuel, Sandstone-Sir Samuel and Laverton areas (How et al. 1992, McKenzie et al. 1994). These surveys were to the north of the project area. HGM (1999) undertook a terrestrial fauna assessment for the Rosemont Gold Project, which is also located to the north of the project area. A survey was undertaken by Terrestrial Ecosystems staff for the Moolart Well area (Coffey Environments 2008a) in the summer of 2007/08 and Terrestrial Ecosystems (2010) surveyed the Garden Well mine; both of these surveys included habitat similar to the project area. The WAM bioregional surveys of the Edjudina – Menzies and the Kurnalpi - Kalgoorlie areas (Dell et al. 1988, McKenzie and Hall 1992) and Terrestrial Ecosystems unpublished data for around Ora Banda are for areas to the south of the project area. The Murrin Murrin Expansion project fauna survey is for an area to the west of the project area (Ninox Wildlife Consulting 1998).

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.

2.4.1 Fauna species at risk

Cowan (2003) reported the fauna species at risk in the East Murchison subregion as 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, the Night Parrot (*Pezoporus occidentalis*) has been added to the Commonwealth and State threatened species lists for the project area. 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 conservation significant fauna.

3 METHODOLOGY

3.1 DATABASE SEARCHES

A review of the EPBC list of protected species was undertaken to identify species of conservation interest to the Commonwealth Government by searching the Matters of National Environmental Significance (MNES) online database (Appendix A). In addition, a desktop search of the Terrestrial Ecosystems' fauna survey database was used to develop an appreciation of the vertebrate fauna assemblages in relevant sections of the bioregion near the project area.

Other more general texts were also used to provide supplementary information on vertebrates in the bioregion, including Tyler et al. (2000) for frogs; Storr et al. (1983, 1990, 1999a, 2002) and Thompson and Thompson (2010) for reptiles; Johnstone and Storr (1998a, 2004) for birds; and Van Dyck and Strahan (2008) for mammals.

Collectively these sources of information were used to create lists of species expected to utilise the project area and broader 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 of the records are historical and the species is no longer present in the area (e.g. Malleefowl, Bilby). Many of the bird, mammal, reptile and amphibian species have specific habitat requirements that may be present in the general area but not in the project area. Also, the ecology of many of these species is often not well understood and it can sometimes be difficult to indicate those species whose specific habitat requirements are not present in the project area. Therefore, many species will be included in the lists produced from database searches but will not be present in the actual project area.

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

1.2 SITE INSPECTION AND FAUNA HABITAT ASSESSMENT

A site visit was undertaken on 22 October 2018 for the central part of the project area (~150ha) to assess fauna habitat types and condition in the project area (Terrestrial Ecosystems 2018b). This fauna habitat assessment methodology required the assessor to stop at multiple locations within the project area and to assess 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 was provided in the earlier report (Terrestrial Ecosystems 2018b).

3.2 REPORTING STAFF

Dr Graham Thompson prepared this report, and it was reviewed by Dr Scott Thompson before it was sent to the client. Both senior scientists have appropriate relevant post-graduate qualifications, extensive experience in conducting fauna assessments in the Goldfields, have published research articles on biodiversity, fauna assemblages, conservation significant species, trapping techniques and temporal variations in trapped fauna assemblages based on Goldfields surveys and are therefore appropriately trained and experienced for the task of preparing this assessment. Both Scott and Graham have undertaken multiple assessments at Granny Smith and are familiar with the site and habitat in the project area.

3.3 TAXONOMY AND NOMENCLATURE

Taxonomy and nomenclature for fauna species used in this report are generally based on the WA Museum species lists. 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.

3.4 LIMITATIONS

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

The EPA's (2020) *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment* suggested that fauna surveys may be limited by many variables. Limitations associated with each of these variables are assessed in Table 1.

Table 1. Fauna survey limitations and constraints

Possible limitations	Constraint (yes/no); significant, moderate or negligible	Comment
Availability of data and information	No	There is a substantial quantity of 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 authors of this report have appropriate post-graduate qualifications, undertaken multiple surveys and assessments in the Goldfields, have published a book and multiple refereed journal articles based on fauna surveys in the region and are familiar with the vertebrate fauna in this bioregion.
Scope of the survey, e.g. where faunal groups were excluded from the survey	N/A	
Timing, weather and season	N/A	
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	N/A	
Access problems	N/A	
Problems with data and analysis, including sampling biases	N/A	

2. RESULTS

2.1 FAUNA HABITAT

Based on a desktop analysis and information provided by Native Vegetation Solutions gathered during a botanical assessment of the project area, there are six broad fauna habitats in the project area (Figure 2):

- Samphire shrubland (Plates 1-2);
- Mulga and chenopod shrubland (Plates 3-6);
- Open Mulga woodland over scattered low shrubs and grasses (Plates 7-8);
- Chenopod shrubland (Plate 9); Open Mulga woodland over scattered low shrubs and grasses on a banded ironstone formation (BIF; Plates 10-12); and
- Disturbed areas.

The density of Mulga trees and shrubs varies across the project area, being more-dense around the ephemeral creek line that runs north-south through the western side of the project area.

The fauna habitat condition varies from degraded to good; the more degraded areas are due to infrastructure, historical exploration activity and cattle grazing. There was extensive evidence of rabbits and other feral fauna in the area.



Plate 1. Samphire shrubland



Plate 2. Samphire shrubland



Plate 3. Mulga and chenopod shrubland



Plate 4. Mulga and chenopod shrubland



Plate 5. Mulga and chenopod shrubland



Plate 6. Mulga and chenopod shrubland



Plate 7. Open Mulga woodland over scattered low shrubs and grasses



Plate 8. Open Mulga woodland over scattered low shrubs and grasses



Plate 9. Chenopod shrubland



Plate 10. Open Mulga woodland on BIF



Plate 11. Open Mulga woodland on BIF



Plate 12. Open Mulga woodland on BIF

2.2 FAUNA ASSEMBLAGE

In 2011, Terrestrial Ecosystems (2011b) undertook a Level 2 vertebrate fauna survey for nearby areas at Granny Smith. This survey area supported fauna habitat similar to that in the project area. Thirteen survey sites were trapped between 6-12 January 2011, which was optimal for reptiles and suitable for mammals. All pit-traps and drift fences were dug in prior to the field assessment and closed until the start of the trapping program. Each survey site contained four trap lines. Each trap line contained three 20L PVC buckets, three 150mm by 500mm deep PVC pipes as pit-traps and three pair of funnel traps evenly spaced along a 30m fly-wire drift fence. Trap lines were arranged approximately 50m apart. The trapping effort was 1,092 bucket pit-trap nights, 1,092 pipe pit-trap nights and 2,184 funnel trap nights.

An avian survey was undertaken concurrently with the trapping program. The avian surveys were conducted from sunrise for approximately four hours and again each afternoon for approximately four hours. The search protocol was for a 20-minute active walking transect search of approximately 3ha before moving to another area. Seventy sites were surveyed, which equated to approximately 1,400 minutes of survey effort. All birds were identified by their call or direct observation. Birds were also recorded opportunistically during the survey period by all field survey staff.

Bat echolocation calls were recorded using an Anabat system. Two Anabat recorders were left standing vertically all night (10-12 hours) on three occasions (8, 9 and 11 January 2011), and included representative habitat types and other locations likely to attract bats.

Table 2 indicates the small mammals, reptiles and amphibians caught during the 2011 survey. The reptile, mammal and amphibian assemblage recorded is like that recorded in other patches of open mulga woodland in this part of the Goldfields, except for the capture of three Long-tailed Dunnarts. As indicated in the follow up targeted survey report for Long-tailed Dunnarts (Terrestrial Ecosystems 2011c), it was unexpected to record Long-tailed Dunnarts in this area and this record at the time was more than 200km south-easterly of the previous known records. However, since then the Long-tailed Dunnart has been recorded at a number of banded ironstone formations in the general area.

Four species of bats were recorded during the 2011 survey (*Chalinolobus gouldii* - Gould's Wattled bat; *Mormopterus* sp. (sp. 3) - Inland free-tailed bat; *Scotorepens balstoni* - Inland broad-nosed bat; and *Vespadelus finlaysoni* - Finlayson's cave bat). All these species are commonly recorded throughout the Goldfields.

Table 2. Granny Smith terrestrial fauna survey results

Taxa	Family	Species	Sites												
			1	2	3	4	5	6	7	8	9	10	11	12	13
Mammals	Dasyuridae	<i>Antechinomys laniger</i>	2	1			3	3	3	2		2			1
		<i>Sminthopsis dolichura</i>	1	1	3	7	5	4	13	3	5	3		1	1
		<i>Sminthopsis hirtipes</i>				1									
		<i>Sminthopsis longicaudata</i>					1	1							1
		<i>Sminthopsis macroura</i>	2	3		2	1	1	1	1	1	5	5	3	2
	Muridae	<i>Notomys alexis</i>	3												
		<i>Pseudomys hermannsburgensis</i>	1	1	1	3					1	2	2	5	6
		<i>Mus musculus</i>						1					5		
Amphibians	Hylidae	<i>Cyclorana maini</i>		1							11	5	1		
		<i>Cyclorana platycephala</i>		1	1						5	2		1	1
	Limnodynastidae	<i>Neobatrachus kunapalari</i>									1				
		<i>Neobatrachus sutor</i>	8	2	5	3	1			1	13	2		1	
Reptiles	Agamidae	<i>Diporiphora amphiboluroides</i>				2	1	1							
		<i>Tympanocryptis cephalus</i>				2	3	1		1					
	Elapidae	<i>Parasuta monachus</i>						1		1					
	Gekkonidae	<i>Diplodactylus granariensis</i>										1			
		<i>Diplodactylus pulcher</i>	2			1	4	3	1			2	1		1
		<i>Gehyra variegata</i>		3	2	4		1		3		2	1	2	
		<i>Heteronotia binoei</i>	2				1					1	2	1	5
		<i>Rhynchoedura ornata</i>	3					2			1				
		<i>Strophurus wellingtonae</i>	4	2											1
	Scincidae	<i>Ctenotus leonhardii</i>	2	2					1		5	9	7	16	27
		<i>Egernia depressa</i>		1	1	2	2	3	9	6		1			
		<i>Eremiascincus richardsonii</i>				2									1
		<i>Lerista desertorum</i>													2
		<i>Lerista distinguenda</i>													1
		<i>Menetia greyii</i>											1		
		<i>Morethia butleri</i>		1		1		2			6	1		3	
		<i>Tiliqua multifasciata</i>	1												

			Sites											
	Typhlopidae	<i>Anilius australis</i>								1	1			
		<i>Anilius bicolor</i>			1									
	Varanus	<i>Varanus caudolineatus</i>		2		1	3	1	1			1	2	
		<i>Varanus panoptes</i>	4		7		3	2	2			4	2	6

The bird surveys recorded 820 individuals from 60 species across 70 survey sites and an additional 495 birds were opportunistically observed (Table 3). A proportion of these species are seldom seen in the north-eastern Goldfields. These are mostly the 'water birds' in the list (e.g. Musk Duck, Australian Wood Duck, Pink-eared Duck, Pacific Black Duck, Hardhead, stilts and White-faced Heron). Some of these birds will occasionally be seen in water contained in disused mining pits during the non-rainy period, however, it was the presence of the heavy rain that resulted in their presence in the area. No Malleefowl nests or tracks were observed in the project area.

Table 3. Bird survey results for Granny Smith mining area

Family	Species	Common Name	No
Accipitridae	<i>Aquila audax</i>	Wedge-tailed Eagle	3
Anatidae	<i>Biziura lobata</i>	Musk Duck	2
	<i>Chenonetta jubata</i>	Australian Wood Duck	81
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	5
	<i>Anas gracilis</i>	Grey Teal	74
	<i>Anas superciliosa</i>	Pacific Black Duck	13
	<i>Aythya australis</i>	Hardhead	2
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	4
Charadriidae	<i>Euseyornis melanops</i>	Black-fronted Dotterel	4
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt	5
	<i>Cladorhynchus leucocephalus</i>	Banded Stilt	14
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	2
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing	6
	<i>Ocyphaps lophotes</i>	Crested Pigeon	21
Alcedinidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher	1
Cuculidae	<i>Heteroscenes pallidus</i>	Pallid Cuckoo	3
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel	2
	<i>Falco berigora</i>	Brown Falcon	2
Rallidae	<i>Fulica atra</i>	Eurasian Coot	21
Acanthizidae	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill	68
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	1

Family	Species	Common Name	No
	<i>Acanthiza apicalis</i>	Inland Thornbill	12
	<i>Aphelocephala leucopsis</i>	Southern Whiteface	13
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow	27
	<i>Artamus cinereus</i>	Black-faced Woodswallow	6
	<i>Artamus minor</i>	Little Woodswallow	2
	<i>Cracticus torquatus</i>	Grey Butcherbird	9
	<i>Cracticus nigrogularis</i>	Pied Butcherbird	5
	<i>Gymnorhina tibicen</i>	Australian Magpie	1
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-Shrike	7
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-Shrike	7
	<i>Lalage tricolor</i>	White-winged Triller	4
Corvidae	<i>Corvus bennetti</i>	Little Crow	5
	<i>Corvus orru</i>	Torresian Crow	2
Estrildidae	<i>Taeniopygia guttata</i>	Zebra Finch	2
Hirundinidae	<i>Cheramoeca leucosterna</i>	White-backed Swallow	6
	<i>Hirundo neoxena</i>	Welcome Swallow	6
	<i>Petrochelidon nigricans</i>	Tree Martin	10
Maluridae	<i>Malurus splendens</i>	Splendid Fairy-wren	12
	<i>Malurus leucopterus</i>	White-winged Fairy-wren	4
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater	2
	<i>Gavicalis virescens</i>	Singing Honeyeater	40
	<i>Manorina flavigula</i>	Yellow-throated Miner	41
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	44
	<i>Epthianura tricolor</i>	Crimson Chat	4
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-Lark	17
Motacilidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit	8
Nectariniidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird	4
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler	22
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	3
	<i>Oreoica gutturalis</i>	Crested Bellbird	46
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote	1
Petroicidae	<i>Petroica goodenovii</i>	Red-capped Robin	10
	<i>Melanodryas cucullata</i>	Hooded Robin	7

Family	Species	Common Name	No
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler	14
Ptilonorhynchidae	<i>Ptilonorhynchus guttatus</i>	Western Bowerbird	7
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail	10
Podicipedidae	<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe	30
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck	6
	<i>Psephotus varius</i>	Mulga Parrot	20
		Total Individuals	810
		Total Species	60

2.3 BIOREGIONAL VERTEBRATE FAUNA

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 5-8 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 4. Birds potentially found near the project area

Family	Species	Common Name	Family	Species	Common Name
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu		<i>Ocyphaps lophotes</i>	Crested Pigeon
Anatidae	<i>Biziura lobata</i>	Musk Duck		<i>Geopelia placida</i>	Diamond Dove
	<i>Tadorna tadornoides</i>	Australian Shelduck	Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth
	<i>Chenonetta jubata</i>	Australian Wood Duck	Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar
	<i>Anas gracilis</i>	Grey Teal	Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift
	<i>Anas superciliosa</i>	Pacific Black Duck	Otididae	<i>Ardeotis australis</i>	Australian Bustard
	<i>Aythya australis</i>	Hardhead	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant
Podicipedidae	<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe	Ardeidae	<i>Ardea pacifica</i>	White-necked Heron
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing		<i>Egretta novaehollandiae</i>	White-faced Heron
	<i>Phaps histrionica</i>	Flock Bronzewing	Accipitridae	<i>Haliastur sphenurus</i>	Whistling Kite
				<i>Accipiter fasciatus</i>	Brown Goshawk

Family	Species	Common Name
	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk
	<i>Circus assimilis</i>	Spotted Harrier
	<i>Aquila audax</i>	Wedge-tailed Eagle
	<i>Hieraaetus morphnoides</i>	Little Eagle
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel
Falconidae	<i>Falco berigora</i>	Brown Falcon
	<i>Falco longipennis</i>	Australian Hobby
	<i>Falco peregrinus</i>	Peregrine Falcon
Rallidae	<i>Tribonyx ventralis</i>	Black-tailed Native-hen
	<i>Fulica atra</i>	Eurasian Coot
Recurvirostridae	<i>Himantopus leucocephalus</i>	Pied Stilt
Recurvirostridae	<i>Cladorhynchus leucocephalus</i>	Banded Stilt
Charadriidae	<i>Charadrius ruficapillus</i>	Red-capped Plover
	<i>Elseyornis melanops</i>	Black-fronted Dotterel
	<i>Vanellus tricolor</i>	Banded Lapwing
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper
Turnicidae	<i>Turnix velox</i>	Little Button-quail
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah
	<i>Nymphicus hollandicus</i>	Cockatiel
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck
	<i>Psephotus varius</i>	Mulga Parrot
	<i>Melopsittacus undulatus</i>	Budgerigar
	<i>Neopsephotus bourkii</i>	Bourke's Parrot

	<i>Neophema splendida</i>	Scarlet-chested Parrot
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo
	<i>Chalcites osculans</i>	Black-eared Cuckoo
	<i>Heteroscenes pallidus</i>	Pallid Cuckoo
Halcyonidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper
	<i>Climacteris rufa</i>	Rufous Treecreeper
Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	Spotted Bowerbird
	<i>Ptilonorhynchus guttatus</i>	Western Bowerbird
Maluridae	<i>Malurus splendens</i>	Splendid Fairy-wren
	<i>Malurus leucopterus</i>	White-winged Fairy-wren
	<i>Malurus lamberti</i>	Variegated Fairy-wren
Acanthizidae	<i>Calamanthus fuliginosus</i>	Striated Fieldwren
	<i>Pyrrholaemus brunneus</i>	Redthroat
	<i>Smicrornis brevirostris</i>	Weebill
	<i>Gerygone fusca</i>	Western Gerygone
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill
	<i>Acanthiza apicalis</i>	Inland Thornbill

Family	Species	Common Name
	<i>Aphelocephala leucopsis</i>	Southern Whiteface
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater
	<i>Gavicalis virescens</i>	Singing Honeyeater
	<i>Lichenostomus ornatus</i>	Yellow-plumed Honeyeater
	<i>Lichenostomus plumulus</i>	Grey-fronted Honeyeater
	<i>Purnella albifrons</i>	White-fronted Honeyeater
	<i>Manorina flavigula</i>	Yellow-throated Miner
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater
	<i>Epthianura tricolor</i>	Crimson Chat
	<i>Epthianura aurifrons</i>	Orange Chat
	<i>Sugomel niger</i>	Black Honeyeater
	<i>Lichmera indistincta</i>	Brown Honeyeater
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler
Psophodidae	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike
	<i>Lalage tricolor</i>	White-winged Triller
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush
	<i>Oreoica gutturalis</i>	Crested Bellbird

Family	Species	Common Name
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow
	<i>Artamus cinereus</i>	Black-faced Woodswallow
	<i>Artamus minor</i>	Little Woodswallow
	<i>Cracticus torquatus</i>	Grey Butcherbird
	<i>Cracticus nigrogularis</i>	Pied Butcherbird
	<i>Gymnorhina tibicen</i>	Australian Magpie
	<i>Strepera versicolor</i>	Grey Currawong
Rhipiduridae	<i>Rhipidura albiscapa</i>	Grey Fantail
	<i>Rhipidura leucophrys</i>	Willie Wagtail
Corvidae	<i>Corvus coronoides</i>	Australian Raven
	<i>Corvus bennetti</i>	Little Crow
	<i>Corvus orru</i>	Torresian Crow
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark
Petroicidae	<i>Microeca fascians</i>	Jacky Winter
	<i>Petroica goodenovii</i>	Red-capped Robin
	<i>Melanodryas cucullata</i>	Hooded Robin
Megaluridae	<i>Cincloramphus mathewsi</i>	Rufous Songlark
	<i>Cincloramphus cruralis</i>	Brown Songlark
Hirundinidae	<i>Cheramoeca leucosterna</i>	White-backed Swallow
	<i>Hirundo neoxena</i>	Welcome Swallow
	<i>Petrochelidon ariel</i>	Fairy Martin
	<i>Petrochelidon nigricans</i>	Tree Martin
Nectariniidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit

Table 5. Amphibians potentially found near the project area

Family	Species	Common Name	Family	Species	Common Name
Hylidae	<i>Cyclorana maini</i>	Sheep Frog		<i>Neobatrachus sutor</i>	Shoemaker Frog
	<i>Cyclorana platycephala</i>	Water-holding Frog		<i>Neobatrachus wilmorei</i>	Goldfields Bullfrog
Limnodynastidae	<i>Neobatrachus aquilonius</i>	Northern Burrowing Frog		<i>Platyplectrum spenceri</i>	Spencer's Burrowing Frog
	<i>Neobatrachus kunapalari</i>	Kunapalari Frog	Hylidae	<i>Cyclorana maini</i>	Sheep Frog
	<i>Neobatrachus sudelli</i>	Sudell's Frog		<i>Cyclorana platycephala</i>	Water-holding Frog

Table 6. Mammals potentially found near the project area

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

Family	Species	Common Name
Muridae	<i>Notomys alexis</i>	Spinifex Hopping Mouse

Family	Species	Common Name
	<i>Pseudomys desertor</i>	Desert Mouse

Table 7. Reptiles potentially found in the project area

Family	Species	Common Name
Agamidae	<i>Ctenophorus caudicinctus</i>	Ring-tailed Dragon
	<i>Ctenophorus fordi</i>	Mallee Dragon
	<i>Ctenophorus inermis</i>	Military Dragon
	<i>Ctenophorus isolepis</i>	Crested Dragon
	<i>Ctenophorus maculatus</i>	Spotted Dragon
	<i>Ctenophorus nuchalis</i>	Central Netted Dragon
	<i>Ctenophorus reticulatus</i>	Western Netted Dragon
	<i>Ctenophorus salinarum</i>	Saltpan Dragon
	<i>Ctenophorus scutulatus</i>	Lozenge-marked Dragon
	<i>Diporiphora amphiboluroides</i>	Mulga Dragon
	<i>Moloch horridus</i>	Thorny Devil
	<i>Pogona minor</i>	Western Bearded Dragon
	<i>Tympanocryptis cephalus</i>	Pebble Dragon
Boidae	<i>Antaresia stimsoni</i>	Stimson's Python
Carphodactylidae	<i>Nephrurus levis</i>	Three-lined Knob-tail
	<i>Nephrurus vertebralis</i>	Midline Knob-tail
	<i>Nephrurus wheeleri</i>	Banded Knob-tail
	<i>Underwoodisaurus milii</i>	Barking Gecko
Diplodactylidae	<i>Diplodactylus conspicillatus</i>	Fat-tailed Diplodactylus
	<i>Diplodactylus granariensis</i>	Wheat-belt Stone Gecko
	<i>Diplodactylus pulcher</i>	Fine-faced Gecko

Family	Species	Common Name
	<i>Lucasium damaeum</i>	Beaded Gecko
	<i>Lucasium squarrosus</i>	Mottled Ground Gecko
	<i>Strophurus assimilis</i>	Goldfields Spiny-tailed Gecko
	<i>Strophurus elderi</i>	Jewelled Gecko
	<i>Strophurus strophurus</i>	Western Spiny-tailed Gecko
	<i>Strophurus wellingtonae</i>	Spiny-tailed Gecko
Elapidae	<i>Brachyurophis fasciolata</i>	Narrow-banded Burrowing Snake
	<i>Brachyurophis semifasciata</i>	Half-girdled Snake
	<i>Furina ornata</i>	Orange-naped Snake
	<i>Parasuta monachus</i>	Monk Snake
	<i>Pseudechis australis</i>	Mulga Snake
	<i>Pseudechis butleri</i>	Spotted Mulga Snake
	<i>Pseudonaja mengdeni</i>	Gwardar
	<i>Pseudonaja modesta</i>	Ringed Brown Snake
	<i>Simoselaps bertholdi</i>	Jan's Banded Snake
	<i>Suta fasciata</i>	Rosen's Snake
Gekkonidae	<i>Gehyra purpurascens</i>	Purplish Dtella
	<i>Gehyra variegata</i>	Tree Dtella
	<i>Gehyra xenopus</i>	Crocodile-faced Dtella
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko

Family	Species	Common Name
	<i>Rhynchoedura ornata</i>	Western Beaked Gecko
Pygopodidae	<i>Aprasia picturata</i>	Black-headed Worm-lizard
	<i>Delma butleri</i>	Unbanded Delma
	<i>Delma nasuta</i>	Sharp-snouted Delma
	<i>Lialis burtonis</i>	Burton's Snake-lizard
	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot
Scincidae	<i>Cryptoblepharus australis</i>	Inland Snake-eyed Skink
	<i>Cryptoblepharus buehneri</i>	Buchanan's Snake-eyed Skink
	<i>Ctenotus ariadnae</i>	Ariadna's Ctenotus
	<i>Ctenotus atlas</i>	Southern Mallee Ctenotus
	<i>Ctenotus dux</i>	Fine Side-lined Ctenotus
	<i>Ctenotus grandis</i>	Grand Ctenotus
	<i>Ctenotus greeri</i>	Spotted-necked Ctenotus
	<i>Ctenotus hanloni</i>	Nimbel Ctenotus
	<i>Ctenotus helenae</i>	Clay-soil Ctenotus
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus
	<i>Ctenotus pantherinus</i>	Leopard Skink
	<i>Ctenotus piankai</i>	Coarse Sands Ctenotus
	<i>Ctenotus quattuordecimlineatus</i>	Fourteen-lined Ctenotus
	<i>Ctenotus schomburgkii</i>	Schomburgk's Ctenotus
	<i>Ctenotus severus</i>	Stern Ctenotus
	<i>Ctenotus uber</i>	Spotted Ctenotus

Family	Species	Common Name
	<i>Egernia depressa</i>	Pygmy Spiny-tailed Skink
	<i>Egernia formosa</i>	Goldfields Crevice-skink
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer
	<i>Lerista bipes</i>	North-western Sandslider
	<i>Lerista desertorum</i>	Central Desert Robust Slider
	<i>Lerista distinguenda</i>	South-western Orange-tailed Slider
	<i>Lerista kingi</i>	King's Slider
	<i>Lerista timida</i>	Timid Slider
	<i>Liopholis inornata</i>	Desert Skink
	<i>Liopholis striata</i>	Nocturnal Desert Skink
	<i>Menetia greyii</i>	Common Dwarf Skink
	<i>Morethia butleri</i>	Woodland Morethia Skink
	<i>Tiliqua multifasciata</i>	Centralian Blue-tongued Lizard
	<i>Tiliqua occipitalis</i>	Western Blue-tongued Lizard
Typhlopidae	<i>Anilius australis</i>	Austral Blind Snake
	<i>Anilius bicolor</i>	Dark-spined Blind Snake
	<i>Anilius endoterus</i>	Interior Blind Snake
	<i>Anilius hamatus</i>	Pale-headed Blind Snake
	<i>Anilius waitii</i>	Waite's Blind Snake
Varanidae	<i>Varanus brevicauda</i>	Short-tailed Pygmy Monitor
	<i>Varanus caudolineatus</i>	Stripe-tailed

Family	Species	Common Name
		Monitor
	<i>Varanus eremius</i>	Pygmy Desert Monitor
	<i>Varanus giganteus</i>	Perentie
	<i>Varanus gouldii</i>	Gould's Goanna
	<i>Varanus panoptes</i>	Yellow-spotted Monitor
	<i>Varanus tristis</i>	Black-headed Monitor
Cheluidae	<i>Chelodina steindachneri</i>	Steindachner's Snake-necked Turtle

2.4 CONSERVATION SIGNIFICANT FAUNA

Conservation significant fauna are protected by the Commonwealth *Environment Protection and Biodiversity Conservation (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) *Biodiversity Conservation Act 2016*. The WA *Biodiversity Conservation Act 2016* provides for the publishing of 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 *Biodiversity Conservation Act 2016* imply legislative requirements for the management of anthropogenic impacts to minimise the effects of disturbances on species and their habitats. Priority species have no statutory protection, other than the DBCA wishes to monitor potential impacts on these species. Environmental consultants and proponents of developments are encouraged to avoid and minimise impacts on these species. Definitions of the significant fauna under the WA *Biodiversity Conservation Act* are provided in Appendix C.

There were no threatened or migratory/marine species of birds identified under the *EPBC Act 1999* that were likely to frequent the project area. Shore birds and waders (e.g. *Actitis hypoleucos*, *Calidris acuminata*, *Calidris melanotos*, and *Tringa nebularia*) have been excluded from this list due to a lack of suitable habitat in the project area, although it is acknowledged that some of these species would be attracted to Lake Carey when it contained water. There is one listed under the WA *Biodiversity Conservation Act 2016* and one species listed on the DBCA's Priority Fauna List that potentially occur in the project area. The following is an assessment of the likelihood of each of the species listed in Table 8 being found in the project area.

Table 8. Potential conservation significant species found around the project area

Species	DBCA Schedule / Priority	Status under Commonwealth EPBC Act	Comment
Night Parrot (<i>Pezoporus occidentalis</i>)	Critically Endangered	Endangered	Highly unlikely to be in the project area, due to a lack of suitable habitat. The potential for impacting on this species is therefore very low.
Sandhill Dunnart (<i>Sminthopsis psammophila</i>)	Endangered	Endangered	Highly unlikely to be in the project area due to a lack of suitable habitat. The potential for impacting on this species is therefore very low.
Malleefowl (<i>Leipoa ocellata</i>)	Vulnerable	Vulnerable	Unlikely to be in the project area due to a lack of suitable habitat and an abundance of feral fauna. The potential for impacting on this species is therefore low.
Giant Desert Skink (<i>Liopholis kintorei</i>)	Vulnerable	Vulnerable	Highly unlikely to be in the project area due to a lack of suitable habitat. The potential for impacting on this species is therefore very low.
Chuditch (<i>Dasyurus geoffroii</i>)	Vulnerable	Vulnerable	Highly unlikely to be in the project area due to a lack of suitable habitat. The potential for impacting on this species is therefore low.
Princess Parrot (<i>Polytelis alexandrae</i>)	Priority 4	Vulnerable	May infrequently be seen in the area, however, clearing vegetation is unlikely to impact on this species.
Mulgara (<i>Dasycercus blythi</i>)	Priority 4		Highly unlikely to be in the project area due to a lack of suitable habitat. The potential for impacting on this species is therefore low.
Oriental Plover (<i>Charadrius veredus</i>)	IA	Migratory	Unlikely to be in the project area due to a lack of suitable habitat. The potential for impacting on this species is therefore low.

Species	DBCA Schedule / Priority	Status under Commonwealth EPBC Act	Comment
Fork-tailed Swift (<i>Apus pacificus</i>)	IA	Migratory	May very infrequently be seen in the area, however, clearing vegetation is unlikely to impact on this aerial species.
Grey Wagtail (<i>Motacilla cinerea</i>)	IA	Migratory	Highly unlikely to be present in the project area. The potential for impacting on this species is therefore low.
Yellow Wagtail (<i>Motacilla flava</i>)	IA	Migratory	Highly unlikely to be present in the project area. The potential for impacting on this species is therefore low.
Peregrine Falcon (<i>Falco peregrinus</i>)	OS		May infrequently be seen in the area, however, clearing vegetation is unlikely to impact on this species.
<i>Branchinella apophysata</i>	Priority 1		Unlikely to be in the project area, so the potential for impact on this species is low.
Long-tailed Dunnart (<i>Sminthopsis longicaudata</i>)	Priority 4		Caught in the Granny Smith area and has potential to be recorded in the rocky areas. The BIF areas are unlikely to be impacted, so the potential impact on this species is low.

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 1998b, Threatened Species Scientific Committee 2016). Its length is 22-25cm with a body mass of approximately 104g (Threatened Species Scientific Committee 2016), although it was suggested that they were semi-nomadic, the Night Parrots in south-western Queensland appear to be sedentary (Murphy 2015).

The Night Parrot was probably originally distributed over much of the 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 the habitats available (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, Palaszczuk and Miles 2017, Rykers 2017, AG staff 2018), Pilbara in 2017 (Jones 2017), and the northern Goldfields (Jackett *et al.* 2017). Garnett *et al.* (2011) suggested that there were between 50-250 mature individuals in less than 5% of its previous range.

Wilson's (1937) summary of observations provided information on the early records of Night Parrots' preferred habitat and breeding sites. Recent information indicates its preferred habitat appears to be in Triodia grasslands, chenopod shrublands, shrubby samphire and floristically diverse habitats dominated by large-seeded species (Threatened Species Scientific Committee 2016, McCarthy 2017, Murphy *et al.* 2017b). At Pullen Pullen Reserve it nests in large, more or less ring-shaped Triodia, and the nest consists of a tunnel (25-30° and 0° to the ground; 20-33cm long) through an apron of dead spinifex leaves that leads to a chamber under a live hummock, with a shallow depression (3-4cm) excavated into the gravelly/sandy soil (Murphy *et al.* 2017a). In the northern Goldfields the nest was again in a spinifex hummock; it was circular, with an excavated depression (~1.5-2.0cm) in sandy substrate (Hamilton *et al.* 2017, Jackett *et al.* 2017). The entrance tunnel was 62cm long, and was downward sloping (27°) with the entrance 28cm above the ground (Hamilton *et al.* 2017). It has clutches of two to four sub-elliptical, white eggs with a lustrous appearance (Murphy *et al.* 2017a). Breeding followed significant rains in March for the observations in Pullen-Pullen Reserve and in April in the northern Goldfields (Hamilton *et al.* 2017, Murphy *et al.* 2017a), but it is thought that breeding generally occurs between April and October (Murphy *et al.* 2017a).

The Night Parrot has not been recorded near the project area, and the habitat in the project area is not suitable for nesting and roosting sites (i.e. mature, long-unburnt, ring-forming spinifex) so there is a very low probability that it is in the project area. It is therefore unlikely to be impacted by the proposed development.

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

The Sandhill Dunnart is a small (30-45g) arid adapted dasyurid that is found in the eastern part of the Western Australian section of the Great Victoria Desert, eastern Goldfields and the western and southern parts of South Australia. Recent surveys undertaken for the Great Victoria Desert Trust 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, so it is highly unlikely that they are present in the project area.

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

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.

Some very old disused Malleefowl mounds were recorded in other regional surveys, however, based on desktop analysis and the site investigation by Native Vegetation Solutions, the vegetation in the project area appears too sparse to support Malleefowl and the presence of feral species ensures that they are unable to survive in this area. Terrestrial Ecosystems' assessment is that the Malleefowl is unlikely to occur in the project area.

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 sand-flats 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.* (1999b) 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. Terrestrial Ecosystems' assessment is that *Liopholis kintorei* is very unlikely be found in the project area due to a lack of suitable habitat.

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

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 records south of Southern Cross and Marvel Loch and there have been other old sightings east of Kambalda and near Norseman, but none recently. As the project area is outside of its current known geographic distribution it is highly unlikely that the Chuditch would be found in the project area. Consequently, Terrestrial Ecosystems'

assessment is that vegetation clearing in the project area is unlikely to have any significant impact on this species.

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

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.

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 very infrequently be seen in the general area. The proposed vegetation clearing is unlikely to significantly impact on this species as it will move away to other areas if it is disturbed.

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

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

The reported distribution of Mulgara includes much of the inland spinifex covered sandy desert and spinifex vegetated areas in the Pilbara and northern goldfields. Within these areas their distribution is patchy and it is most frequently confined to mature spinifex dominated habitat (Gibson and Cole 1992, Masters 2003, Masters et al. 2003, Thompson and Thompson 2008). In some areas, their relative abundance is positively associated with rainfall in the previous 12 to 24 months (Gibson and Cole 1992, Masters 1998, Dickman et al. 2001, Letnic and Dickman 2005) and recent burning of the spinifex does not seem to be sufficient to shift Mulgara out of an area (Thompson and Thompson 2007). Mulgara are generally sedentary in contrast with some other small dasyurids and have high site fidelity and a low propensity for dispersal once a home range has been established (Masters 1998, Dickman et al. 2001).

Fauna habitat in the project area is not suitable for Mulgara. It is therefore 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 because of habitat reduction due to agriculture and changing fire regimes. This plover has not been recorded in the general area in any of the other regional surveys.

Terrestrial Ecosystems' assessment is that the Oriental Plover is unlikely to be seen in the project area.

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

Terrestrial Ecosystems' assessment is that the Fork-tailed Swift may infrequently be seen in the project area. However, the proposed vegetation clearing is unlikely to significantly impact on this species as it will move away to other areas if it is disturbed.

Grey Wagtail (*Motacilla cinerea*) - Migratory species 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. It is highly unlikely to be seen in the project area due to a lack of suitable habitat.

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

The Yellow Wagtail is found in the millions in the northern hemisphere and the Atlas of Living Australia records multiple records of this bird in Australia in the coastal areas. 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*) – Other specially protected fauna 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 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, the proposed developments are unlikely to significantly impact on this species as it will move away to other areas if it is disturbed.

Branchinella apophysata – Priority 1 species with DBCA

Notes on this species provided by DBCA indicate that this fairy shrimp is known from a single location near Mt Magnet, but nothing is known of its habits or ecological requirements. As there are no salt lakes in the project area, it is Terrestrial Ecosystems' assessment that *B. apophysata* is unlikely to be impacted by the proposed development.

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 2011b) and a single individual was caught in the follow up targeted survey (Terrestrial Ecosystems 2011c). Subsequently, Long-tailed Dunnarts have been caught at other projects in the region including at Mt Ida and Bottle Creek, which are about 200km to the west of Granny Smith mine.

There are a few small rocky outcrops (e.g. BIFs) vegetated with open Mulga woodland in the project area, which are habitat for Long-tailed Dunnarts. Long-tailed Dunnarts were previously recorded in the Banded Ironstone rocky habitats in project area in very low numbers. These BIF areas are small (i.e. 9.5ha) so clearing of this habitat is unlikely to have a significant impact on this species, given its presence elsewhere in the Goldfields.

3. DISCUSSION

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

The EPA's (2020) Technical Guidance on terrestrial fauna surveys indicated that the type of survey should be determined based on:

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

The two-season survey by Terrestrial Ecosystems (2011b) was undertaken in similar fauna habitat to the project area approximately 3km to the north. In addition, there are multiple other surveys (1992, McKenzie et al. 1992, Ninox Wildlife Consulting 1998, 1999, 2008b, 2010) undertaken in mulga woodland habitat in the eastern Goldfields, so the vertebrate fauna assemblages in this habitat type are well known, and an additional survey is unlikely to provide new information that will alter the regulators assessment.

Previous Long-tailed Dunnart surveys and investigations in the adjacent areas (Terrestrial Ecosystems 2011b, c) provide sufficient information to provide an adequate assessment of potential impacts on this species.

3.1.1 Amphibians

Frogs are normally only detected immediately after rainfall or around semi-permanent pools. It is likely that *Cyclorana maini*, *Pseudophryne occidentalis*, *Neobatrachus kunapalari* and *Neobatrachus wilsmorei* would be found in the general area. These species, other than *P. occidentalis*, burrow into the ground and aestivate between rainfall events. *Pseudophryne occidentalis* find shelter under rocks and in crevices during the dry periods and enter temporary ponds to breed after major rainfall events. All four species have a wide-spread distribution and are abundant, and because of the ephemeral creekline in the project area, some or all of these species could be present. Clearing vegetation 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.

3.1.2 Reptiles

Typically, between 25 and 35 species of reptiles are caught in open mulga woodland (Coffey Environments 2008b, Terrestrial Ecosystems 2010, 2011b, 2012i). 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 2011 that indicated the fauna habitat present in the project area are of conservation significance or different to that in the neighbouring areas, and given that there were large expanses of similar habitat in adjacent areas, clearing of the vegetation is unlikely to have significant impact on reptiles when assessed in a regional context.

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

3.1.3 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 (e.g. Princess Parrot) 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 on to other areas once the resource is depleted or better resources are available in adjacent areas.

The project area is likely to support a similar assemblage to that present in the adjacent areas. Birds of conservation significance potentially found in the general area include the Peregrine Falcon and Princess Parrot. The Princess Parrot is nomadic and moves around the arid interior often in search of water and resources and the Peregrine Falcon will normally have a very large home range and clearing a small section of vegetation in the project area, particularly when similar habitat exists in the adjacent areas, is unlikely to significantly impact on this species. All birds will readily shift to other areas when there is a disturbance.

Terrestrial Ecosystems' view is that the proposed clearing for the access road is unlikely to significantly impact on the avian fauna of the bioregion.

3.1.4 Mammals

The diversity of small terrestrial mammals potentially caught in the project area would be low due the sparsely vegetated and degraded habitat. The capture of Long-tailed Dunnarts (Terrestrial Ecosystems 2011c, b) in the Granny Smith mining area was unexpected as they are rarely caught, not normally caught this far south and not normally caught in open, flat, mulga woodland with no spinifex, low shrubs and little ground cover. However, since those individuals were caught, this species has been recorded in other banded ironstone formation in the eastern Goldfields. It is possible that the Long-tailed Dunnart is present in the project area given the BIFs that are present.

There are no other mammals of conservation significance likely to be in the project area.

3.2 BIODIVERSITY VALUE

From a fauna perspective, the project area has been grazed resulting in degradation to the mulga and shrublands. The habitat types identified in the project area are also abundant in adjacent areas, indicating that any localised impacts will not be significant in a regional context.

3.2.1 Ecological functional value at the ecosystem level

Vertebrate species potentially in the project area are wide-ranging and have been recorded in various other fauna surveys in the bioregion (Appendix B). There is likely to be a relatively low abundance of reptiles and mammals caught in the project area because of the sparseness of the vegetation, lack of leaf litter on the ground in many areas and degradation by cattle and feral fauna.

The development of the Solar Farm Project will increase the existing impact in the area. Except for the BIFs, the habitat types in the project area are well represented across the bioregion. There are numerous BIFs in the Goldfields region and it is highly likely that the larger ones support Long-tailed Dunnarts.

3.2.2 Maintenance of threatened ecological communities

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

3.2.3 Ecological linkages

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

3.2.4 Condition of fauna habitat

Some of the project area has been disturbed due to historical development activity (i.e. haul road, tracks etc). There is also extensive evidence of disturbance by cattle and the presence of rabbits and cats. The uncleared fauna habitat present in the project area is like many square kilometres of adjacent habitat; the clearing of vegetation is therefore unlikely to have a significant impact on the vertebrate fauna when considered in a bioregional context.

3.2.5 Size and scale of the proposed disturbance

The assessed project area is approximately 240ha and surrounds an area of approximately 150ha that had previously been assessed.

3.2.6 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 like the many square kilometres of similar habitat in adjacent areas and the bioregion.

3.2.7 Potential impacts on ecosystem function

The proposed disturbance is small (~240ha). Clearing native vegetation is likely to result in the loss of very few small vertebrate fauna that are unable to move away during the clearing process. The few larger animals, such as kangaroos and large goannas and snakes, and most of the birds will move into adjacent areas once clearing commences. There will be a small loss of native fauna to vehicle strikes on access tracks, but this will be very low. Shifting animals into adjacent areas may increase the pressure on resources in those areas and there may be some disruption to the ecosystems for a short period until a balance is restored.

Impacts associated with clearing vegetation in the project area in a local, landscape and bioregional context on the vertebrate fauna are likely to be low as it is a very small amount of clearing and there are vast tracts of similar habitat in adjacent areas.

3.3 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 9 10 and 11 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 11.

Table 9. Fauna impact risk assessment descriptors

Likelihood		
Level	Description	Criteria
A	Rare	The environmental event may occur, or one or more conservation significant species may be present in exceptional circumstances.
B	Unlikely	The environmental event could occur, or one or more conservation significant species could be present at some time.
C	Moderate	The environmental event should occur, or one or more conservation significant species should be present at some time.
D	Likely	The environmental event will probably occur, or one or more conservation significant species will be present in most circumstances.
E	Almost certain	The environmental event is expected to occur, or one or more conservation significant species is expected to be present in most circumstances.
Consequences		
Level	Description	Criteria
1	Insignificant	Insignificant impact on fauna of conservation significance or regional biodiversity, and the loss of individuals will be insignificant in the context of the availability of similar fauna or fauna assemblages in the area.
2	Minor	Impact on fauna localised and no significant impact on species of conservation significance in the project area. Loss of species at the local scale.
3	Moderate	An appreciable loss of fauna in a regional context or a limited impact on species of conservation significance in the project area.
4	Major	Significant impact on conservation significant fauna or their habitat in the project area and/or regional biodiversity and/or a significant loss in the biodiversity at the landscape scale.
5	Catastrophic	Loss of species at the regional scale and/or a significant loss of species categorised as 'vulnerable' or 'endangered' under the <i>EPBC Act (1999)</i> 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 <i>EPBC Act 1999</i> .	
Extreme	Unacceptable, project should be redesigned or not proceed.	

Table 10. Risk assessment matrix

		Likelihood				
		Rare or very low (A)	Unlikely or low (B)	Moderate (C)	Likely (D)	Almost certain (E)
Consequences	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 11. Assessed risk of potential impacts on the vertebrate fauna assemblage

			Before management			Management	With management		
			Inherent risk				Residual risk		
Factors	Potential impacts		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				
	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				
Death or loss of conservation significant fauna	Malleefowl (<i>Leipoa ocellata</i>)	Death or the reduced viability of Malleefowl.	A	3	Low				

			Before management			Management	With management		
	Peregrine Falcon (<i>Falco peregrinus</i>)	Death or the reduced viability of the Peregrine Falcon.	A	2	Low				
	Fork-tailed Swift (<i>Apus pacificus</i>)	Death or the reduced viability of the Fork-tailed Swift.	A	2	Low				
	Long-tailed Dunnart (<i>Sminthopsis longicaudata</i>)	Death or the reduced viability of the Long-tailed Dunnart.	A	2	Low				
Human impacts	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 as they crossroads by vehicles	E	1	Low	Limiting speeds	E	1	Low
	Increase in feral mammals, specifically the dog and cat	Increased predation on the native fauna	A	2	Low				

3.4 NATIVE VEGETATION CLEARING PRINCIPLES AS THEY PERTAIN TO VERTEBRATE FAUNA

The *Environmental Protection Act (1986)* outlines 10 principles that are to be used in the assessment of native vegetation clearing permit applications which are also applicable for other assessments and approvals (Table 12). Where possible, native vegetation should not be cleared if any of the following principles are comprised.

Table 12. Assessment of impact using the native vegetation clearing principles

Principle	Response
It comprises a high level of biological diversity.	Clearing vegetation will not comprise a high level of biodiversity. There is a very low possibility that the BIFs support a small population of Long-tailed Dunnarts, a Priority 4 species with DBCA. It is unlikely that clearing the vegetation and earth works would have a significant impact on this species when considered in a bioregional context, as there are other BIFs in the Goldfields that would support this 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.	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 wetland.
The clearing of the vegetation is likely to cause appreciable land degradation.	N/A
The clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	Clearing of vegetation is unlikely to impact on 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

3.5 REFERRAL UNDER THE EPBC ACT

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

4. SUMMARY

Granny Smith Mining is proposing to increase the area of its solar farm. The assessed area for this project was approximately 240ha and surrounds an area of approximately 150ha that had been previously assessed (Terrestrial Ecosystems 2018b).

Based on a desktop analysis and information provided by Native Vegetation Solutions gathered during the botanical assessment for the project area, there are six broad fauna habitats in the project area:

- Open Mulga woodland over scattered low shrubs and grasses;
- Mulga and chenopod shrubland;
- Open Mulga woodland over scattered low shrubs and grasses on a banded ironstone formation;
- Samphire shrubland;
- Chenopod shrubland; and
- Disturbed areas.

The density of trees and shrubs in the relatively undisturbed areas varied across the project area but was mostly sparse. The fauna habitat varies from degraded to good; the more degraded areas are due to a haul road that runs east-west through the project area, gravel tracks in the north-eastern corner, historical exploration activity and cattle grazing.

The BIFs are the preferred habitat of the Long-tailed Dunnart, a Priority 4 species with DBCA. This habitat type represents only a small percentage of the project area, and clearing it is unlikely to have a significant impact on Long-tailed Dunnarts, when viewed in a bioregional context. Clearing native vegetation in other habitat types is likely to result in the loss of small vertebrate fauna on-site that are unable to move away during the clearing process. The few larger animals, such as kangaroos and large goannas and snakes, and most of the birds will move into adjacent areas once clearing commences.

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

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

5. MANAGEMENT STRATEGIES

5.1 INDUCTION AND AWARENESS

All contractors and people involved in construction of solar farm 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 a mandatory component of working on the solar farm project.

5.2 DUST

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

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

5.3 LONG-TAILED DUNNARTS

Long-tailed Dunnarts were recorded during the 2011 Level 2 fauna trapping surveys in adjacent areas. They are therefore potentially present in the banded ironstone formations in the project area. These dunnarts have now been recorded on multiple other BIFs in the Goldfields, so clearing of BIFs in the project area is unlikely to have a significant impact of this species.

If it is practical to avoid clearing the BIFs, then this would be highly desirable.

Recommendation 3: If practical, avoid impacting on the banded ironstone habitat.

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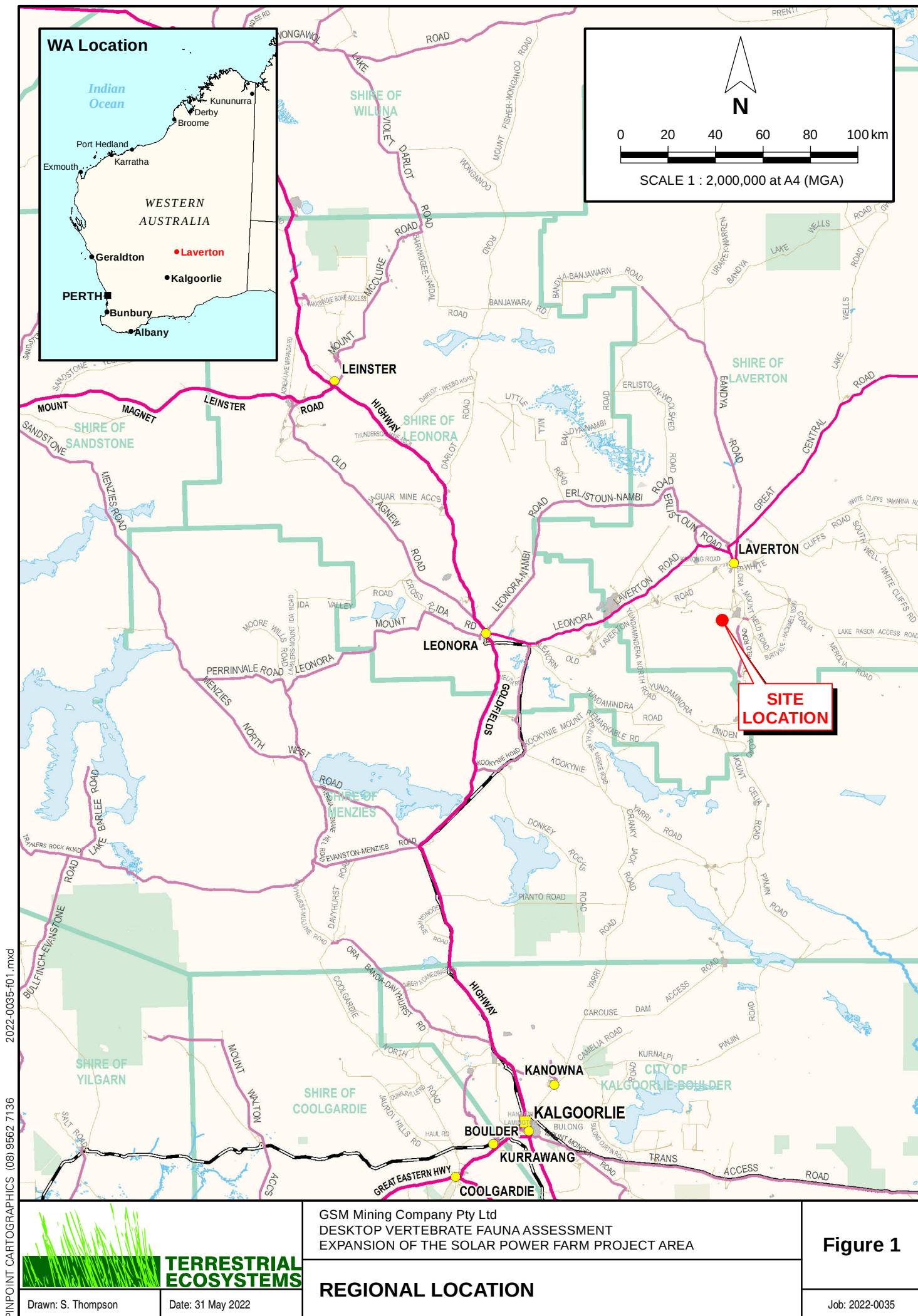
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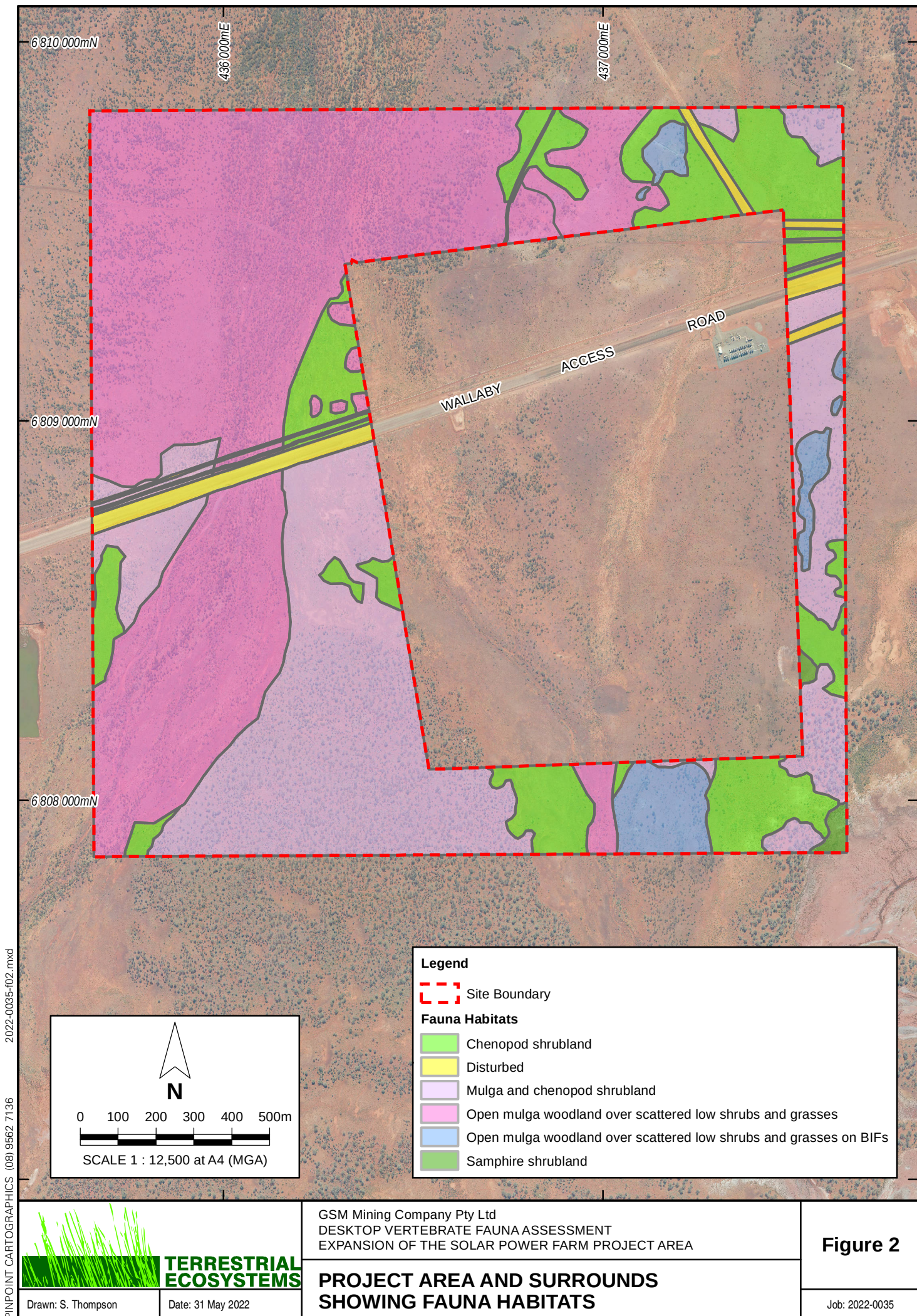
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Figures

**Desktop Vertebrate Fauna Assessment
Expansion of the Solar Power Farm Project Area**







Appendix A.

Results of the EPBC Act Protected Matters Search

**Desktop Vertebrate Fauna Assessment
Expansion of the Solar Power Farm Project Area**





EPBC Act Protected Matters Report

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

Report created: 26-May-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	9
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	5
Commonwealth Heritage Places:	None
Listed Marine Species:	12
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species

[Resource Information]

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

Scientific Name	Threatened Category	Presence Text
BIRD		

Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat known to occur within area

MAMMAL

Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
Sminthopsis psammophila Sandhill Dunnart [291]	Endangered	Species or species habitat likely to occur within area

PLANT

Scientific Name	Threatened Category	Presence Text
Hibbertia crispula Ooldea Guinea-flower [15222]	Vulnerable	Species or species habitat may occur within area

REPTILE		
Liopholis kintorei Great Desert Skink, Tjakura, Warrarna, Mulyamiji [83160]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species	[Resource Information]	
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area

Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area

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

Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

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

Commonwealth Land Name	State
Defence	
Defence - JINDALEE STATION [50257]	WA
Defence - JINDALEE STATION [50256]	WA

Unknown	
Commonwealth Land - [51827]	WA
Commonwealth Land - [51829]	WA
Commonwealth Land - [51828]	WA

Listed Marine Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Thinornis cucullatus as Thinornis rubricollis Hooded Dotterel, Hooded Plover [87735]		Species or species habitat may occur within area overfly marine area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area

Extra Information

Nationally Important Wetlands	[Resource Information]
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Wetland Name	State
Lake Marmion	WA

EPBC Act Referrals	[Resource Information]
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Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Eastern Goldfields Gas Pipeline Construction, WA	2014/7284	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Murrin Murrin East Nickel and Cobalt Mine Expansion	2008/4140	Not Controlled Action	Completed
Re-establish and Recommencement of Mount Windarra Nickel Mine	2008/4016	Not Controlled Action	Completed

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

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Appendix B.

Vertebrate Fauna Recorded in Biological Surveys in the Region

**Desktop Vertebrate Fauna Assessment
Expansion of the Solar Power Farm Project Area**



B.1 [APPENDIX HEADING TITLE]

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

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

		Surveys	A																				B														
Family	Species	Common Name	Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
	<i>Ctenotus atlas</i>	Southern Mallee Ctenotus																											1								
	<i>Ctenotus calurus</i>	Blue-tailed Finesnout Ctenotus				1																															
	<i>Ctenotus grandis</i>	Grand Ctenotus		1																											1				1		
	<i>Ctenotus greeri</i>	Spotted-necked Ctenotus							2																												
	<i>Ctenotus helenae</i>	Clay-soil Ctenotus	3	1		2			3																					6		4	1				
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus		2	5	1					2																2		1	5	16	1	1	2			
	<i>Ctenotus pantherinus</i>	Leopard Skink						1	6				1					1																			
	<i>Ctenotus quattuordecimlineatus</i>	Fourteen-lined Ctenotus						2							1															1		5					
	<i>Ctenotus schevilli</i>	Scheville's Ctenotus						2							1																						
	<i>Ctenotus schomburgkii</i>	Schomburgk's Ctenotus							3																						3						
	<i>Egernia depressa</i>	Pygmy Spiny-tailed Skink		1	6	2			3		3	1																2									
	<i>Egernia formosa</i>	Goldfields Crevice-skink		2								1																							2		
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer					2																														
	<i>Lerista bipes</i>	North-western Sandslider					1																														
	<i>Lerista desertorum</i>	Central Desert Robust Slider	1							1		1	1			1													4	2				2			5
	<i>Lerista sp.</i>		4								1	1				1	1										1	4	2					2		1	
	<i>Liopholis inornata</i>	Desert Skink																													1	1					
	<i>Liopholis striata</i>	Nocturnal Desert Skink																													1						
	<i>Menetia greyii</i>	Common Dwarf Skink	2										1			1																	1				

		Surveys	A																				B														
Family	Species	Common Name	Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
	<i>Morethia butleri</i>	Woodland Morethia Skink	2	3	1	3																												1			
	<i>Tiliqua multifasciata</i>	Centralian Blue-tongued Lizard		2																																	
	<i>Tiliqua occipitalis</i>	Western Blue-tongued Lizard	2			1																															
Typhlopidae	<i>Anilius hamatus</i>	Pale-headed Blind Snake					1						1																	1	1	1	1	2			
	<i>Anilius waitii</i>	Waite's Blind Snake																												2							
Varanidae	<i>Varanus brevicauda</i>	Short-tailed Pygmy Monitor							1								1																				
	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor	1		2					1		3																			2		1				
	<i>Varanus eremius</i>	Pygmy Desert Monitor																														4					
	<i>Varanus giganteus</i>	Perentie																									1										
	<i>Varanus gouldii</i>	Gould's Goanna	1																											1	1						
	<i>Varanus panoptes</i>	Yellow-spotted Monitor					1																				1										
	<i>Varanus tristis</i>	Black-headed Monitor																											1								
Cheluidae	<i>Chelodina steindachneri</i>	Steindachner's Turtle																											1								
Birds																																					
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu				1							2				1																			1	
Anatidae	<i>Tadorna tadornoides</i>	Australian Shelduck	1	1																									1	1				7			
	<i>Chenonetta jubata</i>	Australian Wood Duck	1																										37								
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	1																																		
	<i>Anas gracilis</i>	Grey Teal	1	1																									41								
	<i>Anas superciliosa</i>	Pacific Black Duck	1																																		

		Surveys	A																						B												
Family	Species	Common Name	Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
Podicipedidae	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe	1																										2								
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing					3			4																						4				54	
	<i>Phaps histrionica</i>	Flock Bronzewing																											22		38	21				33	1
	<i>Ocyphaps lophotes</i>	Crested Pigeon		11	5		17		5	4	2					2																					
	<i>Geopelia cuneata</i>	Diamond Dove								8																											
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth	1																												2						
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar																												1	2						
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	1								1																				7	2				1	1
Otididae	<i>Ardeotis australis</i>	Australian Bustard	1																																		
Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	1																																		
Ardeidae	<i>Ardea pacifica</i>	White-necked Heron	1	1																																1	
	<i>Egretta novaehollandiae</i>	White-faced Heron	1																											1						1	
Accipitridae	<i>Haliastur sphenurus</i>	Whistling Kite																												6	1						
	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk					2																							5							
	<i>Circus assimilis</i>	Spotted Harrier	1																																		
	<i>Aquila audax</i>	Wedge-tailed Eagle					2						4			8	3													1			1			1	
	<i>Hieraaetus morphnoides</i>	Little Eagle	1																											3							
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel				3	3			1	1	2				1	2														1			1		1	
	<i>Falco berigora</i>	Brown Falcon			4		2				3		1																				1				
	<i>Falco longipennis</i>	Australian Hobby	1																											2							
	<i>Falco peregrinus</i>	Peregrine Falcon																												1							

		Surveys	A																				B														
Family	Species	Common Name	Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
Rallidae	<i>Tribonyx ventralis</i>	Black-tailed Native-hen	1																																		
	<i>Fulica atra</i>	Eurasian Coot	1																																		
Burhinidae	<i>Burhinus grallarius</i>	Bush Stone-curlew		1																																	
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt	1																																		
Charadriidae	<i>Charadrius ruficapillus</i>	Red-capped Plover	1																																		
	<i>Elseyornis melanops</i>	Black-fronted Dotterel	1																																		
	<i>Vanellus tricolor</i>	Banded Lapwing	1				2																						1								1
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	1																																		
Turnicidae	<i>Turnix velox</i>	Little Button-quail																																			
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah					124		26	4	19					10													1	1		9			1	1	
	<i>Nymphicus hollandicus</i>	Cockatiel				21	4		15	12						20													9	1	1	1		1		1	
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck			2		5		3	4	2	2	3			2													115		7	13			1	1	
	<i>Psephotus varius</i>	Mulga Parrot				4				9																										1	
	<i>Melopsittacus undulatus</i>	Budgerigar			16	18	5		6	9	5	29	6			5	8												1	1	1	1	1	1	1	1	
	<i>Neopsephotus bourkii</i>	Bourke's Parrot			2		3			6																					9					1	
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo			2	3	1			1																			1	5		1		5		1	
	<i>Cacomantis pallidus</i>	Pallid Cuckoo	1			1					1																		1		3					2	
Halcyonidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher	1			1																														1	
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper	1		9																										3	13				2	
Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	Spotted Bowerbird					2																								4				4	1	
Maluridae	<i>Malurus leucopterus</i>	White-winged Fairy-wren										2	69			57														143			142			1	

		Surveys	A																				B														
Family	Species	Common Name	Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
	<i>Malurus lamberti</i>	Variegated Fairy-wren							2																												
Acanthizidae	<i>Smicrornis brevirostris</i>	Weebill				10		8	6																			350		5				71			
	<i>Gerygone fusca</i>	Western Gerygone																										17						1			
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill				10																															
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill			11	1			3																			30	2	1					1		
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill		1	40	22	19	3	20	8		3																	37					2	1		
	<i>Acanthiza apicalis</i>	Inland Thornbill							8																				2								
	<i>Aphelocephala leucopsis</i>	Southern Whiteface			17	2			9	12																											
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote		1										2														188		1				4			
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater			1	3			2	4	1	1																	23	7				20	1		
	<i>Lichenostomus virescens</i>	Singing Honeyeater			4	4	3		20	1	13	1																1	1		2			6	1		
	<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater		1																																	
	<i>Purnella albifrons</i>	White-fronted Honeyeater			2	8	2		33	17		6	40			81	99												1	3	3			2			
	<i>Manorina flavigula</i>	Yellow-throated Miner																										216		9	17			32	1		
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater			34	1	11		5	32	2	1	12															1	24	8			23				
	<i>Epthianura tricolor</i>	Crimson Chat				3			11	28	55	43			20														1	47	4		44	1	1		
	<i>Epthianura aurifrons</i>	Orange Chat																										8				14					
	<i>Sugomel niger</i>	Black Honeyeater	1																																		
	<i>Lichmera indistincta</i>	Brown Honeyeater		1					1																												
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler				34			22		2																			4							
Psophodidae	<i>Cinclosoma cinnamomeum</i>	Cinnamon Quail-thrush				1					2																										

		Surveys	A																				B														
Family	Species	Common Name	Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella				12																															
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike															3																			1	
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike			1	1						1			2	2													20	12	1				9	1	
	<i>Lalage sueurii</i>	White-winged Triller			2	7				1	1	7	11																								
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler			7	11	1		1	18																			7	12	2	2			6		
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush				1	4			1		1																									
	<i>Oreoica gutturalis</i>	Crested Bellbird			3	8	6		2	18	7	1	17																		15	6				7	
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow			99	21	43			1		119																		1	2			20		10	
	<i>Artamus superciliosus</i>	White-browed Woodswallow		1																																	
	<i>Artamus cinereus</i>	Black-faced Woodswallow			3	5			1	1	16	9	23		43	1														1	8	37	27		5	18	1
	<i>Cracticus torquatus</i>	Grey Butcherbird							1																					2		1	6		2	1	1
	<i>Cracticus nigrogularis</i>	Pied Butcherbird			1		5		1	3		15			5	2														55	1		2		3	28	1
	<i>Cracticus tibicen</i>	Australian Magpie	1																											31						1	
	<i>Strepera versicolor</i>	Grey Currawong	1				1																														
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail			1	7	4		1	7	2	1	3			2															5	2	2			2	1
Corvidae	<i>Corvus bennetti</i>	Little Crow			7		2										10													231	15	48	14		34	46	1
	<i>Corvus orru</i>	Torresian Crow																												1			1				
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	1																											17							1
Petroicidae	<i>Microeca fascinans</i>	Jacky Winter								3			1																								
	<i>Petroica goodenovii</i>	Red-capped Robin			18	8	11			33	2		12																	4	4	22	7		1		4
	<i>Melanodryas cucullata</i>	Hooded Robin			3	4	3			5	9	6	3																		1	7					4

		Surveys	A																				B														
Family	Species	Common Name	Site 1E	Site 1W	Site SS18	Site SS21	Site SS1	Site 1W08	Site LL4	Site LL5	Site SS19	Site SS20	Site LL3	Site LL6	Site SS22	Site LL1	Site LL2	Site SS23	Site 2	Site 3	Site 6	Site 7	Site 8	Site 1	Site 4	Site 5	Pundin	Wells	Site 2	Site 10	Site 21	Site 18	Site 21a	Site 9	Weebo	Site 17	Opportunistic
Megaluridae	<i>Cincloramphus mathewsi</i>	Rufous Songlark	1									1																									
	<i>Cincloramphus cruralis</i>	Brown Songlark	1									1																	23				18			1	
Hirundinidae	<i>Cheramoeca leucosterna</i>	White-backed Swallow	1																																		
	<i>Hirundo nigricans</i>	Tree Martin	1																																	1	
Nectariniidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird				3	1		4	7																			1		1	4			1		
Estrildidae	<i>Taeniopygia guttata</i>	Zebra Finch			12	99			22	2	4																	27		16	8		8		6	1	
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit			1				2	1	7	5					4												9				43			1	
Mammals																																					
Bovidae	<i>Bos taurus</i>	Cow		4																								1					1				
	<i>Capra hircus</i>	Goat																								1	1	1	1	1	1	1	1				
	<i>Ovis aries</i>	Sheep		10																						1	1	1	1	1	1	1	1	1		1	
Camelidae	<i>Camelus dromedarius</i>	Dromedary	1		1						1					1																					
Felidae	<i>Felis catus</i>	House Cat	2																													1		1			
Molossidae	<i>Austronomus australis</i>	White-striped Free-tail Bat																	1	1	1	1	1														
	<i>Ozimops planiceps</i>	Southern Free-tail Bat	2	3															1		1	1		1													
Pteropodidae	<i>Syconycteris australis</i>	Common Blossom-bat	2	9																																	
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	5	14			1				1								1	1	1		1	1	1	1	2			5				1			
	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	5	13					4										1	1	1		1	1			28			4							
	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat	6	21			1												1	1	1		1	1	1	1											
	<i>Scotorepens greyii</i>	Little Broad-nosed Bat																									10										
	<i>Vespadelus finlaysoni</i>	Finlayson's Cave Bat		3			1													1	1				1												

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

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			A										B													C							
Family	Species	Common Name	MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic
Frogs																																	
Hylidae	<i>Cyclorana maini</i>	Sheep Frog										1																					
Limnodynastidae	<i>Neobatrachus sutor</i>	Shoemaker Frog	1	1																						5	10						
	<i>Neobatrachus wilsmorei</i>	Goldfields Bullfrog																				2				11				3			
	<i>Platyplectrum spenceri</i>	Spencer's Burrowing Frog														8																	
Myobatrachidae	<i>Pseudophryne occidentalis</i>	Orange-crowned Toadlet																						2									
Reptiles																																	
Agamidae	<i>Ctenophorus caudicinctus</i>	Ring-tailed Dragon																		12													
	<i>Ctenophorus fordi</i>	Mallee Dragon																				2											
	<i>Ctenophorus inermis</i>	Military Dragon																1															
	<i>Ctenophorus isolepis</i>	Crested Dragon	1																														
	<i>Ctenophorus reticulatus</i>	Western Netted Dragon		1	1		1		3	1		1			2	1		2			4		4	13		2	1						
	<i>Ctenophorus salinarum</i>	Saltpan Dragon											5	1										1	2								
	<i>Ctenophorus vadrappa</i>	Red-barred Dragon																			1	7	2			2	1						
	<i>Moloch horridus</i>	Thorny Devil																						1			1						
	<i>Pogona minor</i>	Dwarf Bearded Dragon									1		2	1	1				2			2	1		2	2							
	<i>Tympanocryptis cephalus</i>	Pebble Dragon												1																	1		
Carphodactylidae	<i>Nephurus vertebralis</i>	Midline Knob-tail											1												2						2		
	<i>Underwoodisaurus milii</i>	Barking Gecko						2										9						2									
Diplodactylidae	<i>Diplodactylus granariensis</i>	Wheat-belt Stone Gecko																			2	1							7				

			A										B														C							
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	<i>Diplodactylus pulcher</i>	Fine-faced Gecko					1									4		3	1					3						2	1		1	
	<i>Lucasium maini</i>	Main's Ground Gecko																				1												
	<i>Lucasium squarrosus</i>	Mottled Ground Gecko											1	3		1		3			2								6	3		2		
	<i>Strophurus assimilis</i>	Goldfields Spiny-tailed Gecko																											1			1		
	<i>Strophurus ciliaris</i>	Spiny-tailed Gecko														2		1			1			2										
	<i>Strophurus strophurus</i>	Western Spiny-tailed Gecko																							7							4		
	<i>Strophurus wellingtonae</i>	Western Shield Spiny-tailed Gecko		1																											1			
Elapidae	<i>Brachyurophis fasciolata</i>	Narrow-banded Burrowing Snake																			1													
	<i>Parasuta monachus</i>	Monk Snake										1				1		3											1		1			
	<i>Pseudechis butleri</i>	Spotted Mulga Snake										1																						
	<i>Simoselaps bertholdi</i>	Jan's Banded Snake																	1															
	<i>Suta fasciata</i>	Rosen's Snake																						2										
Gekkonidae	<i>Gehyra variegata</i>	Tree Dtella	3	9	3	16	3	9	2		3	1						15	1	1	1		2	15	1			1		5	2			
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko		3		1						1						34					2	7							1	1		
	<i>Rhynchoedura ornata</i>	Western Beaked Gecko																				1			2	1					1			
Pygopodidae	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot																1			1	1												
Scincidae	<i>Cryptoblepharus buechananii</i>	Buchanan's Snake-eyed Skink		2								1				1						1	1											
	<i>Ctenotus calurus</i>	Blue-tailed Finesnout Ctenotus																	1															
	<i>Ctenotus greeri</i>	Spotted-necked Ctenotus																	12															

			A									B													C								
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	<i>Ctenotus helenae</i>	Clay-soil Ctenotus																	1														
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus			1								5	4											2	5	9						
	<i>Ctenotus pantherinus</i>	Leopard Skink																	4														
	<i>Ctenotus quattuordecimlineatus</i>	Fourteen-lined Ctenotus																	11														
	<i>Ctenotus schomburgkii</i>	Schomburgk's Ctenotus	1								2	1	3						11		2	3			15	1							
	<i>Ctenotus severus</i>	Stern Ctenotus																6		1													
	<i>Ctenotus uber</i>	Spotted Ctenotus														3		2			6	1	1										
	<i>Egernia depressa</i>	Pygmy Spiny-tailed Skink						1													4	2											
	<i>Egernia formosa</i>	Goldfields Crevice-skink																						3									
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer															1		1											1	1		
	<i>Lerista desertorum</i>	Central Desert Robust Slider						1			1	1						6	6		2										5		
	<i>Lerista macropisthopus</i>	Unpatterned Robust Slider																						2									
	<i>Lerista muelleri</i>	Wood Mulch-slider																											1		2		
	<i>Lerista picturata</i>	Southern Robust Slider																						2									
	<i>Lerista sp.</i>							2			1	1						9	1			1			5								
	<i>Liopholis inornata</i>	Desert Skink																				1	1										
	<i>Liopholis striata</i>	Nocturnal Desert Skink																			2												
	<i>Menetia greyii</i>	Common Dwarf Skink	4								1	1										1		4		1					2		
	<i>Morethia butleri</i>	Woodland Morethia Skink		2		4	2	3	1	1	1	1			2			6					2	4									
Typhlopidae	<i>Anilius hamatus</i>	Pale-headed Blind Snake														1									1								
	<i>Anilius margaretae</i>	Buff-snouted Blind Snake																															

			A									B												C										
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	<i>Anilius waitii</i>	Waite's Blind Snake														2									1									
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor		1				1								1					6			2		1		1						
	<i>Varanus giganteus</i>	Perentie																						1										
	<i>Varanus gouldii</i>	Gould's Goanna																1				2	2	1		1	1							
	<i>Varanus panoptes</i>	Yellow-spotted Monitor						1			1	1	1			2					1									1	4	2		
Birds																																		
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	1	1				1		1	1	1		2		1	5		2				1	2		1				1				
Megapodiidae	<i>Leipoa ocellata</i>	Malleefowl										1																						
Phasianidae	<i>Coturnix pectoralis</i>	Stubble Quail															1																	
Anatidae	<i>Cygnus atratus</i>	Black Swan										1																						
	<i>Tadorna tadornoides</i>	Australian Shelduck										1																						
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck										1																						
	<i>Anas gracilis</i>	Grey Teal										1																						
	<i>Anas superciliosa</i>	Pacific Black Duck										1																						
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing										1											1		1									
	<i>Ocyphaps lophotes</i>	Crested Pigeon	2					2			3	1			1	5	2	11			7			6	9	6			2		1			
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth									2										1													
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar																		2				2										
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar													3	3	2									1								
Otididae	<i>Ardeotis australis</i>	Australian Bustard												1		4																		
Ardeidae	<i>Ardea pacifica</i>	White-necked Heron										1																						

			A										B														C							
Family	Species	Common Name	MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic	
	<i>Egretta novaehollandiae</i>	White-faced Heron										1																						
Accipitridae	<i>Haliaeetus albicilla</i>	White-bellied Sea-eagle	1		2	1	1	1		1		1																						
	<i>Accipiter fasciatus</i>	Brown Goshawk																	3															
	<i>Circus assimilis</i>	Spotted Harrier															1					1												
	<i>Aquila audax</i>	Wedge-tailed Eagle													6	2		2								3				2				
	<i>Hieraaetus morphnoides</i>	Little Eagle		1															3		1													
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel									1					5		2	3					4	2						1			
	<i>Falco berigora</i>	Brown Falcon									1					3	1	2	5		3				3					2				
	<i>Falco longipennis</i>	Australian Hobby			1						1														1									
	<i>Falco peregrinus</i>	Peregrine Falcon		1																														
Rallidae	<i>Tribonyx ventralis</i>	Black-tailed Native-hen										1																						
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt										1																						
ae	<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet										1																						
Charadriidae	<i>Charadrius ruficapillus</i>	Red-capped Plover										1																						
	<i>Elseyornis melanops</i>	Black-fronted Dotterel										1																						
	<i>Vanellus tricolor</i>	Banded Lapwing											9				4	4						1										
Turnicidae	<i>Turnix velox</i>	Little Button-quail															5				2													
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah					15					1		1	44	908	8	2	5		7		62	7	4					3				
	<i>Nymphicus hollandicus</i>	Cockatiel												6		2	4		3				4		35								10	
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck		1			4	3	2		2	1			25	31	36		16		3	3		1	9	10								
	<i>Psephotus varius</i>	Mulga Parrot			1			5	5			1					11		2		14	2				3								

			A									B															C							
Family	Species	Common Name	MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic	
	<i>Melopsittacus undulatus</i>	Budgerigar												20	11	9	15	2	29		17	38			170							6		
	<i>Neopsephotus bourkii</i>	Bourke's Parrot										1									4													
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo												3					3				2		1	1								
	<i>Chalcites osculans</i>	Black-eared Cuckoo																	1		2													
	<i>Cacomantis pallidus</i>	Pallid Cuckoo										1			2				1		1	4			1					1				
Halcyonidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher															1	6			1													
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater																	3		3													
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper							2			1									4	1	1											
Maluridae	<i>Malurus splendens</i>	Splendid Fairy-wren							9			1																						
	<i>Malurus leucopterus</i>	White-winged Fairy-wren	3								8		3	76		1	2								40	17								
Acanthizidae	<i>Pyrrholaemus brunneus</i>	Redthroat				1						1					2					2	1		2									
	<i>Smicronis brevirostris</i>	Weebill					10					1							98		7	2	2											
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill							2			1							3		6													
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	5	6		6	17	2	4			1							4		8				9	4								
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill	8	30	2	10	14	15	50			1				3	5		88		126		10	3	53	27								
	<i>Acanthiza apicalis</i>	Inland Thornbill	2					2	6			1							3		2	1	2											
	<i>Aphelocephala leucopsis</i>	Southern Whiteface				4		6	20			1					8		5		52		12		4									
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote					3					1					1	2																
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater												2	2																			
	<i>Lichenostomus virescens</i>	Singing Honeyeater		4	2		1	1	1	1	1	1	3	11		3	2	2		3				1	8	4			7	6	2			
	<i>Lichenostomus plumulus</i>	Grey-fronted Honeyeater					7								56				3		2													

			A										B														C						
Family	Species	Common Name	MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic
	<i>Purnella albifrons</i>	White-fronted Honeyeater	80	100	12	40	8	1	10	6	6	1		1	3		1	4			7	6		2	16								
	<i>Manorina flavigula</i>	Yellow-throated Miner	10	5	7		2	10		2	2	1			10	15	98	1	13		41	3			21	109				1	12		6
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	25	20		1	6	2	1	1	2	1			11	2	2	5	8		10	6	4	2	9	7				1	2		
	<i>Anthochaera carunculata</i>	Red Wattlebird									3								2		3				1								
	<i>Conopophila whitei</i>	Grey Honeyeater															18						17		1								
	<i>Epthianura tricolor</i>	Crimson Chat												18	154	24		6			29				75								
	<i>Epthianura aurifrons</i>	Orange Chat												5																			
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey-crowned Babbler																													12		
	<i>Pomatostomus superciliosus</i>	White-browed Babbler										1					3						3	2									
Psophodidae	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush												2							3									1			
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella															2		6														
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike												4		31	2	3															
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike		2		1						1			4	5	6	1	9		10				7	3			1				
	<i>Lalage sueurii</i>	White-winged Triller														3	9				34	6		39	2								
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler					1	1	1	1		1							8				1										
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush						1	2			1						5				1											
	<i>Oreoica gutturalis</i>	Crested Bellbird	1	3	1	2	1	1	2			1		3	14	5	1		15	2	10		2		6	2			4				
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow												2	2		31	2		72													
	<i>Artamus superciliosus</i>	White-browed Woodswallow			4		1	1				1									3												
	<i>Artamus cinereus</i>	Black-faced Woodswallow												7	55	25	6	11			1		1		12				9	2		6	
	<i>Cracticus torquatus</i>	Grey Butcherbird	1	1	1		2	1	1		2	1			2	4	7	8		8				4	1				1	1	3		

Family	Species	Common Name	A										B															C					
			MME1	MME2	MME3	MME4	MME5	MME6	MME7	MME8	MME9	Opportunistic	Site 11	Site 11a	Site 14	Site 14a	Site 14b	Site 17a	Site 19	Site 1a	Site 20a	Site 21	Site 21a	Site 5a	Site 8	Site 9	Site 9a	CM001	CM002	CM003	CM004	CM005	Opportunistic
	<i>Cracticus nigrogularis</i>	Pied Butcherbird	2	1	1						1	1			6	23	1		4	1			2	4	13	14				2	2		
	<i>Cracticus tibicen</i>	Australian Magpie	3								3	1				3		9			1					5			1	5		2	
	<i>Strepera versicolor</i>	Grey Currawong			1											2	3		2				1			4							
Rhipiduridae	<i>Rhipidura albiscapa</i>	Grey Fantail							1																								
	<i>Rhipidura leucophrys</i>	Willie Wagtail	1									1				2	2	1							12	1			1				1
Corvidae	<i>Corvus bennetti</i>	Little Crow		2			6		1			1		11	29	50	21	12	24		6				7	36	149			7	4		
	<i>Corvus orru</i>	Torresian Crow		1	2		1	1		2		1		2			2														2		
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark		1	2			2			2	1				12	7	2							3								
Petroicidae	<i>Microeca fascians</i>	Jacky Winter														1			22		1												
	<i>Petroica goodenovii</i>	Red-capped Robin	1	2		1		2	6			1			1	5	3	1	29	3	47		4	3	3	4						1	
	<i>Melanodryas cucullata</i>	Hooded Robin			3							1		1	2	1					1		1		2				2				
Megaluridae	<i>Cincloramphus mathewsi</i>	Rufous Songlark															3						2										
	<i>Cincloramphus cruralis</i>	Brown Songlark											7	7	3	7		8			1												
Hirundinidae	<i>Cheramoeca leucosterna</i>	White-backed Swallow			2							1						2															
	<i>Hirundo rustica</i>	Barn Swallow						5																									
	<i>Petrochelidon ariel</i>	Fairy Martin																											6				
Nectariniidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird															4					1			5	4							
Estrildidae	<i>Taeniopygia guttata</i>	Zebra Finch										1		9	12		4		5						36				6				
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit			4							1	7	18		16	1	36								2			4	1			
Mammals																																	
Bovidae	<i>Capra hircus</i>	Goat										1			1	1			1					1									

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

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

A Ninox Wildlife Consulting (1998) *A Vertebrate Fauna Survey of the Murrin Murrin Expansion Project*. Unpublished report for Anaconda Nickel Ltd, Perth.

B 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.

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

		Surveys	A														B	C																
Family	Species	Common Name	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Opportunistic	Granny Deeps birds	Agnew Gold	BKBO1	BKBO4	BKBO5	BKBO7	BKBO9	BKBS04	BKBO2	BKBO3	BKBO12	BKBO8	BKBO6	BKBO10	BKBO11	BKBS01	BKBHarp01	BKBS03
Frogs																																		
Hylidae	<i>Cyclorana maini</i>	Sheep Frog		1							11	5	1																					
	<i>Cyclorana platycephala</i>	Water-holding Frog		1	1						5	2		1	1																			
	<i>Litoria rubella</i>	Desert Tree Frog																1																
Limnodynastidae	<i>Neobatrachus kunapalari</i>	Kunapalari Frog									1																							
	<i>Neobatrachus sudelli</i>	Sudell's Frog																	2	1	1	1	2											
	<i>Neobatrachus sutor</i>	Shoemaker Frog	8	2	5	3	1			1	13	2		1						1	1	1	1	2										
Reptiles																																		
Agamidae	<i>Ctenophorus caudicinctus</i>	Ring-tailed Dragon																1						1										
	<i>Ctenophorus isolepis</i>	Crested Dragon																1																
	<i>Ctenophorus reticulatus</i>	Western Netted Dragon																							2	1								
	<i>Ctenophorus scutulatus</i>	Lozenge-marked Dragon																1									3							
	<i>Diporiphora amphiboluroides</i>	Mulga Dragon				2	1	1																										
	<i>Pogona minor</i>	Dwarf Bearded Dragon																1			1													
	<i>Tympanocryptis cephalus</i>	Pebble Dragon				2	3	1		1																								
Carphodactylidae	<i>Nephrurus vertebralis</i>	Midline Knob-tail																	2				1		1									
Diplodactylidae	<i>Diplodactylus granariensis</i>	Wheat-belt Stone Gecko										1																1						
	<i>Diplodactylus pulcher</i>	Fine-faced Gecko	2			1	4	3	1			2	1		1					1	2				1	2		3	2					

		Surveys	A														B	C																
Family	Species	Common Name	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Opportunistic	Granny Deeps birds	Agnew Gold	BKBO1	BKBO4	BKBO5	BKBO7	BKBO9	BKBS04	BKBO2	BKBO3	BKBO12	BKBO8	BKBO6	BKBO10	BKBO11	BKBS01	BKBHarp01	BKBS03
	<i>Strophurus assimilis</i>	Goldfields Spiny-tailed Gecko																												1	1			
	<i>Strophurus strophurus</i>	Western Spiny-tailed Gecko																				1												
	<i>Strophurus wellingtonae</i>	Shield Spiny-tailed Gecko	4	2											1															1				
Elapidae	<i>Parasuta monachus</i>	Monk Snake						1		1																								
	<i>Suta fasciata</i>	Rosen's Snake																					1											
Gekkonidae	<i>Gehyra variegata</i>	Tree Dtella		3	2	4		1		3		2	1	2				1																
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko	2				1					1	2	1	5			1																
	<i>Rhynchoedura ornata</i>	Western Beaked Gecko	3					2			1								11	5		5	3					6	9	3	1			
Pygopodidae	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot																		1														
Scincidae	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus	2	2					1		5	9	7	16	27				2	3			1		4	4								
	<i>Ctenotus schomburgkii</i>	Schomburgk's Ctenotus																					2		1	2	4	2						
	<i>Ctenotus severus</i>	Stern Ctenotus																																
	<i>Ctenotus uber</i>	Spotted Ctenotus																				2												
	<i>Egernia depressa</i>	Pygmy Spiny-tailed Skink		1	1	2	2	3	9	6		1																						
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer				2									1																			
	<i>Lerista bipes</i>	North-western Sandslider																																
	<i>Lerista desertorum</i>	Central Desert Robust Slider													2															1		1		

		Surveys	A													B	C																	
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	<i>Lerista distinguenda</i>	Orange-tailed Slider													1																			
	<i>Lerista sp.</i>																							2	1	1	1							
	<i>Menetia greyii</i>	Common Dwarf Skink											1											1										
	<i>Morethia butleri</i>	Woodland Morethia Skink		1		1		2			6	1		3																				
	<i>Tiliqua multifasciata</i>	Centralian Blue-tongued Lizard	1																															
Typhlopidae	<i>Anilius australis</i>	Austral Blind Snake								1	1																							
	<i>Anilius bicolor</i>	Dark-spined Blind Snake			1																													
	<i>Anilius waitii</i>	Waite's Blind Snake																													1			
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor		2		1	3	1	1			1		2							1	3	1		1				1	3				
	<i>Varanus gouldii</i>	Gould's Goanna																1																
	<i>Varanus panoptes</i>	Yellow-spotted Monitor	4		7		3	2	2			4	2		6							2						2		1				
Birds																																		
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu													3		1				1													
Anatidae	<i>Biziura lobata</i>	Musk Duck													2																			
	<i>Tadorna tadornoides</i>	Australian Shelduck															1																	
	<i>Chenonetta jubata</i>	Australian Wood Duck													77		1																	
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck													5																			
	<i>Anas gracilis</i>	Grey Teal													74																			

		Surveys	A													B	C																	
Family	Species	Common Name	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Opportunistic	Granny Deeps birds	Agnew Gold	BKBO1	BKBO4	BKBO5	BKBO7	BKBO9	BKBS04	BKBO2	BKBO3	BKBO12	BKBO8	BKBO6	BKBO10	BKBO11	BKBS01	BKBHarp01	BKBS03
	<i>Anas superciliosa</i>	Pacific Black Duck														13		1																
	<i>Aythya australis</i>	Hardhead														2																		
Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe																1																
	<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe														30		1																
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing																1																
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon																1	6			2						9						
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar																1																
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron															2																	
Accipitridae	<i>Elanus axillaris</i>	Black-shouldered Kite																1																
	<i>Haliastur sphenurus</i>	Whistling Kite																							1									
	<i>Accipiter fasciatus</i>	Brown Goshawk																1																
	<i>Aquila audax</i>	Wedge-tailed Eagle														2		1					3											
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel														2		1					1						1					
	<i>Falco berigora</i>	Brown Falcon														1																		
Rallidae	<i>Fulica atra</i>	Eurasian Coot														21																		
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt														5																		
	<i>Cladorhynchus leucocephalus</i>	Banded Stilt														14																		
Charadriidae	<i>Elseyornis melanops</i>	Black-fronted Dotterel														1		1																

		Surveys	A														B	C																	
Family	Species	Common Name	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Opportunistic	Granny Deeps birds	Agnew Gold	BKBO1	BKBO4	BKBO5	BKBO7	BKBO9	BKBS04	BKBO2	BKBO3	BKBO12	BKBO8	BKBO6	BKBO10	BKBO11	BKBS01	BKBHarp01	BKBS02	
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah																											8						
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck																1	1	2			1				1								
	<i>Psephotus varius</i>	Mulga Parrot														8			2		2														
	<i>Melopsittacus undulatus</i>	Budgerigar																1																	
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo																			1					1		1							
	<i>Cacomantis pallidus</i>	Pallid Cuckoo														2																			
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater																1																	
Ptilonorhynchidae	<i>Ptilonorhynchus guttatus</i>	Western Bowerbird														2	5		1																
Maluridae	<i>Malurus splendens</i>	Splendid Fairy-wren															12						8												
	<i>Malurus leucopterus</i>	White-winged Fairy-wren														1	3																		
Maluridae	<i>Malurus lamberti</i>	Variegated Fairy-wren																1																	
Acanthizidae	<i>Gerygone fusca</i>	Western Gerygone																					2					1							
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill															68								2				5						
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill															1				2		3		2										
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill																	16	7	4	23	11	33		2	11		3	9					
	<i>Acanthiza apicalis</i>	Inland Thornbill															12	1	4			5	11			3			2						
	<i>Aphelocephala leucopsis</i>	Southern Whiteface															13	1	1		1		5		4										
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote															1																		
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater															2				4														
	<i>Lichenostomus virescens</i>	Singing Honeyeater															68	1	8	9	7	2	1				2	4	3	1					

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

		Surveys	A													B	C																	
Family	Species	Common Name	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Opportunistic	Granny Deeps birds	Agnew Gold	BKBO1	BKBO4	BKBO5	BKBO7	BKBO9	BKBS04	BKBO2	BKBO3	BKBO12	BKBO8	BKBO6	BKBO10	BKBO11	BKBS01	BKBHarp01	BKBS02
	<i>Cracticus torquatus</i>	Grey Butcherbird														4	5	1	1											2	1			
	<i>Cracticus nigrogularis</i>	Pied Butcherbird														2	3	1	5		2	1	4					6	1					
	<i>Cracticus tibicen</i>	Australian Magpie														1		1										1						
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail														5	5	1	1			1	2											
Corvidae	<i>Corvus bennetti</i>	Little Crow														4	1	1			2						1	6		3				
	<i>Corvus orru</i>	Torresian Crow															2	1							3									
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark														6	11	1	3	1								1						
Petroicidae	<i>Petroica goodenovii</i>	Red-capped Robin															10	1	5	1	2	1	3		8		3	1		1				
	<i>Melanodryas cucullata</i>	Hooded Robin															7	1	2		4									1				
Hirundinidae	<i>Cheramoeca leucosterna</i>	White-backed Swallow														4	2																	
	<i>Hirundo neoxena</i>	Welcome Swallow														2	4	1																
	<i>Hirundo nigricans</i>	Tree Martin														1	9	1																
Nectariniidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird														2	2																	
Estrildidae	<i>Taeniopygia guttata</i>	Zebra Finch														2		1											2					
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit														6	2	1																
Mammals																																		
Bovidae	<i>Capra hircus</i>	Goat																1					1											
Molossidae	<i>Ozimops planiceps</i>	Southern Free-tail Bat																1																
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat																1																
	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat																1															2	

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

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

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

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

		Survey	A																												
Family	Species	Common Name	REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3	REG Mulga woodland 2	REG Mulga woodland 3	REG Opportunistic	REG Open spinifex	REG Mulga woodland	REG Eucalypt over spinifex	REG Shrubs over spinifex	REG Mulga thicket 2	REG Turkeys	REG Mulga thicket 1	REG Dogbolter 1
Reptiles																															
Agamidae	<i>Ctenophorus isolepis</i>	Crested Dragon	1	10	8	2	3	5	1	1																					
	<i>Ctenophorus nuchalis</i>	Central Netted Dragon			1	1																									
	<i>Ctenophorus scutulatus</i>	Lozenge-marked Dragon									2	1	1																		
	<i>Diporiphora amphiboluroides</i>	Mulga Dragon										3	1																		
	<i>Moloch horridus</i>	Thorny Devil						1																							
	<i>Pogona minor</i>	Dwarf Bearded Dragon										1	3	1																	
Carphodactylidae	<i>Nephurus laevis</i>	Smooth Knob-tail					2		1																						
	<i>Nephurus vertebralis</i>	Midline Knob-tail												1		1															
Diplodactylidae	<i>Diplodactylus pulcher</i>	Fine-faced Gecko										1	3				1														
	<i>Lucasium squarrosum</i>	Mottled Ground Gecko					2	1	7	2																					
	<i>Strophurus elderi</i>	Jewelled Gecko	2	7						1																					
	<i>Strophurus strophurus</i>	Western Spiny-tailed Gecko					2	1	2	1																					
	<i>Strophurus wellingtonae</i>	Western Shield Spiny-tailed Gecko										3	9	1		1	7	3	1	1	4	2									
Elapidae	<i>Brachyuropsis semifasciata</i>	Half-girdlerd Snake			1					2				3	6	3															
	<i>Furina ornata</i>	Orange-naped Snake								1		1																			

Family	Species	Common Name	Survey		A																											
			REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3	REG Mulga woodland 2	REG Mulga woodland 3	REG Opportunistic	REG Open spinifex	REG Mulga woodland	REG Eucalypt over spinifex	REG Shrubs over spinifex	REG Mulga thicket 2	REG Turkeys	REG Mulga thicket 1	REG Dogbolter 1	
	<i>Parasuta monachus</i>	Monk Snake				1			1		2		1		1							1										
	<i>Pseudechis australis</i>	Mulga Snake													2																	
	<i>Pseudonaja mengdeni</i>	Gwardar		2																												
	<i>Pseudonaja modesta</i>	Ringed Brown Snake															1															
	<i>Simoselaps bertholdi</i>	Jan's Banded Snake							1																							
Gekkonidae	<i>Gehyra purpurascens</i>	Purplish Dtella		1						2					1																	
	<i>Gehyra variegata</i>	Tree Dtella	2			1			1	2					1	1	2		1	3	1	10										
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko						2							1		1				1	3										
	<i>Rhynchoedura ornata</i>	Western Beaked Gecko											1	1			7	4														
Pygopodidae	<i>Delma butleri</i>	Unbanded Delma	1	2	2	1	2	1	3	1		1								1												
	<i>Lialis burtonis</i>	Burton's Snake-lizard												1	2																	
	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot					1	1							1	3																
Scincidae	<i>Ctenotus ariadnae</i>	Ariadna's Ctenotus	1		4	3	7	4	6	8					2						4											
	<i>Ctenotus dux</i>	Fine Side-lined Ctenotus		2	2		6	2	13	2				4		14					4											
	<i>Ctenotus grandis grandis</i>	Grand Ctenotus	6	8	9	14	1	3	3	4				4	1																	
	<i>Ctenotus greeri</i>	Spotted-necked Ctenotus												9	7	8					6											
	<i>Ctenotus helenae</i>	Clay-soil Ctenotus	1	2			20	23	13	10				20	14	15					26											

Family	Species	Common Name	Survey	A																												
			REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3	REG Mulga woodland 2	REG Mulga woodland 3	REG Opportunistic	REG Open spinifex	REG Mulga woodland	REG Eucalypt over spinifex	REG Shrubs over spinifex	REG Mulga thicket 2	REG Turkeys	REG Mulga thicket 1	REG Dogbolter 1	
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus	1	4	6					11	6	7	37	16	15	11	20	16	25	6	2											
	<i>Ctenotus pantherinus</i>	Leopard Skink	9		6	3	12	11	1	1				9	3	1				13												
	<i>Ctenotus piankai</i>	Coarse Sands Ctenotus	1	4	3	2		1	1	1																						
	<i>Ctenotus quattuordecimlineatus</i>	Fourteen-lined Ctenotus	4	12	3	2	19	16	9	5	4			2	3		1		1	9												
	<i>Ctenotus schomburgkii</i>	Schomburgk's Ctenotus				1					7		3				8	16			1											
	<i>Ctenotus uber</i>	Spotted Ctenotus									2	7	18				1	10	7		8											
	<i>Egernia depressa</i>	Southern Pygmy Spiny-tailed Skink											1	1					1		4	1										
	<i>Egernia formosa</i>	Goldfields Crevice-skink											1	1		1	1					2										
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer												2	1						1											
	<i>Lerista bipes</i>	North-western Sandslider	35	37	10	17	5	11	48	56																						
	<i>Lerista desertorum</i>	Central Desert Robust Slider	1	2		1		1		1	1	1		3	1					3												
	<i>Lerista muelleri</i>	Wood Mulch-slider										2		1		1		1			1											
	<i>Liopholis inornata</i>	Desert Skink					2	10	14	5																						
	<i>Liopholis striata</i>	Nocturnal Desert Skink	2	2	5	4																										
	<i>Menetia greyii</i>	Common Dwarf Skink	2	4	12	8					2					1		1		2	1											
	<i>Morethia butleri</i>	Woodland Morethia Skink												1						1		1										
	<i>Tiliqua multifasciata</i>	Centralian Blue-tongued Lizard		1	1	1		4																								

Family	Species	Common Name	Survey		A																											
			REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3	REG Mulga woodland 2	REG Mulga woodland 3	REG Opportunistic	REG Open spinifex	REG Mulga woodland	REG Eucalypt over spinifex	REG Shrubs over spinifex	REG Mulga thicket 2	REG Turkeys	REG Mulga thicket 1	REG Dogbolter	
Typhlopidae	<i>Anilius bicolor</i>	Dark-spined Blind Snake			3					1			1	1	2				1													
	<i>Anilius hamatus</i>	Pale-headed Blind Snake	1	1		2	1		2	1					1	1			2													
	<i>Anilius waitii</i>	Waite's Blind Snake				1		1	1							1			1													
Varanidae	<i>Varanus brevicauda</i>	Short-tailed Pygmy Monitor	1	2	3	3		1							1				1													
	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor									2	5		3	1	1	3	7	2		4	9										
	<i>Varanus eremius</i>	Pygmy Desert Monitor	2		6	2		2																								
	<i>Varanus gouldii</i>	Gould's Goanna	6	8	3	1	15	15	12	8		1	1	2	2	1																
	<i>Varanus panoptes</i>	Yellow-spotted Monitor															4			2		1										
	<i>Varanus tristis</i>	Black-headed Monitor												2																		
Birds																																
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu																				5	3									
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon																			1		2									
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar																				1										
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar																				1										
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift																						2								
Otididae	<i>Ardeotis australis</i>	Australian Bustard																				2										
Accipitridae	<i>Aquila audax</i>	Wedge-tailed Eagle																				3	1									

Family	Species	Common Name	Survey A																					
			REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3	REG Mulga woodland 2	REG Mulga woodland 3	REG Opportunistic	REG Open spinifex
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel																					2	1
	<i>Falco berigora</i>	Brown Falcon																						2
Charadriidae	<i>Elseyornis melanops</i>	Black-fronted Dotterel																					2	
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah																					2	
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck																					10	2 5
	<i>Psephotus varius</i>	Mulga Parrot																					5	
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater																					1	
Ptilonorhynchidae	<i>Ptilonorhynchus guttatus</i>	Western Bowerbird																					3	
Maluridae	<i>Malurus splendens</i>	Splendid Fairy-wren																					4	2 8 13
	<i>Malurus lamberti</i>	Variegated Fairy-wren																						4
Acanthizidae	<i>Pyrrholaemus brunneus</i>	Redthroat																					1	
	<i>Smicrornis brevirostris</i>	Weebill																					3	13 5
	<i>Gerygone fusca</i>	Western Gerygone																						1
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill																					4	2 6
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill																					2	1 6
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill																					1	7 5 3 3 8
	<i>Acanthiza apicalis</i>	Inland Thornbill																					8	1 6 6 4

		Survey	A																													
Family	Species	Common Name	REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3	REG Mulga woodland 2	REG Mulga woodland 3	REG Opportunistic	REG Open spinifex	REG Mulga woodland	REG Eucalypt over spinifex	REG Shrubs over spinifex	REG Mulga thicket 2	REG Turkeys	REG Mulga thicket 1	REG Dogbolter 1	
	<i>Aphelocephala leucopsis</i>	Southern Whiteface																							3			2	1	2	2	
Meliphagidae	<i>Lichenostomus virescens</i>	Singing Honeyeater																						1	2	3	5	1	2	2	2	1
	<i>Manorina flavigula</i>	Yellow-throated Miner																						3	12	5	5	8	7	3	7	
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler																						3						2		
Psophodidae	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush																										1		1		
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike																							2		3		2			
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler																							4	3		3		3	2	
	<i>Pachycephala rufiventris</i>	Rufous Whistler																														
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush																									1	1				
	<i>Oreoica gutturalis</i>	Crested Bellbird																							3	3	5	4	1	1	1	3
Artamidae	<i>Artamus cinereus</i>	Black-faced Woodswallow																						3								
	<i>Cracticus torquatus</i>	Grey Butcherbird																						3	3	1	2	2	2		2	
	<i>Cracticus nigrogularis</i>	Pied Butcherbird																						2	4	2	2	4	1		1	2
	<i>Cracticus tibicen</i>	Australian Magpie																						2	3	2						
	<i>Strepera versicolor</i>	Grey Currawong																									1	2				
Rhipiduridae	<i>Rhipidura albiscapa</i>	Grey Fantail																														
	<i>Rhipidura leucophrys</i>	Willie Wagtail																						3		4						

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

Family	Species	Common Name	Survey A																	
			REG Open spinifex 1	REG Open spinifex 2	REG Open spinifex 3	REG Open spinifex 4	REG Shrubs over spinifex 1	REG Shrubs over spinifex 2	REG Shrubs over spinifex 3	REG Shrubs over spinifex 4	REG Dogbolter 2	REG Mulga woodland 1	REG Mulga woodland 4	REG Eucalypt over spinifex 2	REG Eucalypt over spinifex 4	REG Eucalypt over spinifex 1	REG Dogbolter 1	REG Dogbolter 3	REG Dogbolter 4	REG Eucalypt over spinifex 3
	<i>Notomys alexis</i>	Spinifex Hopping Mouse		1			1		4				1							
	<i>Pseudomys desertor</i>	Desert Mouse	1				1	3		1							1	1	1	
	<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse	1		2						1				2					2

A Coffey Environments (2008) *Level 2 Fauna Assessment for the Duketon Gold Project*. Unpublished report for Regis Resources, Perth.

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

		Surveys	A								B															
Family	Species	Common Name	Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Opportunistic	Birds
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer	1	1								2				1							1			
	<i>Lerista desertorum</i>	Central Desert Robust Slider		1												1		6	2	5		1	2			
	<i>Lerista muelleri</i>	Wood Mulch-slider								2						5				1	1		5	4		
	<i>Lerista sp.</i>					1	1		1																	
	<i>Liopholis striata</i>	Nocturnal Desert Skink					1																			
	<i>Menetia greyii</i>	Common Dwarf Skink	1	1		1										1							1			
	<i>Morethia butleri</i>	Woodland Morethia Skink								1							2	2		2	1	1	1	1		
Typhlopidae	<i>Anilios australis</i>	Austral Blind Snake																						1		
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor		1						4		3		3			2		1	1			1			
	<i>Varanus panoptes</i>	Yellow-spotted Monitor													1		1						1			
	<i>Varanus panoptes rubidus</i>	Yellow-spotted Monitor	1	1	1	1	1	1	1																	
Cheluidae	<i>Chelodina steindachneri</i>	Steindachner's Turtle	1																							
Birds																										
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	1	1	1	1	1	1	1															1		
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing	1	1		1	1		1																1	3
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	1	1	1	1	1	1																	1	14
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar																								1
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar						1																		
Otididae	<i>Ardeotis australis</i>	Australian Bustard		1																						
Accipitridae	<i>Accipiter fasciatus</i>	Brown Goshawk	1																							
	<i>Aquila audax</i>	Wedge-tailed Eagle					1																			

		Surveys	A								B															
Family	Species	Common Name	Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Opportunistic	Birds
	<i>Hieraaetus morphnoides</i>	Little Eagle		1																						
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel		1	1	1		1	1																1	
	<i>Falco berigora</i>	Brown Falcon	1	1			1																			
Charadriidae	<i>Elseyornis melanops</i>	Black-fronted Dotterel	1																							
Charadriidae	<i>Vanellus tricolor</i>	Banded Lapwing					1																			
Turnicidae	<i>Turnix velox</i>	Little Button-quail							1																	
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah	1	1	1	1	1	1																	1	1
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck	1			1	1	1																		12
	<i>Psephotus varius</i>	Mulga Parrot	1			1	1																		1	3
	<i>Melopsittacus undulatus</i>	Budgerigar	1	1		1	1	1	1																	
	<i>Neopsephotus bourkii</i>	Bourke's Parrot				1	1																			
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo	1	1			1		1																	
	<i>Chalcites osculans</i>	Black-eared Cuckoo		1			1																			
	<i>Cacomantis pallidus</i>	Pallid Cuckoo	1					1	1																	
Halcyonidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher		1				1	1																	
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater	1					1																		
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper				1	1	1	1																1	1
Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	Spotted Bowerbird	1					1																		
	<i>Ptilonorhynchus guttatus</i>	Western Bowerbird																							1	3
Maluridae	<i>Malurus splendens</i>	Splendid Fairy-wren	1	1			1																			19
	<i>Malurus leucopterus</i>	White-winged Fairy-wren		1				1																		3

		Surveys	A								B															
Family	Species	Common Name	Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Opportunistic	Birds
	<i>Malurus lamberti</i>	Variegated Fairy-wren	1	1			1																			
Acanthizidae	<i>Pyrrholaemus brunneus</i>	Redthroat		1																						
	<i>Smicrornis brevirostris</i>	Weebill		1																						3
	<i>Gerygone fusca</i>	Western Gerygone	1	1																						
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill	1		1	1	1	1	1																	34
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	1		1	1	1	1	1																	1
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill	1		1	1	1	1	1																	8
	<i>Acanthiza apicalis</i>	Inland Thornbill	1	1	1			1	1																	30
	<i>Aphelocephala leucopsis</i>	Southern Whiteface	1	1	1	1	1	1																		7
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater	1	1		1			1																	
	<i>Lichenostomus virescens</i>	Singing Honeyeater	1	1	1	1	1	1	1																	24
	<i>Purnella albifrons</i>	White-fronted Honeyeater	1	1					1																	
	<i>Manorina flavigula</i>	Yellow-throated Miner	1	1	1	1	1	1	1																1	10
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	1	1		1	1	1	1																	13
	<i>Epthianura tricolor</i>	Crimson Chat		1		1	1	1	1																	
	<i>Sugomel niger</i>	Black Honeyeater							1																	
	<i>Lichmera indistincta</i>	Brown Honeyeater		1																						
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler	1				1																		1	8
Psophodidae	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush				1	1	1	1																	
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella			1																					

		Surveys	A								B															
Family	Species	Common Name	Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Opportunistic	Birds
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike	1	1				1																		
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	1	1		1		1	1																	2
	<i>Lalage sueurii</i>	White-winged Triller		1			1																			
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler	1	1	1	1	1	1	1																	22
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	1	1	1	1	1	1	1																	13
	<i>Oreoica gutturalis</i>	Crested Bellbird	1	1	1	1	1	1	1																	40
Artamidae	<i>Artamus cinereus</i>	Black-faced Woodswallow	1	1		1		1	1																2	3
	<i>Cracticus torquatus</i>	Grey Butcherbird	1	1	1	1	1	1	1																	
	<i>Cracticus nigrogularis</i>	Pied Butcherbird	1	1	1	1	1	1	1																1	2
	<i>Cracticus tibicen</i>	Australian Magpie	1		1		1																			
	<i>Strepera versicolor</i>	Grey Currawong	1																							
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail	1	1			1		1																	
Corvidae	<i>Corvus bennetti</i>	Little Crow			1	1	1		1																	14
	<i>Corvus orru</i>	Torresian Crow	1	1	1		1	1	1																1	
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	1	1																					1	
Petroicidae	<i>Petroica goodenovii</i>	Red-capped Robin	1	1	1	1	1	1	1																	14
	<i>Melanodryas cucullata</i>	Hooded Robin	1	1	1		1	1	1																	3
Megaluridae	<i>Cincloramphus mathewsi</i>	Rufous Songlark		1				1																		
Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow	1				1	1	1																	
	<i>Petrochelidon ariel</i>	Fairy Martin							1																	
	<i>Hirundo nigricans</i>	Tree Martin						1	1																	

		Surveys	A								B															
Family	Species	Common Name	Site 1	Site 2	Site 7	Site 5	Site 6	Site 3	Site 4	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Opportunistic	Birds
Estrildidae	<i>Taeniopygia guttata</i>	Zebra Finch	1	1	1	1		1	1																	
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit		1				1																	1	
Mammals																										
Bovidae	<i>Bos taurus</i>	Cow	1	1	1	1	1	1	1																	
	<i>Capra hircus</i>	Goat	1	1																						
Canidae	<i>Canis lupus</i>	Dingo	1																							
	<i>Vulpes vulpes</i>	Red Fox	1																							
Felidae	<i>Felis catus</i>	House Cat	1	1																						
Vespertilionidae	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat																					4			
Dasyuridae	<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart		1																						
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart								1	5		1	4	4	2			1		1	1	3	2		
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart				1					1	1			1	3	1		1							
Macropodidae	<i>Osphranter robustus</i>	Euro			1																					
	<i>Osphranter rufus</i>	Red Kangaroo	1	1				1																		
Leporidae	<i>Oryctolagus cuniculus</i>	European Rabbit	1			1																				
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna			1																					
Equidae	<i>Equus caballus</i>	Domestic Horse		1				1																		
Muridae	<i>Mus musculus</i>	House Mouse	1	1		1		1	1																	

A Halpern Glick Maunsell (1999) *Rosemont Gold Project Biological Assessment Survey - Phases 1 & 2*. Unpublished report for Johnson's Well Mining NL. Perth.

B Terrestrial Ecosystems (2010) *Level 2 Fauna Risk Assessment for the Garden Well Project Area*. Unpublished report for Regis Resources, Perth.

		Survey	A									
Family	Species	Common Name	TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HB1
Frogs												
Limnodynastidae	<i>Neobatrachus sutor</i>	Shoemaker Frog										
	<i>Neobatrachus wilsmorei</i>	Goldfields Bullfrog	3	1								
	<i>Platyplectrum spenceri</i>	Spencer's Burrowing Frog										
Myobatrachidae	<i>Pseudophryne occidentalis</i>	Orange-crowned Toadlet										
Reptiles												
Agamidae	<i>Ctenophorus caudicinctus</i>	Ring-tailed Dragon										
	<i>Ctenophorus fordi</i>	Mallee Dragon										
	<i>Ctenophorus inermis</i>	Military Dragon			1							
	<i>Ctenophorus maculatus</i>	Spotted Dragon				2						
	<i>Ctenophorus reticulatus</i>	Western Netted Dragon					1					
	<i>Ctenophorus salinarum</i>	Saltpan Dragon				2		1				
	<i>Ctenophorus vadrappa</i>	Red-barred Dragon										
	<i>Moloch horridus</i>	Thorny Devil										
	<i>Pogona minor</i>	Dwarf Bearded Dragon	1		2				2	1	1	
	<i>Tympanocryptis cephalus</i>	Pebble Dragon										
Carphodactylidae	<i>Nephrurus vertebralis</i>	Midline Knob-tail					1		1			
	<i>Underwoodisaurus milii</i>	Barking Gecko										
Diplodactylidae	<i>Diplodactylus granariensis</i>	Wheat-belt Stone Gecko										
	<i>Diplodactylus pulcher</i>	Fine-faced Gecko										
	<i>Lucasium maini</i>	Main's Ground Gecko										
	<i>Lucasium squarrosum</i>	Mottled Ground Gecko	2	1	5	2	1					2

Family	Species	Survey Common Name	A									
			TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HB1
	<i>Strophurus assimilis</i>	Goldfields Spiny-tailed Gecko										
	<i>Strophurus ciliaris</i>	Spiny-tailed Gecko										
	<i>Strophurus elderi</i>	Jewelled Gecko		1					1	2		
	<i>Strophurus strophurus</i>	Western Spiny-tailed Gecko										
	<i>Strophurus wellingtonae</i>	Western Shield Spiny-tailed Gecko										
Elapidae	<i>Brachyurops fasciolata</i>	Narrow-banded Burrowing Snake										
	<i>Parasuta monachus</i>	Monk Snake										
	<i>Simoselaps bertholdi</i>	Jan's Banded Snake	1									
	<i>Suta fasciata</i>	Rosen's Snake										
Gekkonidae	<i>Gehyra variegata</i>	Tree Dtella										
	<i>Gehyra xenopus</i>	Crocodile-faced Dtella		1			1			1	1	
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko	1				2				2	3
	<i>Rhynchoedura ornata</i>	Western Beaked Gecko										
Pygopodidae	<i>Delma nasuta</i>	Sharp-snouted Delma									1	
	<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot									1	
Scincidae	<i>Cryptoblepharus buchanani</i>	Buchanan's Snake-eyed Skink										
	<i>Ctenotus calurus</i>	Blue-tailed Finesnout Ctenotus										
	<i>Ctenotus greeri</i>	Spotted-necked Ctenotus										
	<i>Ctenotus helenae</i>	Clay-soil Ctenotus		2					2	1		
	<i>Ctenotus leonhardii</i>	Leonhardi's Ctenotus	6	3	3	6	7				2	4
	<i>Ctenotus pantherinus</i>	Leopard Skink										
	<i>Ctenotus quattuordecimlineatus</i>	Fourteen-lined Ctenotus										

		Survey	A									
Family	Species	Common Name	TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HR1
	<i>Ctenotus schomburgkii</i>	Schomburgk's Ctenotus										
	<i>Ctenotus severus</i>	Stern Ctenotus										
	<i>Ctenotus uber</i>	Spotted Ctenotus										
	<i>Egernia depressa</i>	Pygmy Spiny-tailed Skink										
	<i>Egernia formosa</i>	Goldfields Crevice-skink										
	<i>Eremiascincus richardsonii</i>	Broad-banded Sand Swimmer										
	<i>Lerista desertorum</i>	Central Desert Robust Slider	4	1	1				1	2	1	
	<i>Lerista kingi</i>	King's Slider					1					
	<i>Lerista macropisthopus</i>	Unpatterned Robust Slider										
	<i>Lerista muelleri</i>	Wood Mulch-slider										
	<i>Lerista picturata</i>	Southern Robust Slider										
	<i>Lerista sp.</i>											
	<i>Liopholis inornata</i>	Desert Skink										
	<i>Liopholis striata</i>	Nocturnal Desert Skink										
	<i>Menetia greyii</i>	Common Dwarf Skink				1	1					
	<i>Morethia butleri</i>	Woodland Morethia Skink										
Typhlopidae	<i>Anilius hamatus</i>	Pale-headed Blind Snake					1				1	
	<i>Anilius waitii</i>	Waite's Blind Snake										
Varanidae	<i>Varanus caudolineatus</i>	Stripe-tailed Monitor			1							
	<i>Varanus giganteus</i>	Perentie										
	<i>Varanus gouldii</i>	Gould's Goanna					1		1			
	<i>Varanus panoptes</i>	Yellow-spotted Monitor										
	<i>Varanus tristis</i>	Black-headed Monitor										

		Survey	A										
Family	Species	Common Name	TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HR1	
Birds													
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu											
Phasianidae	<i>Coturnix pectoralis</i>	Stubble Quail											
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing											
	<i>Ocyphaps lophotes</i>	Crested Pigeon											
	<i>Geopelia cuneata</i>	Diamond Dove											
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth											
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar											
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar											
Otididae	<i>Ardeotis australis</i>	Australian Bustard											
Accipitridae	<i>Accipiter fasciatus</i>	Brown Goshawk											
	<i>Circus assimilis</i>	Spotted Harrier											
	<i>Aquila audax</i>	Wedge-tailed Eagle											
	<i>Hieraaetus morphnoides</i>	Little Eagle											
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel											
	<i>Falco berigora</i>	Brown Falcon											
	<i>Falco longipennis</i>	Australian Hobby											
Charadriidae	<i>Vanellus tricolor</i>	Banded Lapwing											
Turnicidae	<i>Turnix velox</i>	Little Button-quail											
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah											
	<i>Nymphicus hollandicus</i>	Cockatiel											
Psittacidae	<i>Barnardius zonarius</i>	Australian Ringneck											
	<i>Psephotus varius</i>	Mulga Parrot											

Family	Species	Survey Common Name	A									
			TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HB1
	<i>Melopsittacus undulatus</i>	Budgerigar										
	<i>Neopsephotus bourkii</i>	Bourke's Parrot										
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo										
	<i>Chalcites osculans</i>	Black-eared Cuckoo										
	<i>Cacomantis pallidus</i>	Pallid Cuckoo										
Halcyonidae	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher										
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater										
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper										
Maluridae	<i>Malurus leucopterus</i>	White-winged Fairy-wren										
Acanthizidae	<i>Pyrrholaemus brunneus</i>	Redthroat										
	<i>Smicrornis brevirostris</i>	Weebill										
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill										
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill										
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill										
	<i>Acanthiza apicalis</i>	Inland Thornbill										
	<i>Aphelocephala leucopsis</i>	Southern Whiteface										
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote										
Meliphagidae	<i>Certhionyx variegatus</i>	Pied Honeyeater										
	<i>Lichenostomus virescens</i>	Singing Honeyeater										
	<i>Lichenostomus plumulus</i>	Grey-fronted Honeyeater										
	<i>Purnella albifrons</i>	White-fronted Honeyeater										
	<i>Manorina flavigula</i>	Yellow-throated Miner										
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater										

Family	Species	Survey Common Name	A									
			TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HB1
	<i>Anthochaera carunculata</i>	Red Wattlebird										
	<i>Conopophila whitei</i>	Grey Honeyeater										
	<i>Epthianura tricolor</i>	Crimson Chat										
	<i>Epthianura aurifrons</i>	Orange Chat										
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey-crowned Babbler										
	<i>Pomatostomus superciliosus</i>	White-browed Babbler										
Psophodidae	<i>Cinclosoma castaneothorax</i>	Chestnut-breasted Quail-thrush										
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella										
Campephagidae	<i>Coracina maxima</i>	Ground Cuckoo-shrike										
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike										
	<i>Lalage sueurii</i>	White-winged Triller										
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler										
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush										
	<i>Oreoica gutturalis</i>	Crested Bellbird										
Artamidae	<i>Artamus personatus</i>	Masked Woodswallow										
	<i>Artamus superciliosus</i>	White-browed Woodswallow										
	<i>Artamus cinereus</i>	Black-faced Woodswallow										
	<i>Cracticus torquatus</i>	Grey Butcherbird										
	<i>Cracticus nigrogularis</i>	Pied Butcherbird										
	<i>Cracticus tibicen</i>	Australian Magpie										
	<i>Strepera versicolor</i>	Grey Currawong										
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail										
Corvidae	<i>Corvus bennetti</i>	Little Crow										

Family	Species	Survey Common Name	A									
			TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HB1
	<i>Corvus orru</i>	Torresian Crow										
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark										
Petroicidae	<i>Microeca fascians</i>	Jacky Winter										
	<i>Petroica goodenovii</i>	Red-capped Robin										
	<i>Melanodryas cucullata</i>	Hooded Robin										
Megaluridae	<i>Cincloramphus mathewsi</i>	Rufous Songlark										
	<i>Cincloramphus cruralis</i>	Brown Songlark										
Hirundinidae	<i>Cheramoeca leucosterna</i>	White-backed Swallow										
	<i>Petrochelidon ariel</i>	Fairy Martin										
Nectariniidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird										
Estrildidae	<i>Taeniopygia guttata</i>	Zebra Finch										
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit										
Mammals												
Bovidae	<i>Capra hircus</i>	Goat										
	<i>Ovis aries</i>	Sheep										
Camelidae	<i>Camelus dromedarius</i>	Dromedary										
	<i>Canis familiaris</i>	Dog										
	<i>Vulpes vulpes</i>	Red Fox										
Felidae	<i>Felis catus</i>	House Cat										
Molossidae	<i>Austronomus australis</i>	White-striped Free-tail Bat										
	<i>Ozimops planiceps</i>	Southern Free-tail Bat										
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat										
	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat										

Family	Species	Common Name	Survey		A									
			TM1	JS2	WM2	WS2	WM1	WS1	JS3	JS1	JS4	HB1		
	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat												
Dasyuridae	<i>Ningui ridei</i>	Wongai Ningui							1					
	<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart												
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart												
	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart												
Macropodidae	<i>Macropus fuliginosus</i>	Western Grey Kangaroo												
	<i>Osphranter robustus</i>	Euro												
	<i>Osphranter rufus</i>	Red Kangaroo												
Leporidae	<i>Oryctolagus cuniculus</i>	European Rabbit												
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna												
Muridae	<i>Mus musculus</i>	House Mouse												
	<i>Notomys alexis</i>	Spinifex Hopping Mouse							1					
	<i>Notomys mitchellii</i>	Mitchell's Hopping Mouse												
	<i>Pseudomys bolami</i>	Bolam's Mouse												
	<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse												

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

Appendix C.

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

Desktop Vertebrate Fauna Assessment
Expansion of the Solar Power Farm Project Area



C.1 DEFINITIONS OF SIGNIFICANT FAUNA UNDER THE WA BIODIVERSITY CONSERVATION ACT 2016

Threatened Extinct and Specially Protected fauna or flora¹ are species² which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such. The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016*. Categories of Threatened, Extinct and Specially Protected fauna and flora are:

T Threatened Species

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

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

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

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

CR Critically endangered species

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

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

¹ The definition of flora includes algae, fungi and lichens

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

EN Endangered species

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

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

VU Vulnerable species

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

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

Extinct Species

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

EX Extinct species

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

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

EW Extinct in the wild species

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

Currently there are no threatened fauna or threatened flora species listed as extinct in the 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.

