Fauna Assessment
(Level 1)

White Cliffs Yamarna Road Gas Pipeline Route

Gold Road Resources Limited

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Version 3

On behalf of:
Gold Road Resources Limited
C/- Botanica Consulting
PO Box 2027
BOULDER WA 6432
T: 08 9093 0024
F: 08 9093 1381

Prepared by:
Greg Harewood
Zoologist
PO Box 755
BUNBURY WA 6231
M: 0402 141 197
T/F: (08) 9725 0982
E: gharewood@iinet.net.au

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

Acronyms/Abbreviations:

BA: Birdlife Australia (Formerly RAOU, Birds Australia).

CALM: Department of Conservation and Land Management (now DPaW), WA Government.

CAMBA: China Australia Migratory Bird Agreement 1998.

DEC: Department of Environment and Conservation (now DPaW), WA Government.

DEH: Department of Environment and Heritage (now DoE), Australian Government.

DEP: Department of Environment Protection (now DER), WA Government.

DEWHA: Department of the Environment, Water, Heritage and the Arts (now DoE), Australian Government.

DER: Department of Environment Regulation (formerly DEC, DoE), WA Government.

DMP: Department of Mines and Petroleum (formerly DoIR), WA Government.

DoE: Department of Environment (now DER/DPaW), WA Government.

DoIR: Department of Industry and Resources (now DMP), WA Government.

DotE: Department of the Environment (formerly SEWPaC, DWEHA, DEH), Australian Government.

DPaW: Department of Parks and Wildlife (formerly DEC, CALM, DoE), WA Government.

EP Act: *Environmental Protection Act 1986*, WA Government.

EPA: Environmental Protection Authority, WA Government.

EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999,* Australian Government.

ha: Hectare (10,000 square metres).

IBRA: Interim Biogeographic Regionalisation for Australia.

IUCN: International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union.

JAMBA: Japan Australia Migratory Bird Agreement 1981.

km: Kilometre (1,000 metres).

OEPA: Office Environmental Protection Authority, WA Government.

RAOU: Royal Australia Ornithologist Union.

ROKAMBA: Republic of Korea-Australia Migratory Bird Agreement 2007.

SEWPaC: Department of Sustainability, Environment, Water, Population and Communities (now DotE, formerly DEH, DEWHA), Australian Government.

SRE: Short Range Endemic.

SSC: Species Survival Commission, International.

WA: Western Australia.

WAM: Western Australian Museum, WA Government.

WC Act: *Wildlife Conservation Act 1950*, WA Government.

SUMMARY

This report details the results of a Level 1 fauna assessment of a potential gas pipeline route referred to as "White Cliffs – Yamarna Road" being investigated as part of Gold Road Resources Limited's (GRRs) possible future gold project development in the "Yamarna Belt" tenement areas situated about 160km north-east of Laverton, Western Australia (Figure 1 & 2).

The White Cliffs – Yamarna Road pipeline route runs west of GRRs Gruyere Project area and links up with the Eastern Goldfields Gas Pipeline, which runs westwards from the existing Tropicana Gold Mine. The pipeline survey area has a width of 40m and extends from the Gruyere Project area at Yamarna Station and then west within the White Cliffs Yamarna Road reserve for a distance of about 157 km to Laverton. At this point two route options are being investigated. One extends to the south about 29 km while the other heads further west a distance of about 38 kms. In total the survey area covers approximately 1,255ha (Figure 2).

The assessment was undertaken for the purposes of delineating and characterising the fauna habitats and faunal assemblages present in the target area. The assessment has included a literature review and field reconnaissance surveys (14 August 2015 and 7 November 2015) carried out to comply with relevant EPA guidance statements.

Previous invertebrate surveys undertaken within the Yamarna area indicate that potential SREs occur in the habitats present in some areas through which the proposed White Cliffs – Yamarna Road gas pipeline passes through. Based on available information it is however concluded that terrestrial SRE invertebrates, if present, are unlikely to be significantly impacted on by installation and operation of a gas pipeline along the proposed route.

The small size of the impact footprint at any one point and the extensive habitat connectivity beyond the site, mean that there is a very low likelihood of any significant impact/change occurring to local invertebrate communities or to the conservation status of individual species given that populations will persist in adjoining unaffected locations.

Subterranean invertebrate fauna (stygofauna and troglofauna) have not been considered as part of this review as no subsurface impacts are considered likely.

A list of expected vertebrate fauna species likely to occur in the survey area was compiled from information obtained during the desktop survey and is presented in Appendix B. Observations made during the field survey and the results of some previous fauna surveys carried out in the general area are summarised in this species listing as are the DPaW NatureMap database search results.

With respect to native vertebrate fauna, 29 mammals (including eight bat species), 103 bird, 107 reptile and nine frog species have previously been recorded in the general area, some of which have the potential to occur in or utilise at times, the survey area.

The broad scale terrestrial fauna habitats within the survey area presented below are based primarily on landforms identified by Botanica (2015) with further often subtle subdivisions possible using vegetation structure. The extent of the identified broad scale fauna habitats within the survey area are shown in Figures 3a to 3i with a summary description of each given below.

- Sandplains - *Acacia* Forests and Woodlands, Eucalypt Woodlands, Eucalypt Woodlands/Mallee Woodlands and Shrubland, Mallee Woodlands and Shrublands/*Acacia* Forests and Woodlands, Mallee Woodlands and Shrublands or Regrowth, modified native vegetation
  Total Area = 460 ha (~37.6%).

- Sand Dunes - Eucalypt Woodlands/Mallee Woodlands and Shrublands
  Total Area = 1.0 ha (~0.1%).

- Quartz/Rocky Plains - *Acacia* Forests and Woodlands, *Acacia* Open Woodlands, *Casuarina* Forests and Woodlands or Eucalypt Woodlands, Mallee Woodlands and Shrublands.
  Total Area = 324.0 ha (~26.4%).

- Clay/Loam Plains - *Acacia* Forests and Woodlands, *Acacia* Open Woodlands, *Acacia* Open Woodlands, Mallee Woodlands or Shrublands/Acacia Forests and Woodlands.
  Total Area = 341.0 ha (~27.88%).

- Rocky Hill Slopes - *Acacia* Forests and Woodlands.
  Total Area = 72.0 ha (~5.9%)

- Breakaways - Casuarina Forests and Woodlands/Acacia Shrublands.
  Total Area = 8.0 ha (~0.7%).

- Drainage Depressions - *Acacia* Open Woodlands or Mallee Woodlands and Shrublands/Acacia Forests and Woodlands.
  Total Area = 49.0 ha (~4.0%)

Opportunistic fauna observations are listed in Appendix B. A total of 48 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the survey area over the combined two day survey period. Observations of three introduced species using the survey area were also gathered.

A review of the *EPBC Act* threatened fauna list, DPAW's Threatened Fauna Database and Priority List, unpublished reports and scientific publications identified 27 specially protected, migratory or priority fauna species as having been previously recorded or as being potentially present in the general vicinity of the survey area.

Of these species, those that have no potential whatsoever to utilise the study area for any purpose have been omitted from the potential list for the site (Appendix B), principally due to available information suggesting the survey area is outside of their current documented range, lack of suitable habitat on-site (including extent and/or quality) or known local/regional extinction.

No vertebrate fauna species of conservation significance (listed under State or Federal threatened/migratory species lists or as a DPaW priority species) was positively identified as utilising the study area during the survey period. The current status on site and/or in the general area of those species of conservation significance considered likely to occur is difficult to determine, however, based on the habitats present and, in some cases, recent nearby records, eight species can be regarded as possibly utilising the survey area for some purpose at times, these being:

- **Buff-snouted Blind Snake *Anilios margaretae* – P2 (DPaW Priority Species)**
  The status of this species in the survey area is difficult to determine. Given the presence of suitable habitat (i.e. sand dunes and sand plains) its presence cannot be discounted despite not being recorded during previously fauna surveys in the general area (ecologia 2009, KLA 2012, KEC 2014 and Rapallo 2015). While there are limited records for this species, it appears to have a wide distribution across the Great Victoria Desert. The lack of records could be attributed to the areas remoteness and the secretive habits of blind snakes.

  Extent of potential habitat within the survey area: Sand plains and sand dunes (461 ha - ~37.6% of total area).

- **Malleefowl *Leipoa ocellata* – S3 (*WC Act*), Vulnerable (*EPBC Act*)**
  No evidence of this species was observed during the survey period. Habitat for breeding (i.e. nest mound construction) appears unsuitable or at best marginal along the entire pipeline route primarily due to the generally sparse nature of the vegetation and/or a lack of leaf litter.

  Individual malleefowl have very occasionally been observed in the general vicinity of Yamarna (pers. comms. “Driller” and TOs) but no recent active or inactive mounds have ever been recorded despite several fauna and flora surveys over significant areas of land associated with the proposed mining operations. This would suggest that the habitats present are unsuitable for breeding and that the observations made are of transient individuals. Malleefowl and malleefowl mounds have been recorded at Tropicana and at the eastern end of Tropicana to Sunrise Dam pipeline route (KEC 2014).

  For these reasons malleefowl have been listed as a potential species due to the possibility for occasional transient individuals to occur, though they are considered unlikely to breed within the pipeline route itself.

  Extent of potential habitat within the survey area: Vegetated breakaways, rocky hillslopes, clay loam plains, drainage depressions and quartz rocky plains (794 ha - ~64.8% of total area). Most habitat does however appear marginal in quality at best.

- **Peregrine Falcon *Falco peregrinus* – S7 (*WC Act*)**
  Previously recorded at Tropicana (ecologia 2009). The species potentially utilises some sections of the survey area as part of a much larger home range for foraging

purposes only. Would only be represented by a very small number of individuals for limited periods.

Extent of potential habitat within the survey area: Foraging habitat - sand plains, sand dunes, breakaways, clay loam plains, rocky hillslopes, drainage depressions and quartz rocky plains (1,255 ha – 100% of total area). Breeding habitat - Large trees with open spouts suitable for nesting or abandoned bird of prey nests – total number unknown, but none observed during field survey.

- **Princess Parrot *Polytelis alexandrae* – Vulnerable (*EPBC Act*), P4 (DPaW Priority Species)**
  The species may frequent the survey area at times, but given it is highly nomadic, its frequency of occurrence would be very low and generally temporary. Areas containing *Euclayptus gongylocarpa* woodland are of most significance as they have the potential to contain larger trees with hollows that may represent potential breeding habitat.

  Extent of potential habitat within the survey area: Foraging habitat - sand plains, sand dunes, breakaways, clay loam plains, rocky hillslopes, drainage depressions and quartz rocky plains (1,255 ha – 100% of total area). Breeding habitat - Large trees with hollows suitable for nesting – total number unknown, though a small number of potential hollows observed during field survey.

- **Rainbow Bee-eater *Merops ornatus* – Migratory (*EPBC Act*), S5 (*WC Act*)**
  Common seasonal visitor to southern half of WA. Likely to use the survey area on occasions though it would not be specifically attracted to the site. Some potential for the species to breed in some sections of the survey area where ground conditions are suitable. Population levels would however not be significant as it usually breeds in pairs and rarely in small colonies (Johnstone and Storr, 1998).

  Extent of potential habitat within the survey area: Foraging habitat – vegetated sand plains, sand dunes, rocky hillslopes, breakaways, clay loam plains, drainage depressions, closed depressions and quartz rocky plains (1, 255 ha – 100% of total area). Breeding habitat - sand plains and sand dunes (461 ha - ~37.6% of total area).

- **Striated Grasswren (sand plain) *Amytornis striatus striatus* - P4 (DPaW Priority Species)**
  Not observed during the field survey however this species was recorded at several locations along the Tropicana to Sunrise Dam pipeline route (KEC 2014) and it is therefore could occur in suitable habitat within the pipeline route, mainly in the central/eastern sections.

  Extent of potential habitat within the survey area: Sand plains, sand dunes and clay/loam plains (802 ha – 65.4% of total area).

- **Brush-tailed Mulgara *Dasycercus blythi* - P4 (DPaW Priority Species)**
  There is a paucity of records of this species in the area and no evidence of its presence was observed during the field survey. The current status in the survey area is therefore difficult to determine. The most recent nearby records are just south west of Yamarna from 1990 (DPaW 2015) and it was also recorded at several locations along the Tropicana to Sunrise Dam pipeline route (KEC 2014). This information coupled with the fact that habitat in some sections of the survey area appears suitable (e.g. sand plains, sand ridges, Acacia shrubland on loamy sand) suggests that the species may be present in some areas.

  Extent of potential habitat within the survey area: Sand plains, sand dunes and clay/loam plains (802 ha – 65.4% of total area).

- **Long-tailed Dunnart *Sminthopsis longicaudata* – P4 (DPaW Priority Species)**
  Recorded during the "Granny Deeps" fauna survey in 2011 (TE 2011) which lies in close proximity to the pipeline route near Laverton. May therefore occur in suitable habitat, most likely in western sections of the pipeline route.

  Extent of potential habitat within the survey area: Breakaways, rocky hillslopes and quartz/rocky plains (404 ha – 33.0 % of total area).

It should be recognised that habitat onsite for some of the species listed above, while considered possibly suitable, may be marginal in extent/quality and species listed above may therefore only visit the area for short periods or as rare/uncommon vagrants.

Additional details on these species and others along with reasons for the omission of some from the potential listing are provided in Table 3 and Appendix D.

No actual evidence of any of the abovementioned species utilising the area surveyed was collected during the survey period and therefore their current status within the proposed pipeline route is difficult to determine at this stage. The effect of the construction and operation of a gas pipeline along the proposed route will have on fauna species present will vary depending on their distribution/abundance within and adjacent to the areas subject to development.

However, given the relatively narrow and linear nature of the pipeline route and the presence of large areas of similar habitat in adjoining areas, impacts on fauna and fauna habitat at anyone point are anticipated to be small/negligible and therefore manageable.

The following proposed management recommendations are considered most important and while likely to form part of existing procedures and protocols should be made a priority primarily during pipeline installation. These recommendations are not necessarily exhaustive and others may need consideration after consultation with relevant regularity authorities.

It is recommended that:

- Planning for development should aim to minimise as much as reasonable and practical the area of remnant vegetation requiring removal. Existing cleared areas/tracks should be used in preference to clearing additional areas.

- The need to remove large hollow bearing trees along the pipeline route should be avoided where possible.

- During site works, areas requiring clearing should be clearly marked and access to other areas restricted to prevent accidental clearing of areas to be retained. Unauthorised off-track driving and parking should be prohibited.

- The extent and duration of open trenching required for pipeline installation should be kept to a minimum.

- If practicable suitable escape ramps (45° batter), bridging and in trench fauna shelters should be considered for installation, in particular if the site is to be left unattended for extended periods.

- Open trenches should be inspected daily by experienced/authorised personnel for fauna typically no later than three hours after sunrise and again in the afternoon no earlier than four hours before sunset. Other inspections should be carried out as required (e.g. immediately prior to filling or final pipeline lowering). Timing of inspections should be constantly reviewed based on factors such as number and type of animals being encountered, site location and seasonal weather conditions.

1. INTRODUCTION

This report details the results of a Level 1 fauna assessment of a potential gas pipeline route referred to as "White Cliffs – Yamarna Road" being investigated as part of Gold Road Resources Limited's (GRRs) possible future gold project development in the "Yamarna Belt" tenement areas situated about 160km north-east of Laverton, Western Australia (Figure 1 & 2).

The White Cliffs – Yamarna Road pipeline route runs west of GRRs Gruyere Project area and links up with the Eastern Goldfields Gas Pipeline, which runs westwards from the existing Tropicana Gold Mine. The pipeline survey area has a width of 40m and extends from the Gruyere Project area at Yamarna Station and then west within the White Cliffs Yamarna Road reserve for a distance of about 157 km to Laverton. At this point two route options are being investigated. One extends to the south about 29 km while the other heads further west a distance of about 38 kms. In total the survey area covers approximately 1,255ha (Figure 2).

Information obtained as part of this fauna assessment report will be used in conjunction with other environmental investigations to guide project planning. It is anticipated that the information presented will also be used by regulatory authorities to assess the potential impact of the proposal on fauna and fauna habitats at the site during the project evaluation and approval process.

2. SCOPE OF WORKS

The scope of works was to carry out a fauna assessment which complies with the requirements of a Level 1 terrestrial fauna survey as defined in EPA Guidance Statement 56 (EPA 2004), this being:

- Background research or 'desktop' survey

  The purpose is to gather background information on the target area (usually at the locality scale). This involves a search of all sources for literature, data and map-based information.

- Reconnaissance survey

  The purposes are:

  i) to verify the accuracy of the background survey;

  ii) to further delineate and characterise the fauna and faunal assemblages present in the target area; and

  iii) to identify potential impacts.

The reconnaissance survey involves a site visit by suitably qualified personnel to undertake selective, low intensity sampling of the fauna and faunal assemblages, and to provide habitat descriptions and habitat maps of the project area (EPA 2004).

3. RELEVANT LEGISLATION

In Western Australia, all fauna are protected by legislation as defined under three government acts:

- *Wildlife Conservation Act (1950)* (WA) (*WC Act*);
- *Environmental Protection Act (1986)* (WA) (EP Act); and
- *Environment Protection and Biodiversity Conservation Act (1999)* (Commonwealth) (*EPBC Act*).

The *Wildlife Conservation Act 1950* provides protection for all native fauna species, and is administered by DPaW. Special provision is provided for fauna that are considered rare, threatened with extinction or of high conservation value.

It should be noted that the *Wildlife Conservation Act (1950)* is soon to be repealed and replaced by the *Biodiversity Conservation Bill (2015)* currently before Parliament.

The *Environmental Protection Act (1986)* is administered by the Environmental Protection Authority (EPA) and includes guidelines for reviewing the aspects of proposals that might significantly impact environmental factors. Any operation that has the potential to significantly impact on fauna habitat of potential conservation significance may be subject to formal Environmental Impact Assessment (EIA) under the *EP Act*.

The *Environment Protection and Biodiversity Conservation Act (1999)* is administered by the Commonwealth Department of the Environment, to regulate protection of matters of national environmental significance. Any action (including projects, developments, undertakings, activity or series of activities) that is likely to have a significant impact on any matter included in Part 3 of the Act, must be referred to the Minister for decisions on whether the proposed action triggers the *EPBC Act* and requires assessment and approval under the Act.

Formal environmental impact assessment (EIA) under the *Environmental Protection Act 1986* is therefore likely to be required if a proposal may cause significant change to a habitat containing fauna of conservation significance.

4. METHODS

4.1 POTENTIAL VERTEBRATE FAUNA INVENTORY - DESKTOP SURVEY

4.1.1 Database Searches

Searches of the following databases were undertaken to compile a list of vertebrate fauna potentially occurring within the survey area:

- Department of Parks and Wildlife's (DPaW's) NatureMap Database (combined data from DPAW, Western Australian Museum and Birds Australia) (DPAW 2015b); and
- Protected matters search tool (Department of the Environment - DotE 2015).

It should be noted that these lists are based on observations from a broader area than the survey site and therefore may include species that would only ever occur as vagrants in the actual survey area due to a lack of suitable habitat or the presence of only marginal habitat. The databases also often included very old records and in some cases the species in question have become locally or regionally extinct.

Information from these sources should therefore be taken as indicative only and local knowledge and information needs also to be taken into consideration when determining what actual species may be present within the specific area being investigated.

4.1.2 Previous Fauna Surveys in the Area

Fauna surveys, assessments and reviews have been undertaken in nearby areas in the past, though not all are publically available and could not be referenced. The most significant of those available have been used as the primary reference material for compiling the potential fauna assemblage for the general area. Those reports referred to included, but were not limited to:

- ecologia (2009a). Tropicana Gold Project. Operational Area Vertebrate Fauna Assessment. Unpublished report for Tropicana Joint Venture. February 2009.
- ecologia (2009b). Tropicana Gold Project. Tropicana-Transline Infrastructure Corridor, Level 1 Fauna Assessment. Unpublished report for Tropicana Joint Venture. July 2009.

- Hall, N. J., McKenzie, N. L. and Keighery, G. J. (eds) (1994). The Biological Survey of the Eastern Goldfields of WA - Pt 10: Sandstone-Sir Samuel and Laverton-Leonora Survey Areas. Records of the WAM, Supplement 47: 1 – 166.

- Harewood, G. (2011). Terrestrial Fauna Survey (Level 1) of Yamarna Gold Project (Central Bore, Attila, Alaric, Haul Road and Khan North). Unpublished report for Gold Road Resources. September 2011.

- Harewood G. (2014). Fauna Assessment (Level 1) Gruyere Project. Unpublished report for Gold Road Resources Ltd. July 2014.

- Kingfisher Environmental Consulting (2014a). Murrin Murrin – Sunrise Dam Infrastructure Corridor Level 1 Fauna Survey. Unpublished report for AngloGold.

- Kingfisher Environmental Consulting (2014b). Sunrise Dam – Tropicana Infrastructure Corridor Level 1 Fauna Survey. Unpublished report for AngloGold.

- Keith Linbeck and Associates (2012). Fauna Assessment (Level 2) Yamarna Project. Unpublished report for Gold Road Resources. October 2012.

- Martnick and Associates Pty Ltd (1996). Environmental Appraisal – Yamarna Gold Project Area. Unpublished report for Zanex NL. January 1996.

- MBS Environmental (2014). Gruyere Project - Desktop Environmental Review and Work Program. Unpublished report for Gold Road Resources. February 2014.

- Ninox Wildlife Consulting (2009). A Level One Survey of the Vertebrate Fauna, Infrastructure Corridor – Pinjin Option. L 31/57, L 39/185, Pinjin – Tropicana Gold Project. Unpublished report for Tropicana Joint Venture. January 2009.

- Rapallo Environmental (2015). Fauna Survey of the Gruyere Project Area. Unpublished report for Gold Road Resources Limited. May 2015.

- Terrestrial Ecosystems (2011). Level 2 Fauna Risk Assessment for the Granny Deeps Project Area. Unpublished report. February 2011.

Some of the abovementioned reports refer to fauna surveys carried a considerable distance from the survey area currently being assessed and therefore, as with the databases searches, some refer to species that would not occur in the survey area due it being out of their normal range or due to a lack of suitable habitat (extent

and/or quality) and this fact was taken into consideration when compiling the potential fauna species list for the survey area. It should also be noted that the NatureMap database is likely to include some records from previous fauna surveys in the area including some of those listed above.

4.1.3 Existing Publications

The following represent the main publications used to identify and refine the potential fauna species list for the survey area:

- Anstis, M. (2013). Tadpoles and Frogs of Australia. New Holland Publishers, Sydney.
- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). The New Atlas of Australian Birds. Royal Australasian Ornithologists Union, Victoria.
- Churchill, S. (2008). Australian Bats. Second Edition, Allen & Unwin.
- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth Western Australia.
- Johnstone, R.E. and Storr, G.M. (2004). Handbook of Western Australian Birds: Volume 2 – Passerines (Blue-winged Pitta to Goldfinch). Western Australian Museum, Perth Western Australia.
- Menkhorst, P. and Knight, F. (2011). A Field Guide to the Mammals of Australia. Third Edition, Oxford University Press, Melbourne.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1983). Lizards of Western Australia II: Dragons and Monitors. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1990). Lizards of Western Australia III: Geckos and Pygopods. WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (1999). Lizards of Western Australia I: Skinks. Revised Edition, WA Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone R.E. (2002). Snakes of Western Australia. Revised Edition, WA Museum, Perth.
- Thompson, S. & Thompson, G. (2006). Reptiles of the Western Australian Goldfields. Published by the Goldfields Environmental Management Group.
- Tyler M.J. & Doughty P. (2009). Field Guide to Frogs of Western Australia, Fourth Edition, WA Museum, Perth.

- Van Dyck, S., Gynther, I. & Baker, A. Eds (2013). Field Companion to The Mammals of Australia. Queensland Museum.

- Wilson, S. and Swan, G. (2013). A Complete Guide to Reptiles of Australia. Third Edition, Reed, New Holland, Sydney.

4.1.4 Fauna of Conservation Significance

The conservation significance of fauna species has been assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*). Administered by the Australian Government Department of the Environment (DotE);

- *Wildlife Conservation Act 1950 (WC Act).* Administered by the Western Australian Department of Parks and Wildlife (DPaW) (Govt. of WA 2014);

- Red List produced by the Species Survival Commission (SSC) of the World Conservation Union (also known as the IUCN Red List - the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria; and the

- DPaW Priority Fauna list. A non-legislative list maintained by DPaW for management purposes (DPaW 2015a).

The *EPBC Act* also requires the compilation of a list of migratory species that are recognised under international treaties including the:

- Japan Australia Migratory Bird Agreement 1981 (JAMBA);

- China Australia Migratory Bird Agreement 1998 (CAMBA);

- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA); and

- Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).

(Note - Species listed under JAMBA are also protected under Schedule 3 of the *WC Act*.)

All migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as matters of national environmental significance (NES) under the *EPBC Act*.

The conservation status of all vertebrate fauna species listed as occurring or possibly occurring in the vicinity of the Project area has been assessed using the most recent lists published in accordance with the above-mentioned instruments

and is indicated as such in the fauna listings of this report. A full listing of conservation codes is provided in Appendix A.

4.1.5 Likelihood of Occurrence – Vertebrate Fauna of Conservation Significance

For vertebrate fauna of conservation significance identified during the literature review as previously being recorded in the general area, each was assessed and ranked for their likelihood of occurrence within the survey area itself. The rankings and criteria used were:

- Unlikely to Occur: Survey area is outside of the currently documented distribution for the species in question or the species is generally accepted as being locally/regionally extinct (supported by a lack of recent records), or no suitable habitat (type, quality and extent) was identified as being likely to be present during the field survey and literature review. Individuals of some species may occur occasionally as vagrants/transients especially if suitable habitat is located nearby but the survey area itself would not support a population or part population of the species.
    - Locally Extinct: Populations no longer occur within a small part of the species natural range, in this case within 10 or 20km of the survey area. Populations do however persist outside of this area.
    - Regionally Extinct: Populations no longer occur in a large part of the species natural range, in this case within the Goldfields region, Populations do however persist outside of this area.
- Possibly Occurs: Survey area is within the known distribution of the species in question and habitat of at least marginal quality was identified as being likely to be present during the field survey and literature review, supported in some cases by recent records being documented in literature from within or near the survey area. In some cases, while a species may be classified as possibly being present at times, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.
- Known to Occur: The species in question was positively identified as being present (for sedentary species) or as using the survey area as habitat for some other purpose (for non-sedentary/mobile species) during the field survey. This information may have been obtained by direct observation of individuals or by way of secondary evidence (e.g. foraging debris, scats). In some cases, while a species may be classified as known to occur, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

4.1.6 Taxonomy and Nomenclature

Taxonomy and nomenclature for vertebrate fauna species used in this report is generally taken from the DPAW's WA Fauna Census Database which is assumed to follow Aplin and Smith (2001) for amphibians and reptiles and Johnstone (2001) for birds. Jackson and Groves (2015) has been used for mammals.

Common names are taken from the Western Australia Museum (WAM) recognised primary common name listings when specified, though where common names are not provided they have been acquired from other publications. Sources include Cogger (2014), Wilson and Swan (2013), Van Dyck *et al.* (2013), Christidis and Boles (2008), Bush *et al.* (2007), Bush *et al.* (2002), Tyler *et al.* (2000) and Glauret (1961). Not all common names are generally accepted.

4.2 INVERTEBRATE FAUNA OF CONSERVATION SIGNIFICANCE

It can be difficult to identify what may be significant invertebrate species (e.g. Short Range Endemics - SREs) as there are uncertainties in determining the range-restrictions of many species due to lack of surveys, lack of taxonomic resolutions within target taxa and problems in identifying certain life stages. Where invertebrates are collected during surveys, a high percentage are likely to be unknown, or for known species there can be limited knowledge or information on their distribution (Harvey 2002).

The review of potential terrestrial invertebrate species of conservation significance has included a search of the DPaW NatureMap database (DPaW 2015b) and the DotE protected matters database (DotE 2015) with the aim of identifying previously recorded threatened and endemic species.

These sources do however have limitations and therefore the results and conclusions of several terrestrial short range endemic studies carried out previously within GRRs Yamarna tenements/Project areas have also been used as a reference in determining the likelihood of SRE species being found within the pipeline survey area itself. The reports have included:

- Burger, M., Castalanelli, M.A and Harvey M.S. (2012). Arachnids from Yamarna, 140 km East of Laverton, Western Australia. Report to Keith Lindbeck and Associates 8 May 2012. Western Australian Museum.

- Phoenix Environmental Sciences (2014). Identification and assessment of short-range endemism of trapdoor spiders from Yamana [sic] Station, Western Australia. Unpublished report prepared for Botanica Consulting.

- Phoenix Environmental Sciences (2015a). Identification and assessment of short-range endemism of invertebrates from Yamarna Station, Western Australia. Unpublished report prepared for Rapallo Ltd.

- Phoenix Environmental Sciences (2015b). Identification and assessment of short-range endemism of trapdoor spiders from Gruyere Project (Yamarna Station), Western Australia. Unpublished report prepared for Greg Harewood (on behalf of GRRs).

- Volschenk, E. (Scorpion ID) (2012). Yamarna Scorpion Identification Report. Unpublished report for Keith Linbeck and Associates.

- Volschenk, E. (Scorpion ID) (2015a). Taxonomic Report for Invertebrates Surveyed from Yamarna Station. Unpublished report prepared for Rapallo Ltd.

- Volschenk, E. (Scorpion ID) (2015b). Taxonomic and Short-Range Endemism Assessment of Invertebrates Surveyed from Yamarna Station (November 2015). Unpublished report prepared for Greg Harewood (on behalf of GRRs). November 2015.

Subterranean invertebrate fauna (stygofauna and troglofauna) have not been considered as part of this review as no subsurface impacts are considered likely.

4.3 SITE SURVEYS

The survey area was assessed on the 14 August 2015 and on the 7 November 2015. All survey work was carried out by Greg Harewood (B.Sc. Zoology) with some assistance from staff of Botanica Consulting (Daisy Williams and Mat Newlands).

4.3.1 Habitat Assessment

Landforms and vegetation units identified during the flora and vegetation survey, carried out by Botanica Consulting (2015) have been used to define broad fauna habitat types across the site. This information has been supplemented with observations made during the site survey.

The main aim of the habitat assessment was to determine if it was likely that any species of conservation significance would be utilising the areas that maybe impacted as a consequence of the proposal proceeding. The habitat information obtained was also used to aid in finalising the overall potential fauna list.

As part of the literature review, available information on the habitat requirements of the species of conservation significance listed as possibly occurring in the area was researched. During the field survey the habitats within the survey area were assessed and specific elements identified, if present, to determine the likelihood of listed threatened species utilising the area and its significance to them.

4.3.2 Opportunistic Fauna Observations

Opportunistic observations of fauna species were made during the field survey work which involved a series of transects across/along the defined survey area while searching microhabitats such as logs, rocks, leaf litter and observations of bird species with binoculars. Secondary evidence of a species presence such as tracks, scats, skeletal remains, foraging evidence or calls were also noted if observed/heard.

5. SURVEY CONSTRAINTS

The conclusions presented are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of the field assessments. Also it should be recognised that site conditions can change with time. No seasonal sampling has been carried out as part of this fauna assessment.

Some fauna species are reported as potentially occurring within the survey area based on there being suitable habitat (quality and extent) within the survey area or immediately adjacent.

The habitat/microhabitat requirements and ecology of many of the species known to occur in the wider area are often not well understood or documented. It can therefore be difficult to exclude species from the potential list based on a lack of a specific habitat or microhabitat within the survey area. As a consequence of this limitation the potential fauna list produced is most likely an overestimation of those species that actually utilise the survey area for some purpose. Some species may be present in the general area but may only use the survey area itself on rare occasions or as vagrants.

In recognition of survey limitations, a precautionary approach has been adopted for this assessment. Any vertebrate fauna species that would possibly occur within the survey area (or immediately adjacent), as identified through ecological databases, publications, discussions with local experts/residents and the habitat knowledge of the Author, has been assumed to potentially occur in the survey area.

With respect to invertebrates there is limited data (in particular previous survey results) available due to the fact that the number of targeted surveys is limited or non-existent. If surveys have in fact been undertaken the results are often not publically available. This makes determining if SREs are actually present in the general area difficult.

6. RESULTS

6.1 POTENTIAL VERTEBRATE FAUNA INVENTORY

A list of expected vertebrate fauna species likely to occur in the survey area was compiled from information obtained during the desktop survey and is presented in Appendix B. Observations made during the field survey and the results of some previous fauna surveys carried out in the general area are summarised in this species listing as are the DPaW NatureMap database search results. The raw database search results from NatureMap (DPaW 2015b) and the Protected Matters Search Tool (DotE 2015) are contained within Appendix C.

6.2 INVERTEBRATE FAUNA OF CONSERVATION SIGNIFICANCE

The NatureMap database search of the survey area returned 78 invertebrate species records (DPaW 2015b). The records include a single Priority 1 species of fairy shrimp (*Branchinella simplex)* and four "endemic" species (i.e. there are no other DPaW records of these species outside of the database search area), these being two species of fairy shrimp (*Parartemia bicorna* and *Parartemia laticaudata)* and two spiders of the order Araneae *(Tamopsis piankai* and *Wandella stuartensis).* No evidence was found during the literature research to indicate that any of these "endemic" species are or would represent SRE species.

A search of the federal *EPBC Act* database using the Protected Matters Search Tool (DotE 2015) returned no reference to invertebrates.

A search of the WAM databases for invertebrates was undertaken by MBS as part of their initial desktop review for the Gruyere Project (MBS 2014) which is situated at the eastern end of the White Cliffs - Yamarna pipeline route. The database search was based on a 20 km area and buffer respectively around a central coordinate, (-27.98669 S and 123.85007 E). The search results were limited to one potential SRE species being reported, a scorpion (*Urodacus* sp. 'Point Sunday') which was recovered from a borrow pit on Point Sunday Road in July 2007, approximately 11 km north of the central coordinate. The individual record was a new and previously undescribed species.

During the Level 2 Fauna survey carried out at Yamarna in 2011 and 2012 (KLA 2012), 54 individual invertebrates were collected and passed onto specialists at the WAM. The assemblage comprised species from *Arachnida* and *Gastropoda*. Within the Arachnida, 10 species totalling 41 individuals representing six families within *Araneae, Psuedoscorpiones and Scorpiones* were identified. *Gastropoda* was represented by one Family and two species totalling 13 individuals.

Given the lack of taxonomic knowledge and reference collections, the results from the WAM were often inconclusive depending on the families or genera. Of the invertebrates identified, results indicated that seven species were not SREs or

unlikely to be SREs, for three it was, at the time, not possible to say if the species represent an SRE and the remaining two required further taxonomic research in order to determine or confirm their SRE status. This highlights the lack of knowledge currently available in relation to the conservation status of many invertebrate species. It was concluded that not one specimen collected from the area was known to be a SRE (KLA 2012).

KLA (2012) also stated that in terms of potential SRE invertebrate habitat, while there are no mountainous terrains and no free-standing areas of water within the tenements, the Yamarna area does support some breakaway areas and creeklines that may be considered SRE potential habitat but that these areas were limited in extent.

Two myglamorph spiders were collected within the Gruyere Project area during a Level 1 fauna survey carried out in May 2014 (Harewood 2014) and submitted to specialists for identification. The specimens included a male "trapdoor spider" identified as the widespread *Aganippe* 'MYG159' (family Idiopidae) and an unidentified juvenile spider belong to the family Theraphosidae (Australian tarantulas). Neither specimens were deemed to be SREs or potential SREs given their known or likely large distributions (Phoenix 2014).

During a Level 2 Fauna Survey within the Gruyere Project area in late 2014 (Rapallo 2015) a total of 37 invertebrate specimens were collected. These comprised eight spiders, 25 scorpions, and two pseudoscorpions.

Taxonomic identifications (Phoenix 2015 and Volschenk 2015) revealed that the specimens contained six potential SRE species, comprising three species of Mygalomorph spider, and three species of scorpion. The pseudoscorpions were identified as being unlikely to represent SREs.

More recently, a targeted invertebrate survey has been completed within the Gruyere Project area between August and October 2015 (Harewood 2015). The survey included the deployment of 120 wet pit traps left in place for about two months and the collection and examination of 12 leaf litter samples. The survey yielded 249 specimens of SRE target groups (scorpions (59), isopods (59), pseudoscorpions (61), Mygalomorph spiders (10) and centipedes (60)).

The Mygalomorph spiders were identified as including four potential SREs and a widespread species (Phoenix 2015b). However, until material at the WA Museum (which is currently closed due to a major re-organisation of specimen storage) is available for comparative analysis, it will remain unclear if some of the specimens collected are conspecific with those previously collected in the area by KLA (2012) or Rapallo (2015) (i.e. if *Synothele* 'gruyere' is conspecific with *Synothele* sp. indet. (as reported in Burger et al. 2012) and if any of the Aname species is conspecific with Aname 'MYG250' (as reported in Burger et al. 2012) or *Aname* 'yamarna' (as reported in Phoenix 2015a)).

Other specimens collected included five species of scorpions, three species of pseudoscorpions, four species of scolopendromorph centipedes, one species of stone centipede and one species of earth centipede. Of these 14 species, two scorpions (*Lychas* 'annulatus complex' and *Urodacu*s sp. indet), and the earth centipede (*Mecistocephalus* sp. indet.) were determined to be potential SRE's. The remaining 11 species were considered to have widespread ranges (Volschenk 2015b) and therefore not SREs.

The isopod specimens collected were determined to represent a single species that is considered to be a potential SRE primarily because there are knowledge gaps for the taxon and insufficient geographic information to determine its full distribution (Judd 2015).

To date no confirmed terrestrial SREs have been identified within the Yamarna area.

The results of the abovementioned surveys indicate that potential SREs occur in the habitats present in areas through which the proposed White Cliffs - Yamarna gas pipeline passes through. Based on available information it is however concluded that terrestrial SRE invertebrates (and other invertebrates of conservation significance), if present, are unlikely to be significantly impacted on by installation and operation of a gas pipeline along the proposed route. The small size of the impact footprint at any one point and the extensive habitat connectivity beyond the site, mean that there is a very low likelihood of any significant impact/change occurring to local invertebrate communities or to the conservation status of individual species as populations will persist in adjoining unaffected locations.

6.3 SITE SURVEYS

6.3.1 Habitat Assessment

The broad scale terrestrial fauna habitats within the survey area presented below are based primarily on landforms identified by Botanica (2015) with further often subtle subdivisions possible using vegetation structure. The extent of the identified broad scale fauna habitats within the survey area are shown in Figures 3a to 3i with a summary description of each given below. Additional information of the various vegetation units present within each landform can be found in the flora and vegetation report for the site (Botanica Consulting 2015).

Table 1: Main Terrestrial Fauna Habitats within the Survey Area.

No.	Fauna Habitat Description	Example Image
1	Breakaways *Casuarina* Forests and Woodlands/*Acacia* Shrublands Total Area = 8.0 ha (~0.7%)	
2	Clay-Loam Plains *Acacia* Forests and Woodlands, *Acacia* Open Woodlands, Acacia Open Woodlands, Mallee Woodlands or Shrublands/*Acacia* Forests and Woodlands. Total Area = 341.0 ha (~27.88%)	
3	Drainage Depressions *Acacia* Open Woodlands or Mallee Woodlands and Shrublands/*Acacia* Forests and Woodlands. Total Area = 49.0 ha (~4.0%)	
4	Quartz/Rocky Plains *Acacia* Forests and Woodlands, *Acacia* Open Woodlands, *Casuarina* Forests and Woodlands or Eucalypt Woodlands, Mallee Woodlands and Shrublands. Total Area = 324.0 ha (~26.4%)	

No.	Fauna Habitat Description	Example Image
5	Rocky Hill Slopes *Acacia* Forests and Woodlands. Total Area = 72.0 ha (~5.9%)	
6	Sandplains *Acacia* Forests and Woodlands, Eucalypt Woodlands, Eucalypt Woodlands/Mallee Woodlands and Shrubland, Mallee Woodlands and Shrublands/*Acacia* Forests and Woodlands, Mallee Woodlands and Shrublands or Regrowth, modified native vegetation Total Area = 460 ha (~37.6%)	
8	Sand Dunes Eucalypt Woodlands/Mallee Woodlands and Shrublands Total Area = 1.0 ha (~0.1%)	

6.3.2 Opportunistic Fauna Observations

Opportunistic fauna observations are listed in Appendix B. A total of 48 native fauna species were observed (or positively identified from foraging evidence, scats, tracks, skeletons or calls) within the survey area over the three day survey period. Evidence of three introduced species using the survey area was also gathered.

No evidence of any threatened, migratory or priority fauna species utilising the survey area was found.

It should be noted that all previous fauna surveys at Yamarna Station (through which the eastern end of the pipeline passes), also did not detect the presence of any threatened, migratory or priority fauna species (Harewood 2011 & 2014, KLA

2012 and Rapallo 2015), the exception being the Australian bustard formerly a Priority 4 species which has now been delisted (DPaW 2015a).

6.4 FAUNA INVENTORY – SUMMARY

6.4.1 Vertebrate Fauna

Table 2 summarises the numbers of potential species based on vertebrate class considered likely to be present in the general vicinity of the survey area based on the complete list held Appendix B.

Not all species listed in existing databases and publications as potentially occurring within the region (i.e. *EPBC Act's* Threatened Fauna and Migratory species lists, DPAW's NatureMap Fauna Database and various publications) are considered likely to be present within the survey area. The list of potential fauna takes into consideration that firstly the species in question is not known to be locally/regionally extinct and secondly that suitable habitat for each species, as identified during the habitat assessment, is present within the survey area, though compiling an accurate list has limitations (see Section 5 above).

Table 2: Summary of Potential Vertebrate Fauna Species (as listed in Appendix B)

Group	Total number of potential species	Potential number of specially protected species	Potential number of migratory species	Potential number of priority species	Number of species observed Level 1 Survey
Amphibians	9	0	0	0	0
Reptiles	107	0	0	1	4
Birds	103	2	1	2	40
Non-Volant Mammals	30[9]	0	0	2	6[3]
Volant Mammals (Bats)	8	0	0	0	1
Total	**257[9]**	**2**	**1**	**5**	**51[3]**

Superscript = number of introduced species included in the total.

Despite the omission of some species it should be noted that the list provided is still very likely an over estimation of the fauna species utilising the site (either on a regular or infrequent basis) as a result of the precautionary approach adopted for the assessment. At any one time only a subset of the listed potential species are likely to be present within the bounds of the study area.

6.4.2 Vertebrate Fauna of Conservation Significance

A review of the *EPBC Act* threatened fauna list, DPAW's Threatened Fauna Database and Priority List, unpublished reports and scientific publications identified 27 specially protected, migratory or priority fauna species as having been previously recorded or as being potentially present in the general vicinity of the survey area.

Of these species, those that have no potential whatsoever to utilise the study area for any purpose have been omitted from the potential list for the site (Appendix B), principally due to available information suggesting the survey area is outside of their current documented range, lack of suitable habitat on-site (including extent and/or quality) or known local/regional extinction.

No vertebrate fauna species of conservation significance (listed under State or Federal threatened/migratory species lists or as a DPaW priority species) was positively identified as utilising the study area during the survey period. The current status on site and/or in the general area of those species of conservation significance considered likely to occur is difficult to determine, however, based on the habitats present and, in some cases, recent nearby records, eight species can be regarded as possibly utilising the survey area for some purpose at times, these being:

- **Buff-snouted Blind Snake *Ramphotyphlops margaretae* – P2 (DPaW Priority Species)**
  The status of this species in the survey area is difficult to determine. Given the presence of suitable habitat (i.e. sand dunes and sand plains) its presence cannot be discounted despite not being recorded during previously fauna surveys in the general area (ecologia 2009, KLA 2012, KEC 2014 and Rapallo 2015). While there are limited records for this species, it appears to have a wide distribution across the Great Victoria Desert. The lack of records could be attributed to the areas remoteness and the secretive habits of blind snakes.

  Extent of potential habitat within the survey area: Sand plains and sand dunes (461 ha - ~37.6% of total area).

- **Malleefowl *Leipoa ocellata* – S1 (*WC Act*), Vulnerable (*EPBC Act*)**
  No evidence of this species was observed during the survey period. Habitat for breeding (i.e. nest mound construction) appears unsuitable or at best marginal along the entire pipeline route primarily due to the generally sparse nature of the vegetation and/or a lack of leaf litter.

  Individual malleefowl have very occasionally been observed in the general vicinity of Yamarna (pers. comms. "Driller" and TOs) but no recent active or inactive mounds have ever been recorded despite several fauna and flora surveys over significant areas of land associated with the proposed

mining operations. This would suggest that the habitats present are unsuitable for breeding and that the observations made are of transient individuals. Malleefowl and malleefowl mounds have been recorded at Tropicana and at the eastern end of Tropicana to Sunrise Dam pipeline route (KEC 2014).

For these reasons malleefowl have been listed as a potential species due to the possibility for occasional transient individuals to occur, though they are considered unlikely to breed within the pipeline route itself.

Extent of potential habitat within the survey area: Vegetated breakaways, rocky hillslopes, clay loam plains, drainage depressions and quartz rocky plains (794 ha - ~64.8% of total area). Most habitat does however appear marginal in quality at best.

- **Peregrine Falcon *Falco peregrinus* - S4 (*WC Act*)**
  Previously recorded at Tropicana (ecologia 2009). The species potentially utilises some sections of the survey area as part of a much larger home range for foraging purposes only. Would only be represented by a very small number of individuals for limited periods.

  Extent of potential habitat within the survey area: Foraging habitat - sand plains, sand dunes, breakaways, clay loam plains, rocky hillslopes, drainage depressions and quartz rocky plains (1,255 ha – 100% of total area). Breeding habitat - Large trees with open spouts suitable for nesting or abandoned bird of prey nests – total number unknown, but none observed during field survey.

- **Princess Parrot *Polytelis alexandrae* – Vulnerable (*EPBC Act*), P4 (DPaW Priority Species)**
  The species may frequent the survey area at times, but given it is highly nomadic, its frequency of occurrence would be very low and generally temporary. Areas containing *Euclayptus gongylocarpa* woodland are of most significance as they have the potential to contain larger trees with hollows that may represent potential breeding habitat.

  Extent of potential habitat within the survey area: Foraging habitat - sand plains, sand dunes, breakaways, clay loam plains, rocky hillslopes, drainage depressions and quartz rocky plains (1,255 ha – 100% of total area). Breeding habitat - Large trees with hollows suitable for nesting – total number unknown, though a small number of potential hollows observed during field survey.

- **Rainbow Bee-eater *Merops ornatus* – Migratory (*EPBC Act*), S3 (*WC Act*)**
  Common seasonal visitor to southern half of WA. Likely to use the survey area on occasions though it would not be specifically attracted to the site.

Some potential for the species to breed in some sections of the survey area where ground conditions are suitable. Population levels would however not be significant as it usually breeds in pairs and rarely in small colonies (Johnstone and Storr, 1998).

Extent of potential habitat within the survey area: Foraging habitat – vegetated sand plains, sand dunes, rocky hillslopes, breakaways, clay loam plains, drainage depressions, closed depressions and quartz rocky plains (1, 255 ha – 100% of total area). Breeding habitat - sand plains and sand dunes (461 ha - ~37.6% of total area).

- **Striated Grasswren (sand plain) *Amytornis striatus striatus* - P4 (DPaW Priority Species)**
  Not observed during the field survey however this species was recorded at several locations along the Tropicana to Sunrise Dam pipeline route (KEC 2014) and it is therefore could occur in suitable habitat within the pipeline route, mainly in the central/eastern sections.

  Extent of potential habitat within the survey area: Sand plains, sand dunes and clay/loam plains (802 ha – 65.4% of total area).

- **Brush-tailed Mulgara *Dasycercus blythi* - P4 (DPaW Priority Species)**
  There is a paucity of records of this species in the area and no evidence of its presence was observed during the field survey. The current status in the survey area is therefore difficult to determine. The most recent nearby records are just south west of Yamarna from 1990 (DPaW 2015) and it was also recorded at several locations along the Tropicana to Sunrise Dam pipeline route (KEC 2014). This information coupled with the fact that habitat in some sections of the survey area appears suitable (e.g. sand plains, sand ridges, Acacia shrubland on loamy sand) suggests that the species may be present in some areas.

  Extent of potential habitat within the survey area: Sand plains, sand dunes and clay/loam plains (802 ha – 65.4% of total area).

- **Long-tailed Dunnart *Sminthopsis longicaudata* – P4 (DPaW Priority Species)**
  Recorded during the “Granny Deeps” fauna survey in 2011 (TE 2011) which lies in close proximity to the pipeline route near Laverton. May therefore occur in suitable habitat, most likely in western sections of the pipeline route.

  Extent of potential habitat within the survey area: Breakaways, rocky hillslopes and quartz/rocky plains (404 ha – 33.0 % of total area).

It should be recognised that habitat within the survey area for some of the species listed above, while considered possibly suitable, may be marginal in extent/quality

and species listed may therefore only visit the area for short periods or as rare/uncommon vagrants.

Additional details on these species and others, along with reasons for the omission of some from the potential listing are provided in Table 3 below and in Appendix D.

Table 3: Likelihood of Occurrence – Vertebrate Fauna Species of Conservation Significance (continues on following pages)

Species	Conservation Status (see Appendix A for codes)			Potential Habitats Within Survey Area			Likelihood of Occurrence
	EPBC Act	WC Act	DPAW Priority	Foraging Habitat	Breeding Habitat	Total Extent (ha)	
Buff-snouted Blind Snake *Amilios margaretae*	-	-	P2	Sand plains and sand dunes		461 ha - ~37.6% of total area.	Possible
Great Desert Skink *Liopholis kintorei*	VU	S3	-	Sand plains and sand dunes		461 ha - ~37.6% of total area.	Unlikely. Outside current documented range/locally extinct?
Woma *Aspidites ramsayi*	-	-	P1	Sand plains and sand dunes		461 ha - ~37.6% of total area.	Unlikely. Outside current documented range/locally extinct?
Malleefowl *Leipoa ocellata*	VU	S3	-	Vegetated breakaways, rocky hill slopes, clay loam plains, drainage depressions, closed depressions and quartz rocky plains.	None	794 ha - ~64.8% of total area.	Possible transient individuals only. Breeding unlikely.
Great Egret *Ardea alba*	Mig	S5	-	Drainage depressions, (when inundated).	None	49 ha - ~4.0 % of total area.	Unlikely. Outside normal range.
Cattle Egret *Ardea ibis*	Mig	S5	-	Drainage depressions, (when inundated).	None	49 ha - ~4.0 % of total area.	Unlikely. Outside normal range.
Peregrine Falcon *Falco peregrinus*	-	S4	-	Sand plains, sand dunes, breakaways, rocky hillslopes, clay loam plains, drainage depressions and quartz rocky plains.	Large trees with open spouts suitable for nesting or abandoned bird of prey nests	1,255 ha – 100% of total area. No potential nest sites observed.	Possible.
Grey Falcon *Falco hypoleucos*	-	S4	-	Sand plains, sand dunes, breakaways, rocky hillslopes, clay loam plains, drainage depressions and quartz rocky plains.	None	577 ha – 100% of total area.	Unlikely. Outside normal range.
Migratory Shorebirds	Mig	S5	-	Drainage depressions, (when inundated).	None	49 ha - ~4.0 % of total area.	Unlikely. Habitat unsuitable/very marginal.

Species	Conservation Status (see Appendix A for codes)			Potential Habitats Within Survey Area			Likelihood of Occurrence
	EPBC Act	WC Act	DPAW Priority	Foraging Habitat	Breeding Habitat	Total Extent (ha)	
Oriental Plover *Charadis veredus*	Mig	S5	-	None	None	None	Unlikely Outside normal range.
Princess Parrot *Polytelis alexandrae*	VU	-	P4	Vegetated sand plains, sand dunes, breakaways, rocky hillslopes, clay loam plains, drainage depressions, and quartz rocky plains.	Large trees with hollows suitable for nesting.	1,255 ha – 100% of total area. Number of suitable tree hollows unknown.	Possible
Night Parrot *Pezoporus occidentalis*	CE	S1	-	Vegetated sand plains.		460 ha – 37.6 % of total area.	Unlikely. Outside current documented range/locally extinct?
Fork-tailed Swift *Apus pacificus*	Mig	S5	-	Air space over entre area.	None	1,255 ha – 100% of total area.	Unlikely.
Striated Grasswren (sandplain) *Amytornis striatus striatus*	-	-	P4	Sand plains, sand dunes and clay/loam plains		802 ha – 65.4% of total area.	Possible.
Thick-billed Grass-wren (western ssp) *Amytornis textilis textilis*	-	-	P4	Densely vegetated sand plains, sand dunes, breakaways, rocky hillslopes, clay loam plains, drainage depressions and quartz rocky plains.		1,255 ha – 100% of total area.	Unlikely. Outside current documented range/locally extinct?
Rainbow Bee-eater *Merops ornatus*	Mig	S5	-	Sand plains, sand dunes, breakaways, rocky hillslopes, clay loam plains, drainage depressions and quartz rocky plains.	Sand plains and sand dunes.	1, 255 ha – 100% of total area.	Possible.
Grey Wagtail *Motacilla cinerea*	Mig	S5	-	None.		0 ha	Unlikely.
Yellow Wagtail *Motacilla flava*	Mig	S5	-	None.		0 ha	Unlikely.
Brush-tailed Mulgara *Dasycercus blythi*	-	-	P4	Sand plains, sand dunes and clay/loam plains.		802 ha – 65.4% of total area.	Possible.
Southern Marsupial Mole *Notoryctes typhlops*	-	P4	-	Sand dunes. (Note: Sandplain habitat unsuitable due to a lack of sand dunes)		1 ha – ~0.1% of total area	Unlikely.
Sandhill Dunnart *Sminthopsis psammophila*	EN	S2	-	Yellow sand plains and sand dunes.		0 ha	Unlikely.
Long-tailed Dunnart *Sminthopsis longicaudata*	-	-	P4	Breakaways, rocky hillslopes and quartz/rocky plains.		404 ha – 33.0 % of total area	Possible.
Numbat *Myrmecobius fasciatus*	VU	S3	-	None.		0 ha	Unlikely. Outside current documented range/locally extinct.

Species	Conservation Status (see Appendix A for codes)			Potential Habitats Within Survey Area			Likelihood of Occurrence
	EPBC Act	WC Act	DPAW Priority	Foraging Habitat	Breeding Habitat	Total Extent (ha)	
Bilby *Macrotis lagotis*	VU	S3	-	Sand plains, sand dunes, quartz/rocky plains, clay/loam plains and drainage depressions.		1,175 ha - ~95.9% of total area.	Unlikely. Outside current documented range/locally extinct?
Central Long-eared Bat *Nyctophilus major tor*	-	-	P4	Sand plains, sand dunes, breakaways, clay loam plains, drainage depressions and quartz rocky plains. Requires tree hollows, foliage and loose bark for roosting.		1, 255 ha – 100% of total area.	Unlikely. Outside current documented range.

7. CONCLUSION & RECOMMENDATIONS

The level 1 fauna assessment reported on here was undertaken for the purposes of delineating and characterising the fauna habitats and faunal assemblages present in the survey area, with an emphasis on identifying which terrestrial fauna species of conservation significance may be present.

Previous invertebrate surveys undertaken within the Yamarna area indicate that potential SREs occur in the habitats present in some areas through which the proposed White Cliffs – Yamarna Road gas pipeline passes through. Based on available information it is however concluded that terrestrial SRE invertebrates, if present, are unlikely to be significantly impacted on by installation and operation of a gas pipeline along the proposed route.

The small size of the impact footprint at any one point and the extensive habitat connectivity beyond the site, mean that there is a very low likelihood of any significant impact/change occurring to local invertebrate communities or to the conservation status of individual species given that populations will persist in adjoining unaffected locations.

Subterranean invertebrate fauna (stygofauna and troglofauna) have not been considered as part of this review as no subsurface impacts are considered likely.

With respect to native vertebrate fauna, 29 mammals (including eight bat species), 103 bird, 107 reptile and nine frog species have previously been recorded in the general area, some of which have the potential to occur in or utilise at times, the survey area.

Based on habitat preferences, previous detailed survey results and currently documented distributions it has been concluded that two federally listed threatened (endangered or vulnerable) vertebrate fauna species may frequent the area at times (i.e. malleefowl and the princess parrot) in addition to one species considered in need of special protection under state legislation (i.e. peregrine falcon). Four DPaW priority species are also potentially present (i.e. buff-snouted

blind snake, striated grasswren, brush-tailed mulgara and the long-tailed dunnart). One migratory species (i.e. rainbow bee-eater) is also considered likely to occur at times.

No actual evidence of any of the abovementioned species utilising the area surveyed was collected during the survey period and therefore their current status within the proposed pipeline route is difficult to determine at this stage. The effect of the construction and operation of a gas pipeline along the proposed route will have on fauna species present will vary depending on their distribution/abundance within and adjacent to the areas subject to development.

However, given the relatively narrow and linear nature of the pipeline route and the presence of large areas of similar habitat in adjoining areas, impacts on fauna and fauna habitat at anyone point are anticipated to be small/negligible and therefore manageable.

Gold Road Resources Limited has a series of environmental management plans and protocols in place that aim to minimise potential environmental impacts during all facets of their operations. It is recommended that a project specific fauna management plan be formulated for implementation during the gas pipeline installation to further minimise possible risk to fauna and fauna habitat, in particular those species of conservation significance that may be encountered but also to fauna in general.

The following proposed management recommendations are considered most important and while likely to form part of existing procedures and protocols should be made a priority primarily during pipeline installation. These recommendations are not necessarily exhaustive and others may need consideration after consultation with relevant regularity authorities.

It is recommended that:

- Planning for development should aim to minimise as much as reasonable and practical the area of remnant vegetation requiring removal. Existing cleared areas/tracks should be used in preference to clearing additional areas.

- The need to remove large hollow bearing trees along the pipeline route should be avoided where possible.

- During site works, areas requiring clearing should be clearly marked and access to other areas restricted to prevent accidental clearing of areas to be retained. Unauthorised off-track driving and parking should be prohibited.

- The extent and duration of open trenching required for pipeline installation should be kept to a minimum.

- If practicable suitable escape ramps (45° batter), bridging and in trench fauna shelters should be considered for installation, in particular if the site is to be left unattended for extended periods.

- Open trenches should be inspected daily by experienced/authorised personnel for fauna typically no later than three hours after sunrise and again in the afternoon no earlier than four hours before sunset. Other inspections should be carried out as required (e.g. immediately prior to filling or final pipeline lowering). Timing of inspections should be constantly reviewed based on factors such as number and type of animals being encountered, site location and seasonal weather conditions.

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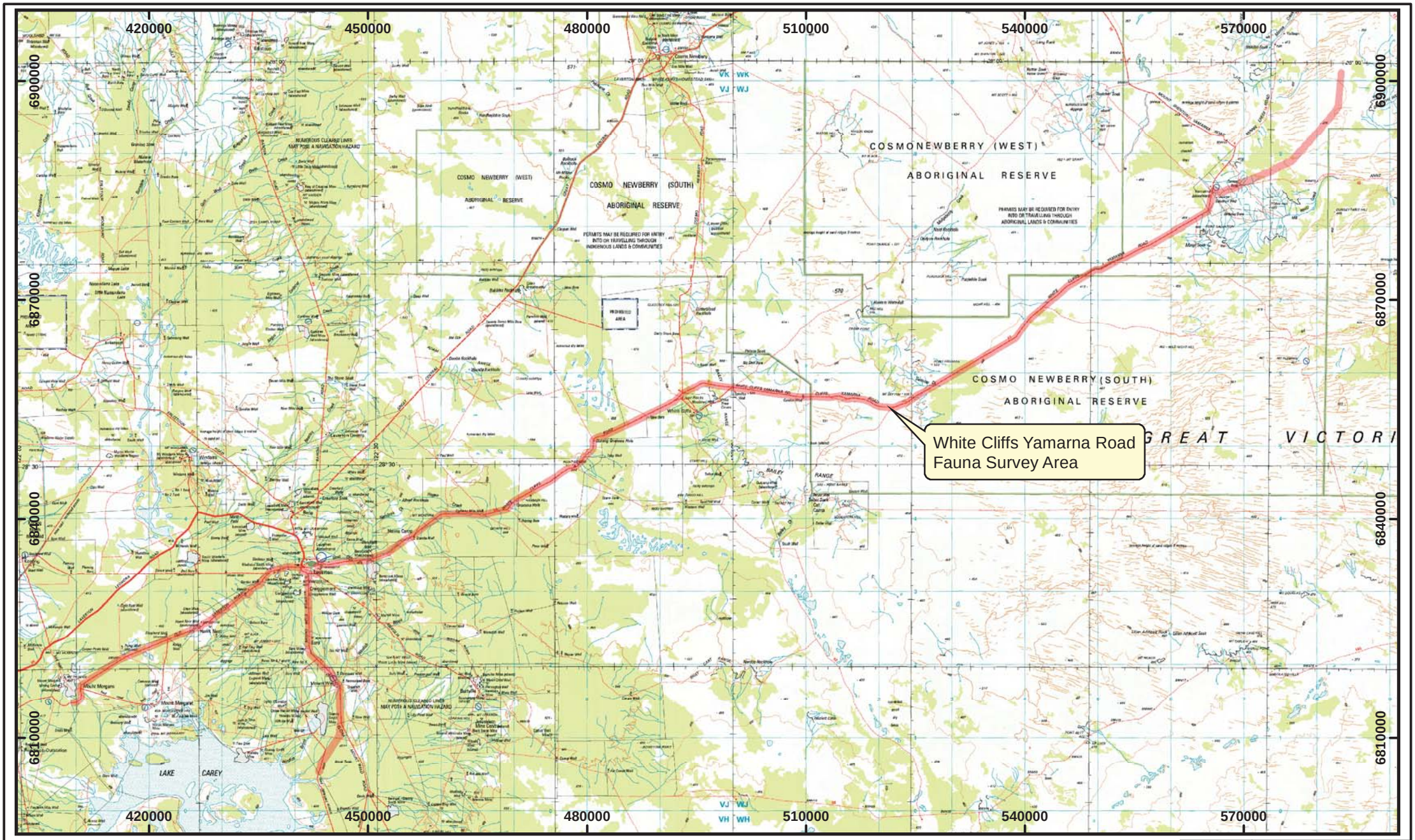
FIGURES



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Kilometres

Fauna Survey

Gold Road Resources Ltd
White Cliffs - Yamarna Road Gas Pipeline Option

Survey Area and Surrounds

DRAWN:G Harewood
DATE : Nov 2015
SCALE: 1:660,000
PROJECTION: MGA Zone 51

Figure: 1

Legend

White Cliffs - Yamarna Road Survey Area

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Kilometres

Fauna Survey

DRAWN:G Harewood

DATE : Nov 2015

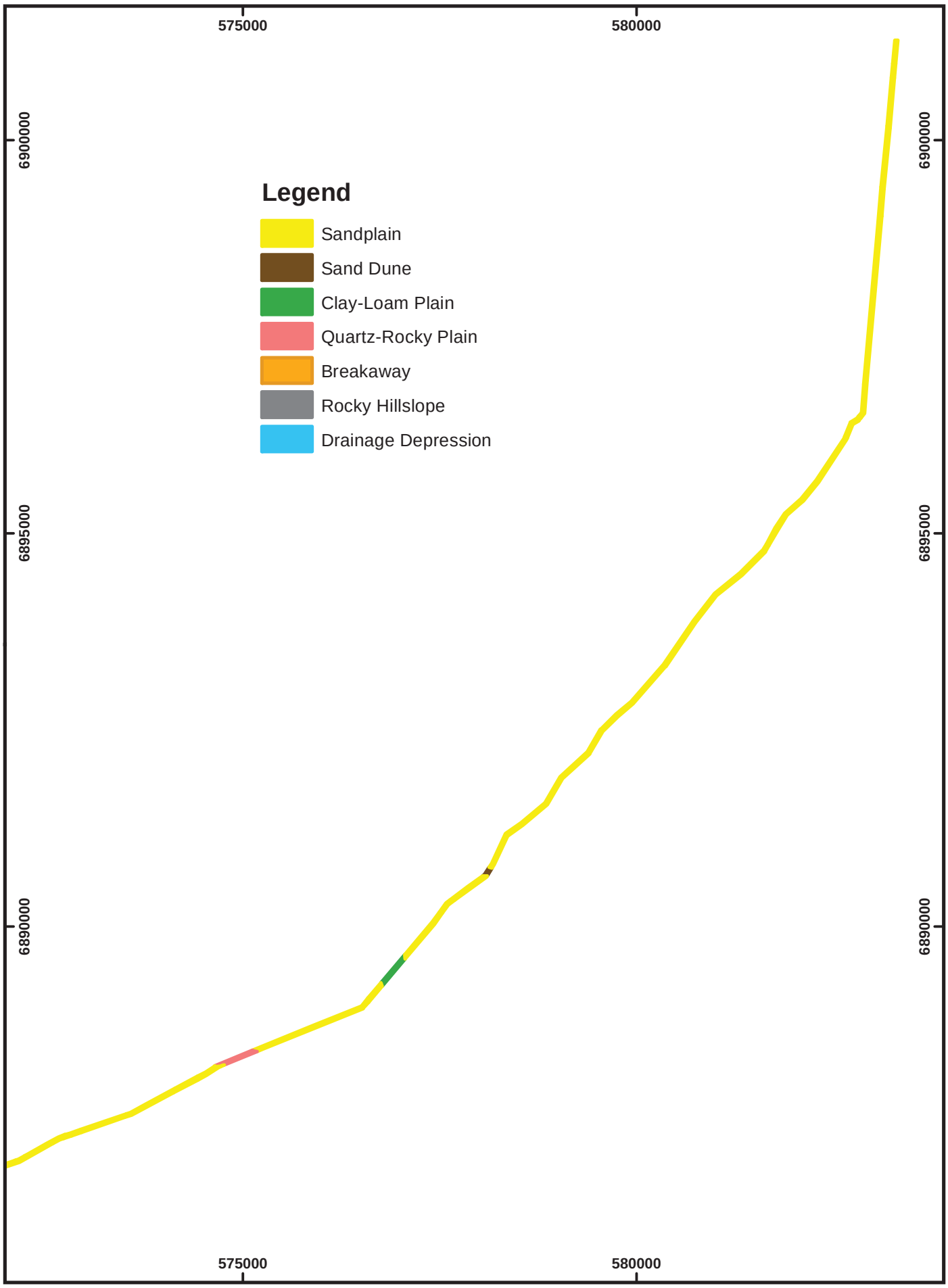
SCALE: 1:660,000

PROJECTION: MGA Zone 51

Gold Road Resources Ltd
White Cliffs - Yamarna Road Gas Pipeline Option

Survey Area Air Photo

Figure: 2



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Fauna Survey

Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option

Terrestrial Fauna Habitats

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PROJECTION: MGA Zone 51

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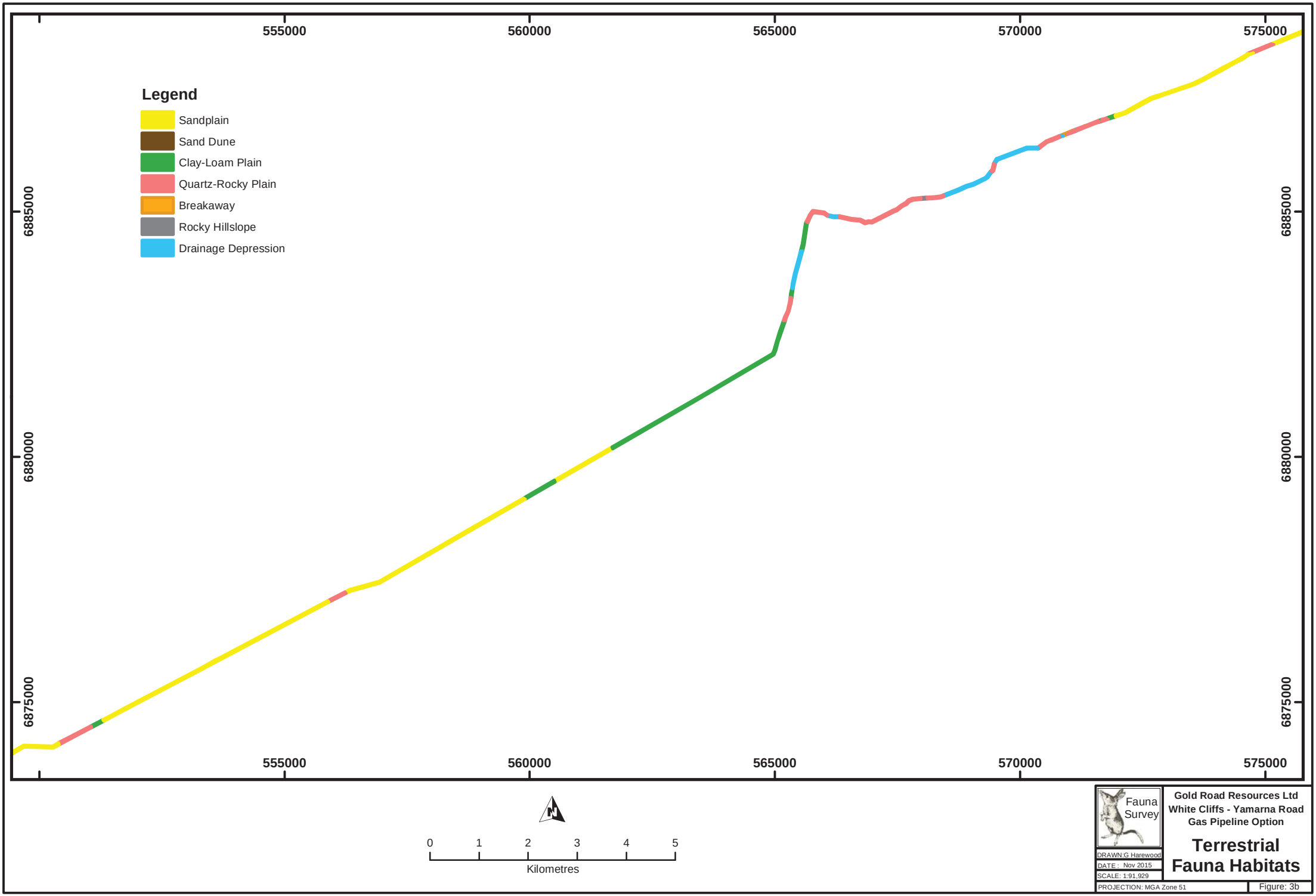
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Quartz-Rocky Plain
Breakaway
Rocky Hillslope
Drainage Depression
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Fauna Survey
Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option
Terrestrial
Fauna Habitats
DRAWN:G Harewood
DATE : Nov 2015
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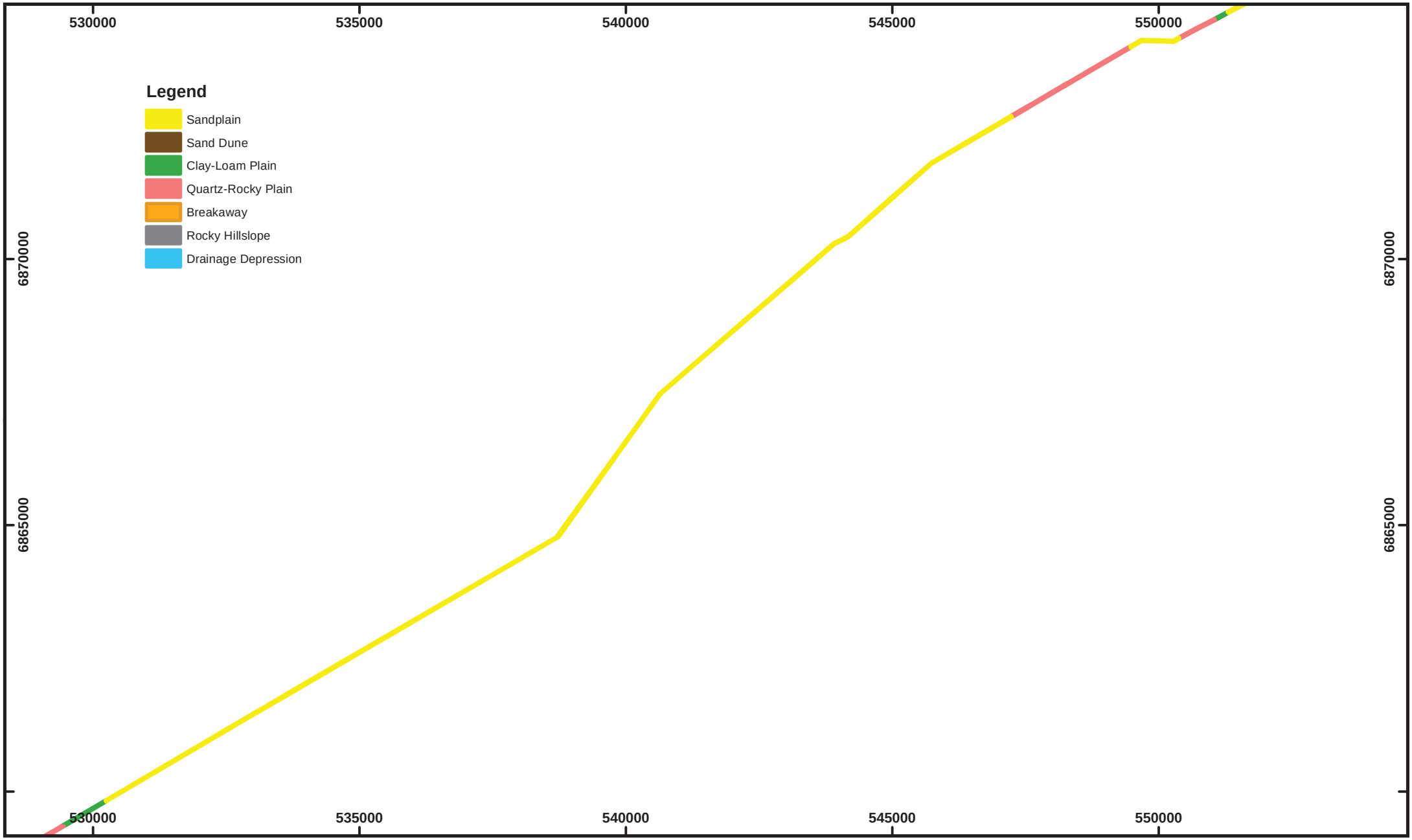

Fauna Survey

Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option

Terrestrial Fauna Habitats

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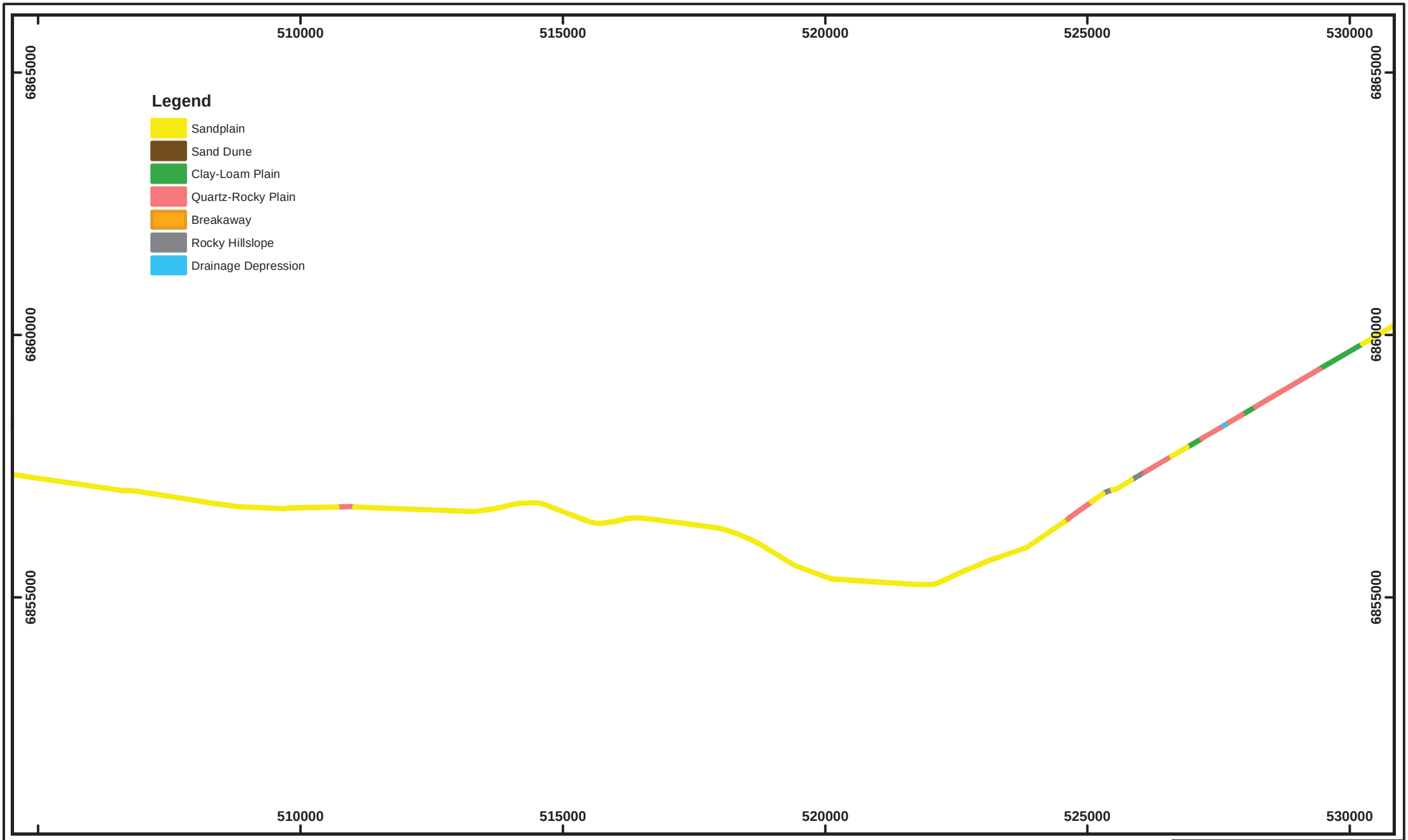
Figure: 3c



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Fauna Survey

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DATE : Nov 2015

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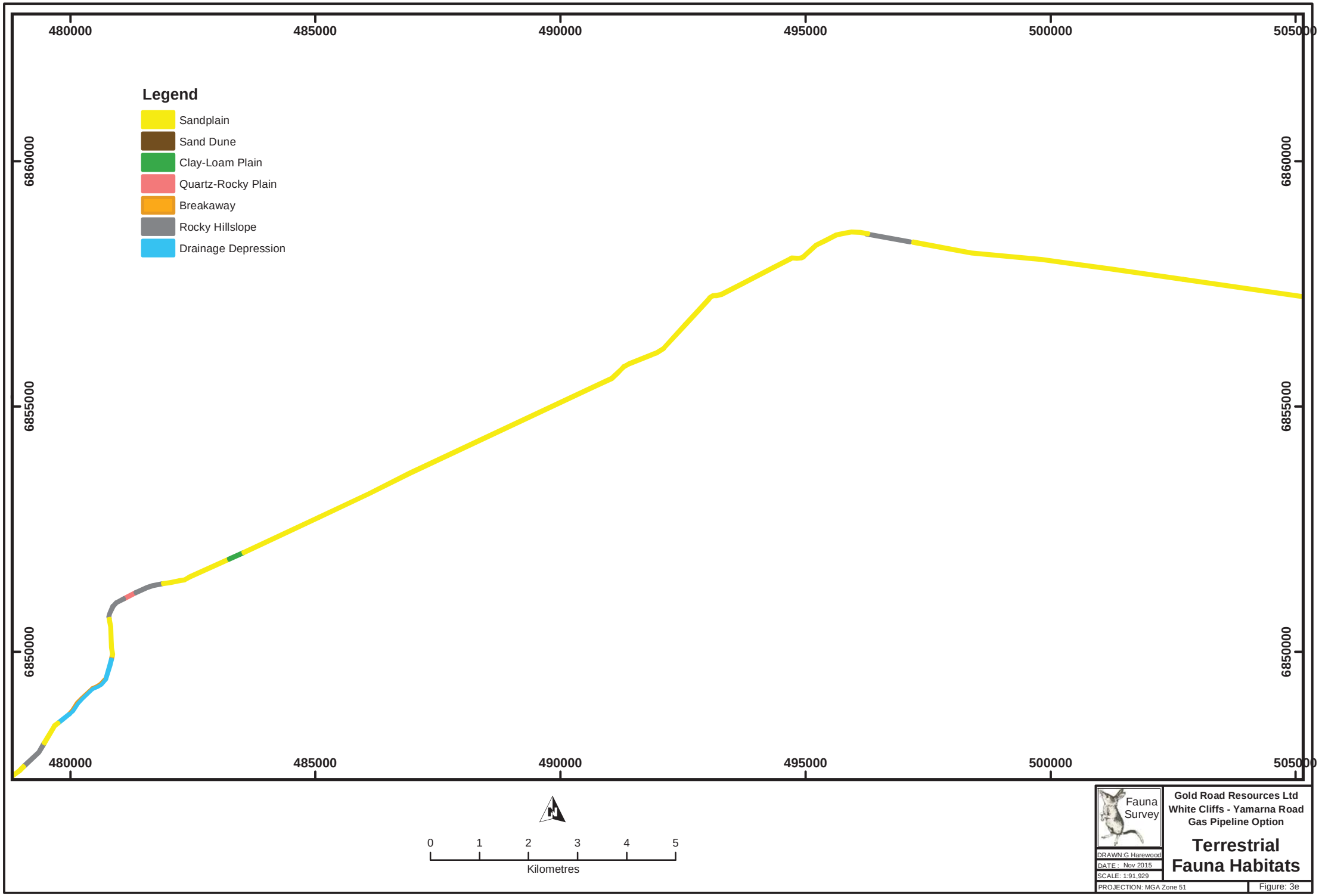
Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option

Terrestrial Fauna Habitats

Figure: 3d



Fauna Survey

Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option

Terrestrial Fauna Habitats

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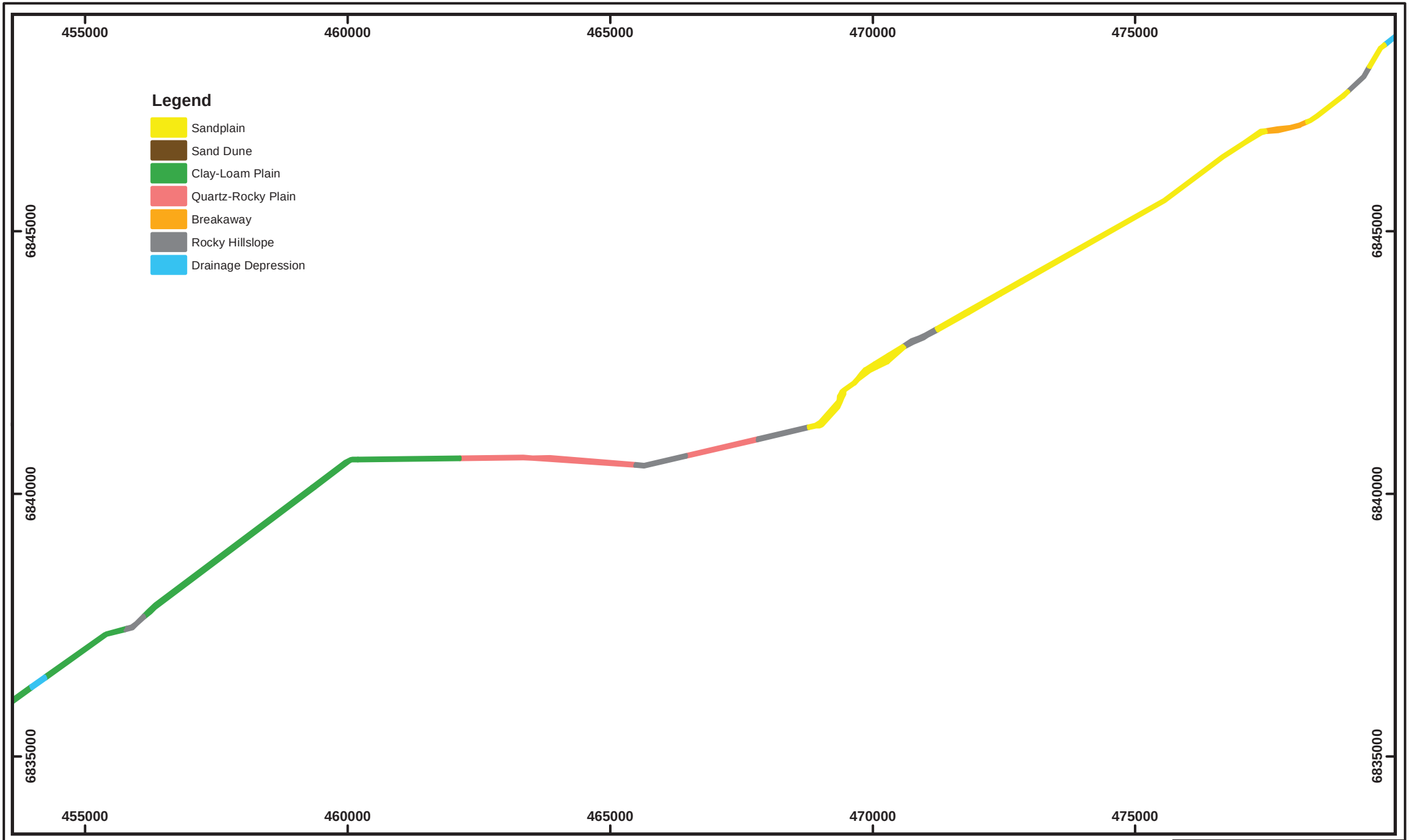

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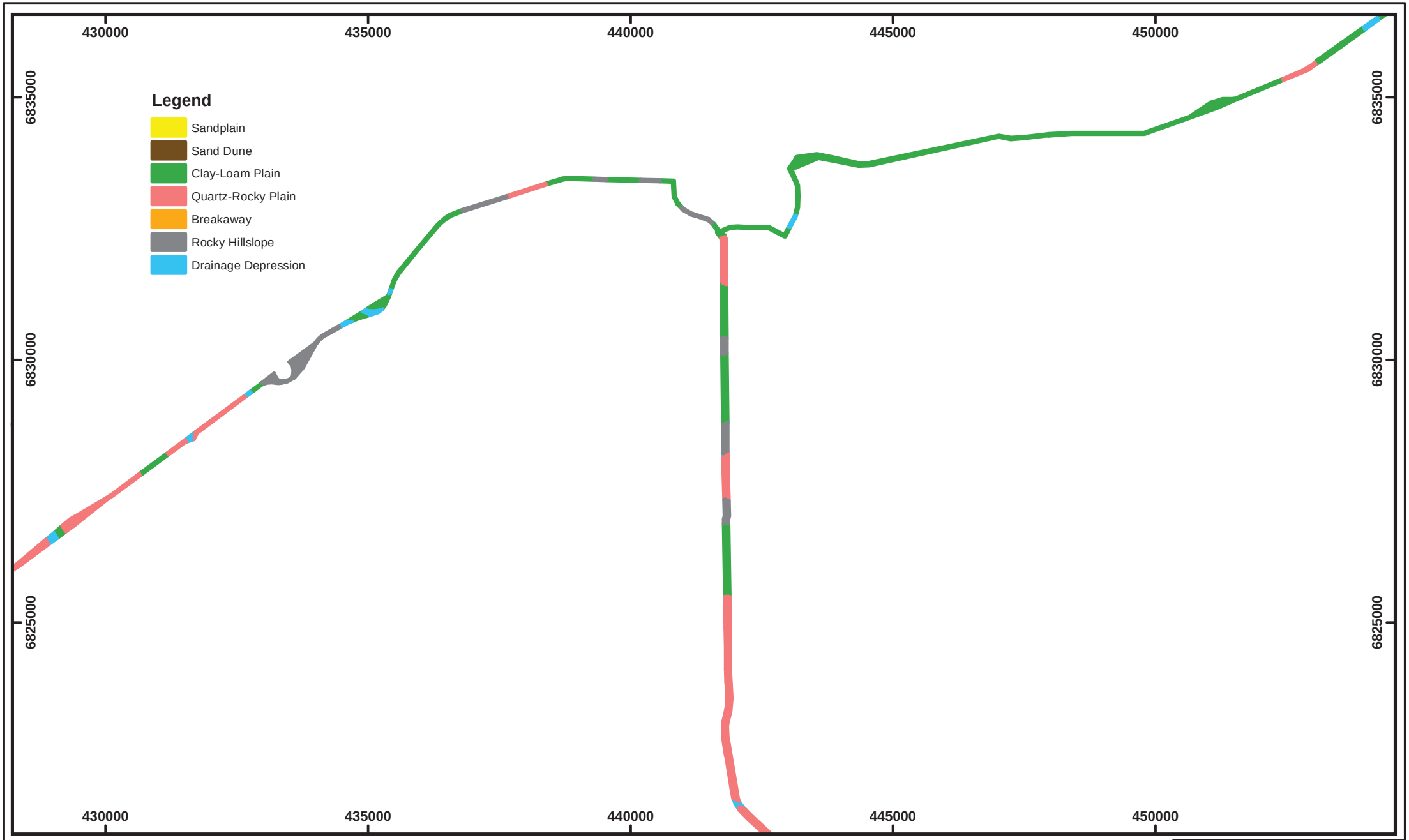
Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option

Terrestrial Fauna Habitats

Figure: 3f



Fauna Survey

Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option

Terrestrial Fauna Habitats

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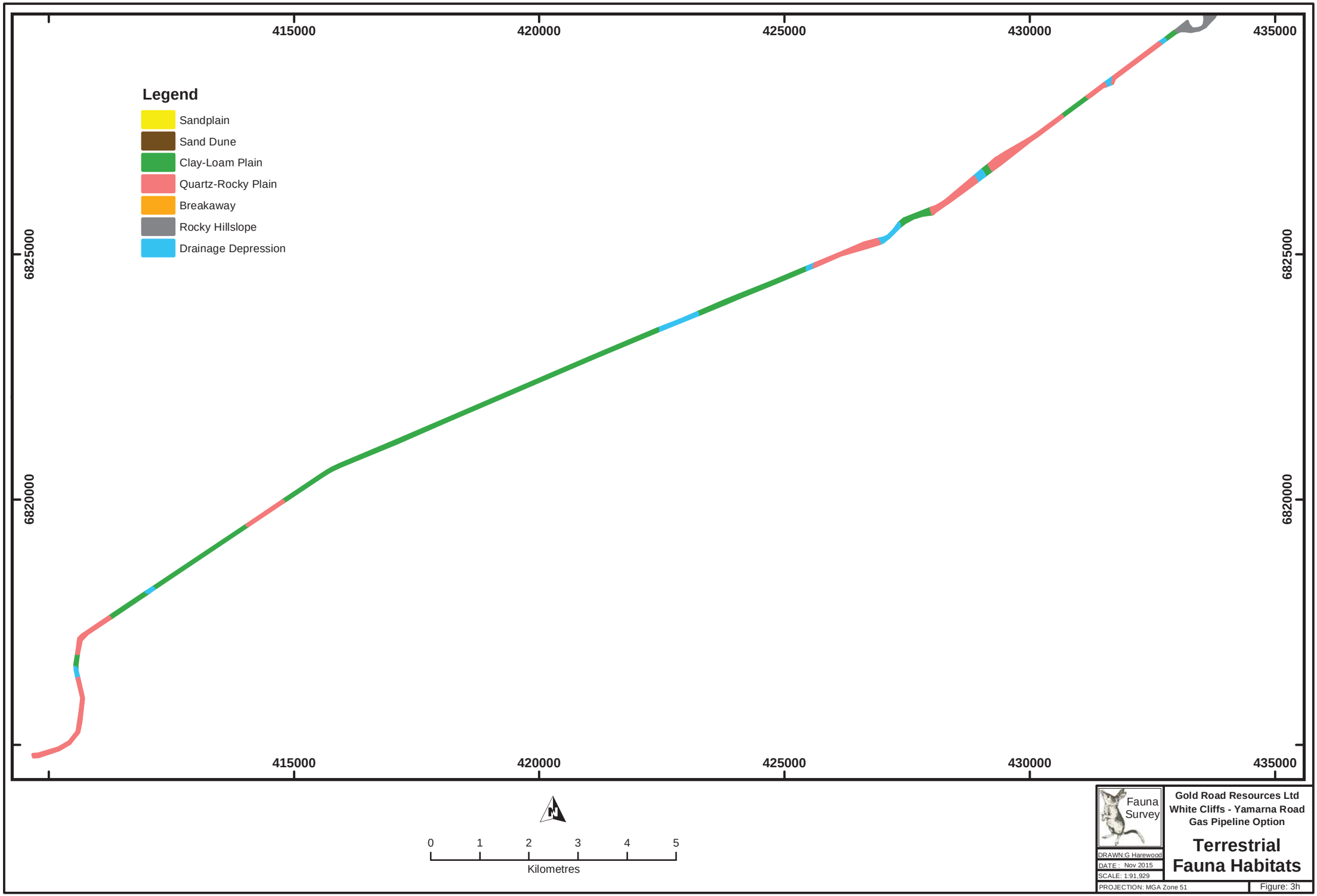
Figure: 3g



Fauna Survey

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DATE : Nov 2015

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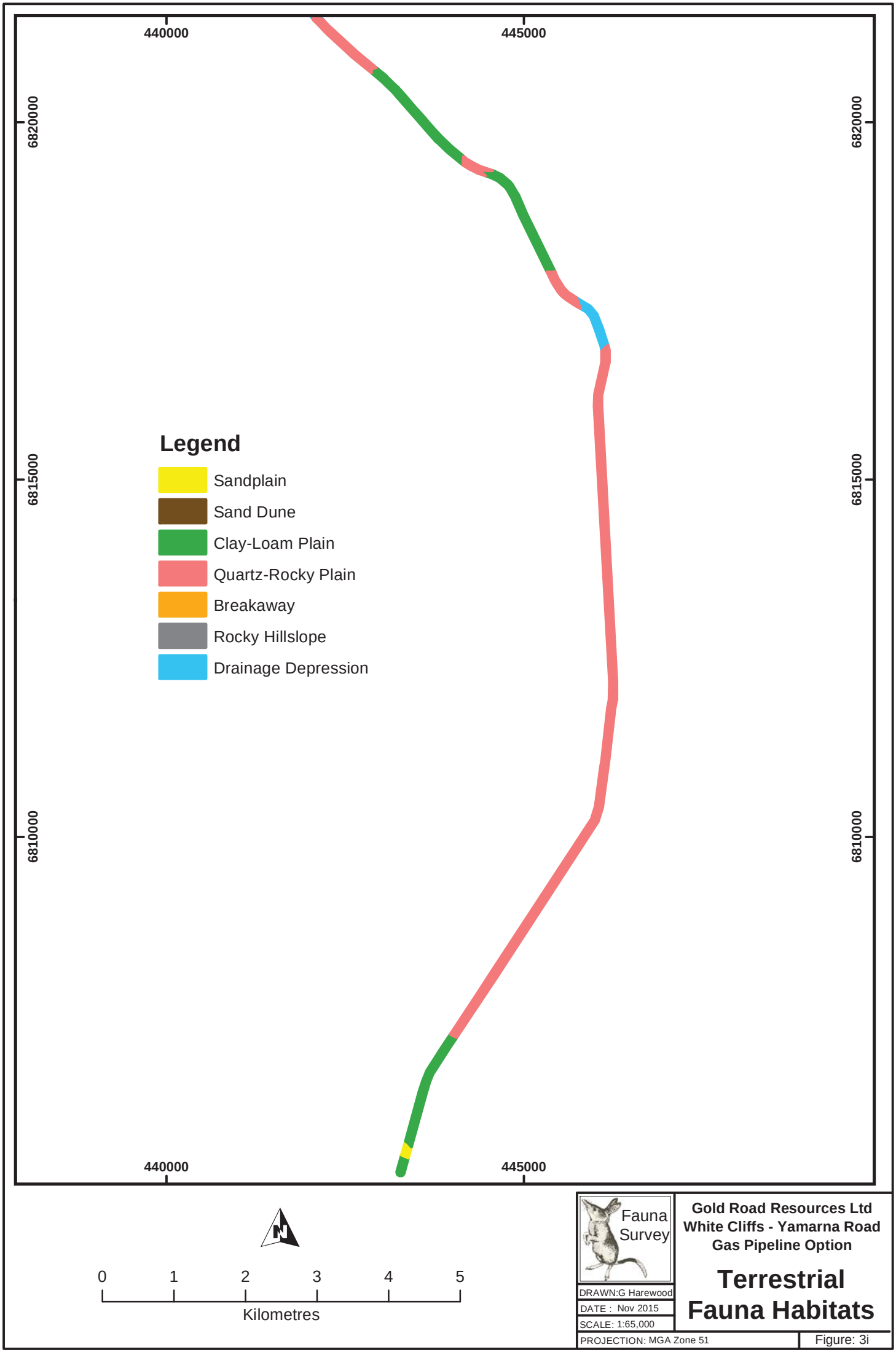
PROJECTION: MGA Zone 51

Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option

Terrestrial Fauna Habitats

Figure: 3h



Fauna Survey

Gold Road Resources Ltd
White Cliffs - Yamarna Road
Gas Pipeline Option

Terrestrial Fauna Habitats

DRAWN:G Harewood
DATE : Nov 2015
SCALE: 1:65,000
PROJECTION: MGA Zone 51

Figure: 3i

APPENDIX A

CONSERVATION CATEGORIES

***EPBC Act (1999)* Threatened Fauna Categories**

Threatened fauna may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*) in any one of the following categories:

Category	Code	Description
Extinct	E	There is no reasonable doubt that the last member of the species has died.
*Extinct in the wild	EW	A species (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
*Critically Endangered	CE	A species is facing an extremely high risk of extinction in the wild in the immediate future.
*Endangered	EN	A species: (a) is not critically endangered; and (b) is facing a very high risk of extinction in the wild in the near future.
*Vulnerable	VU	A species (a) is not critically endangered or endangered; and (b) is facing a high risk of extinction in the wild in the medium-term future.
Conservation Dependent	CD	A species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered
*Migratory	Migratory	(a) all migratory species that are: (i) native species; and (ii) from time to time included in the appendices to the Bonn Convention; and (b) all migratory species from time to time included in annexes established under JAMBA, CAMBA and ROKAMBA; and (c) all native species from time to time identified in a list established under, or an instrument made under, an international agreement approved by the Minister.
Marine	Ma	Species in the list established under s248 of the *EPBC Act*

Note: Only species in those categories marked with an asterix are matters of national environmental significance (NES) under the *EPBC Act*.

Wildlife Conservation (Specially Protected Fauna) Notice 2015 Categories

Published as Specially Protected under the *Wildlife Conservation Act 1950*, and listed under Schedules 1 to 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

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.

Category	Code	Description
Schedule 1 Critically Endangered species	CR	Threatened species considered to be facing an extremely high risk of extinction in the wild.
Schedule 2 Endangered species	EN	Threatened species considered to be facing a very high risk of extinction in the wild.
Schedule 3 Vulnerable species	VU	Threatened species considered to be facing a high risk of extinction in the wild.
Schedule 4 Presumed extinct species	EX	Species which have been adequately searched for and there is no reasonable doubt that the last individual has died.
Schedule 5 Migratory birds protected under an international agreement	IA	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 the Bonn Convention, relating to the protection of migratory birds.
Schedule 6 Fauna that is of special conservation need as conservation dependent fauna	CD	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened.
Schedule 7 Other specially protected fauna.	OS	Fauna otherwise in need of special protection to ensure their conservation.

Western Australian DPaW Priority Fauna Categories

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna 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 flora or fauna.

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.

Category	Code	Description
Priority 1 Poorly Known Species.	P1	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
Priority 2 Poorly Known Species.	P2	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority 3 Poorly Known Species.	P3	Species that are known from several locations and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
Priority 4 Rare, Near Threatened and other species in need of monitoring.	P4	(a) Rare: Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened: Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

*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).

***IUCN Red List* Threatened Species Categories**

The *IUCN Red List of Threatened Species*™ is a checklist of taxa that have undergone an extinction risk assessment using the *IUCN Red List Categories and Criteria*.

Categories are summarized below.

Category	Code	Description
Extinct	EX	Taxa for which there is no reasonable doubt that the last individual has died.
Extinct in the Wild	EW	Taxa which is known only to survive in cultivation, in captivity or and as a naturalised population well outside its past range and it has not been recorded in known or expected habitat despite exhaustive survey over a time frame appropriate to its life cycle and form.
Critically Endangered	CR	Taxa facing an extremely high risk of extinction in the wild.
Endangered	EN	Taxa facing a very high risk of extinction in the wild.
Vulnerable	VU	Taxa facing a high risk of extinction in the wild.
Near Threatened	NT	Taxa which has been evaluated but does not qualify for CR, EN or VU now but is close to qualifying or likely to qualify in the near future.
Least Concern	LC	Taxa which has been evaluated but does not qualify for CR, EN, VU, or NT but is likely to qualify for NT in the near future.
Data Deficient	DD	Taxa for which there is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status.
Not Evaluated	NE	Taxa which has not been evaluated.

A full list of categories and their meanings are available at:

http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria

APPENDIX B

VERTEBRATE FAUNA RECORDED OR POTENTIALLY IN REGION OF SURVEY AREA

Fauna Recorded or Potentially in Region of Survey Area

Compiled by Greg Harewood - November 2015

Recorded (Captured/Sighted/Heard/Signs) = X

White Cliffs - Yamarna Road Gas Pipeline Option - Gold Road Resources Ltd, Yamarna Station, WA.

Harewood G. (2015a). Fauna Assessmnet (Level 1) White Cliffs Road Gas Pipeline Option, Gruyere Project. Unpublished report for Gold Road Resources Ltd. November 2015.

Harewood G. (2015b). Fauna Assessmnet (Level 1) Midline Gas Pipeline Option, Gruyere Project. Unpublished report for Gold Road Resources Ltd. November 2015.

Rapallo Environmental (2015). Fauna Survey of the Gruyere Project Area. Unpublished report for Gold Road Resources Limited. May 2015.

KEC (2014). Sunrise Dam-Tropicana Infrastructure Corridor Fauna Survey. Unpublished report for AngloGold Ashanti. July 2014.

Harewood G. (2014). Fauna Assessmnet (Level 1) Gruyere Project. Unpublished report for Gold Road Resources Ltd. July 2014.

KLA (2012). Fauna Assessment (Level 2) Yamarna Project. Unpublished report for Gold Road Resources Ltd. October 2012.

Harewood G. (2011). Terrestrial Fauna Survey (Level 1) of Yamarna Gold Project (Central Bore, Attila, Alaric, Haul Road and Khan North). Unpublished report for Gold Road Resources Ltd. September 2011.

Terrestrial Ecosystems (2011). Level 2 Fauna Risk Assessment for the Granny Deeps Project Area. Unpublished report. February 2011.

ecologia (2009). Tropicana Gold Project. Operational Area Vertebrate Fauna Assessment. Unpublished report for Tropicana Joint Venture. February 2009.

DPaW (2015). NatureMap Database Search – Method = 'By Line'; Vertices = 28° 36' 56" S,122° 24' 16" E 28° 06' 24" S,123° 43' 29" E 29° 13' 16" S,123° 50' 25" E (plus 9km buffer). Accessed 25 August 2015.

Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Amphibia												
Myobatrachidae Ground or Burrowing Frogs												
Neobatrachus aquilonius	Northern Burrowing Frog	LC										X
Neobatrachus kunapalari	Kunapalari Frog	LC								X		X
Neobatrachus sudellae	Sudell's Frog	LC										X
Neobatrachus sutor	Shoemaker Frog	LC				X		X		X		X

WC Act Status - S1 to S4, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DPaW Priority Status - P1 to P5, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, IUCN Red List Category Definitions - LC =Least Concern, see Appendix A and http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria for others

Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Neobatrachus wilsmorei	Plonking Frog	LC										
Platyplectrum spenceri	Centralian Burrowing Frog											X
Pseudophryne occidentalis	Western Toadlet	LC										X
Hylidae Tree or Water-Holding Frogs												
Cyclorana maini	Sheep Frog	LC								X		X
Cyclorana platycephala	Water-holding Frog	LC								X		X

Reptilia

Carphodactylidae Knob-tailed Geckos												
Nephrurus laevissimus	Pale Knob-tailed Gecko				X	X					X	X
Nephrurus levis	Smooth Knob-tailed Gecko					X					X	X
Nephrurus vertebralis	Midline Knob-tailed Gecko											X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Diplodactylidae Geckoes												
Diplodactylus conspicillatus	Fat-tailed Gecko				X	X		X			X	X
Diplodactylus granariensis	Western Stone Gecko									X	X	
Diplodactylus pulcher	Western Saddled Ground Gecko							X		X		X
Lucasium damaeum	Beaded Gecko				X	X					X	X
Lucasium squarrosus	Mottled Ground Gecko											
Lucasium stenodactylus	Sand-plain Gecko	LC										X
Rhynchoedura ornata	Beaked Gecko				X	X				X	X	X
Strophurus assimilis	Goldfields Spiny-tailed Gecko					X						X
Strophurus ciliaris	Spiny-tailed Gecko											X
Strophurus elderi	Jewelled Gecko				X	X					X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Strophurus intermedius	Southern Spiny-tailed Gecko							X				X
Strophurus strophurus	Ring-tailed Gecko				X						X	X
Strophurus wellingtonae	Western-shield Spiny-tailed Gecko	LC								X		X
Gekkonidae Geckoes												
Gehyra purpurascens	Purple Arid Dtella				X	X					X	X
Gehyra variegata	Variegated Dtella				X	X		X	X	X	X	X
Heteronotia binoei	Bynoe's Gecko				X	X		X		X	X	X
Underwoodisaurus milii	Barking Gecko											X

Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Pygopodidae Legless Lizards												
Delma butleri	Unbanded Delma						X				X	X
Delma nasuta	Long-nosed Delma				X	X					X	X
Delma petersoni	Peterson’s Delma					X					X	
Lialis burtonis	Burton’s Legless Lizard				X		X				X	X
Pygopus nigriceps	Hooded Scaly Foot		X		X	X		X			X	X

Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Agamidae Dragon Lizards												
Caimanops amphiboluroides	Mulga Dragon				X			X		X	X	
Ctenophorus caudicinctus	Ring-tailed Dragon							X				X
Ctenophorus clayi	Collared Dragon										X	X
Ctenophorus cristatus	Bicycle Dragon					X					X	
Ctenophorus fordi	Mallee Sand Dragon					X					X	X
Ctenophorus isolepis	Military Dragon				X	X	X				X	X
Ctenophorus nuchalis	Central Netted Dragon				X						X	X
Ctenophorus pictus	Painted Dragon							X				X
Ctenophorus reticulatus	Western Netted Dragon				X			X			X	X
Ctenophorus scutulatus	Lozenge-marked Bicycle Dragon		X		X	X		X				X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Diporiphora paraconvergens	Grey-striped Western Desert Dragon				X							
Diporiphora reginae	Red-rumped Two-lined Dragon					X					X	
Gowidon longirostris	Long-nosed Dragon										X	
Moloch horridus	Thorny Devil			X	X	X	X				X	X
Pogona minor	Western Bearded Dragon				X	X					X	X
Tympanocryptis cephala	Pebble Dragon									X		

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Varanidae Monitor's or Goanna's												
Varanus brevicauda	Short-tailed Pygmy Monitor				X						X	X
Varanus caudolineatus	Stripe-tailed Pygmy Monitor							X		X		X
Varanus eremius	Pygmy Desert Monitor										X	X
Varanus giganteus	Perentie		X		X	X	X				X	X
Varanus gilleni	Pygmy Mulga Monitor										X	
Varanus gouldii	Sand Monitor			X	X	X		X			X	X
Varanus panoptes	Yellow-spotted Monitor				X	X				X		
Varanus tristis	Black-headed Monitor				X	X					X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Scincidae Skinks												
Cryptoblepharus buchananii	Fence Skink											X
Cryptoblepharus carnabyi	Spiny-palmed Fence Skink										X	
Ctenotus ariadnae	Ariadna's Ctenotus										X	X
Ctenotus brooksi	Central Wedge-snout Ctenotus				X	X					X	X
Ctenotus calurus	Blue-tailed Skink				X	X					X	X
Ctenotus dux	Narrow-lined Skink				X	X	X				X	X
Ctenotus grandis	Giant Desert Ctenotus										X	X
Ctenotus greeri	Spotted-necked Ctenotus					X					X	X
Ctenotus hanloni	Nimble Ctenotus											X
Ctenotus helenae	Dusky Ctenotus				X	X		X			X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Ctenotus leae	Centralian Coppertail											X
Ctenotus leonhardii	Leonhardi's Skink				X	X		X		X	X	X
Ctenotus nasutus	Long-snouted Ctenotus				X							X
Ctenotus pantherinus	Leopard Ctenotus				X	X	X	X			X	X
Ctenotus piankai	Coarse Sands Ctenotus				X							X
Ctenotus quattuordecimlineatus	Fourteen-lined Ctenotus				X	X					X	X
Ctenotus schomburgkii	Barred Wedge-snout Ctenotus				X	X	X				X	X
Ctenotus severus	Stern Rock Ctenotus											X
Ctenotus uber	Spotted Ctenotus				X							X
Cyclodomorphus melanops	Eastern Slender Blue-tongue					X					X	X
Egernia depressa	Pygmy Spiny-tailed Skink					X				X		X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Egernia formosa	Goldfields Crevise Skink											X
Eremiascincus pallidus	Pale Sand-swimmer				X	X		X		X	X	X
Lerista bipes	Western Two-toed Slider				X	X	X				X	X
Lerista desertorum	Great Desert Slider		X		X	X		X		X	X	X
Lerista distinguenda	SW Four-toed Lerista									X		
Lerista kingi	Common Mulch Skink											X
Lerista taeniata	Ribbon Slider										X	
Lerista timida	Timid Slider			X	X	X					X	X
Liopholis inornata	Desert Skink					X		X			X	X
Liopholis striata	Night Skink				X						X	X
Menetia greyii	Dwarf Skink					X				X	X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Morethia butleri	Woodland Dark-flecked Morethia					X				X	X	X
Proablepharus reginae	Western Soil-Crevice Skink					X					X	
Tiliqua multifasciata	Central Blue-tongue							X		X	X	X
Tiliqua occipitalis	Western Bluetongue			X		X					X	X
Typhlopidae Blind Snakes												
Anilios australis	Southern Blind Snake									X		
Anilios bicolor	Dark-spined Blind Snake									X		
Anilios endoterus	Interior Blind Snake										X	
Anilios hamatus	Northern Hook-snouted Blind Snake											
Anilios margaretae	Buff-snouted Blind Snake	P2										
Anilios waitii	Common Beaked Blind Snake										X	

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Boidae Pythons, Boas												
Antaresia stimsoni	Stimson's Python											

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Elapidae Elapid Snakes												
Acanthophis pyrrhus	Desert Death Adder										X	
Brachyurophis approximans	North-western Shovel-nosed Snake				X							
Brachyurophis fasciolata	Narrow-banded Shovel-nosed Snake					X					X	
Brachyurophis semifasciata	Southern Shovel-nosed Snake					X					X	
Demansia psammophis	Yellow-faced Whipsnake					X					X	X
Furina ornata	Moon Snake											X
Neelaps bimaculatus	Black-naped Snake										X	X
Parasuta monachus	Monk Snake					X				X	X	X
Pseudechis australis	Mulga Snake				X				X		X	X
Pseudechis butleri	Spotted Mulga Snake											X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Pseudonaja modesta	Ringed Brown Snake				X			X			X	X
Pseudonaja nuchalis	Gwardar								X		X	
Simoselaps anomalus	Desert Banded Snake				X							X
Simoselaps bertholdi	Jan's Banded Snake					X					X	X
Suta fasciata	Rosen's Snake									X		X

Aves

Casuariidae
Emus, Cassowarries

Dromaius novaehollandiae	Emu	LC	X	X	X	X	X	X	X	X	X	X

Megapodiidae
Moundbuilders

Leipoa ocellata	Malleefowl	S3 VU VU A2bce+3ce				X					X	

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Accipitridae Kites, Goshawks, Eagles, Harriers												
Accipiter cirrocephalus	Collared Sparrowhawk	LC	X								X	X
Accipiter fasciatus	Brown Goshawk	LC			X				X			
Aquila audax	Wedge-tailed Eagle	LC			X	X	X	X	X	X	X	X
Aquila morphnoides	Little Eagle	LC		X		X					X	
Circus assimilis	Spotted Harrier	LC										
Elanus caeruleus	Black-shouldered Kite	LC						X				
Haliastur sphenurus	Whistling Kite	LC			X							X
Hamirostra melanosternon	Black-breasted Buzzard	LC		X								

Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Falconidae Falcons												
Falco berigora	Brown Falcon	LC	X	X	X	X	X	X	X	X	X	X
Falco cenchroides	Australian Kestrel	LC	X	X	X	X	X	X		X	X	X
Falco longipennis	Australian Hobby	LC			X	X	X	X	X		X	
Falco peregrinus	Peregrine Falcon	S7 LC									X	X
Otididae Bustards												
Ardeotis australis	Australian Bustard	LC	X	X		X	X	X			X	X
Turnicidae Button-quails												
Turnix velox	Little Button-quail	LC						X	X		X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Charadriidae Lapwings, Plovers, Dotterels												
Charadrius melanops	Black-fronted Dotterel	LC								X		
Charadrius ruficapillus	Red-capped Plover	LC				X						
Peltohyas australis	Inland Dotterel											
Columbidae Pigeons, Doves												
Geopelia cuneata	Diamond Dove	LC						X	X		X	X
Ocyphaps lophotes	Crested Pigeon	LC	X	X	X	X	X	X	X	X	X	X
Phaps chalcoptera	Common Bronzewing	LC	X	X	X	X	X	X		X	X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Psittacidae Parrots												
Cacatua roseicapilla	Galah	LC	X	X	X	X		X			X	
Melopsittacus undulatus	Budgerigar	LC				X		X	X		X	X
Neophema bourkii	Bourke's Parrot	LC			X			X				
Neophema splendida	Scarlet-chested Parrot	LC				X					X	X
Nymphicus hollandicus	Cockatiel	LC			X	X		X			X	X
Platycercus varius	Mulga Parrot	LC	X		X	X	X	X	X	X	X	
Platycercus zonarius	Australian Ringneck	LC	X	X	X	X	X	X	X	X	X	
Polytelis alexandrae	Princess Parrot	P4 VU NT										X

Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Cuculidae Parasitic Cuckoos												
Chrysococcyx basalis	Horsfield's Bronze Cuckoo	LC		X		X			X		X	
Chrysococcyx osculans	Black-eared Cuckoo	LC				X					X	
Cuculus pallidus	Pallid Cuckoo	LC	X	X		X	X		X	X	X	
Strigidae Hawk Owls												
Ninox novaeseelandiae	Boobook Owl	LC			X	X		X				
Tytonidae Barn Owls												
Tyto alba	Barn Owl	LC										
Podargidae Frogmouths												
Podargus strigoides	Tawny Frogmouth	LC		X		X		X			X	
Caprimulgidae Nightjars												
Eurostopodus argus	Spotted Nightjar	LC		X	X	X	X	X			X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Aegothelidae Owlet-nightjars												
Aegotheles cristatus	Australian Owlet-nightjar	LC			X	X		X			X	
Halcyonidae Tree Kingfishers												
Todiramphus pyrrhopygia	Red-backed Kingfisher	LC			X	X	X	X		X	X	
Meropidae Bee-eaters												
Merops ornatus	Rainbow Bee-eater	S5 Mig JA LC				X					X	X
Climacteridae Treecreepers												
Climacteris affinis	White-browed Treecreeper	LC									X	

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Maluridae Fairy Wrens, GrassWrens												
Amytornis striatus striatus	Striated Grasswren	P4 LC				X						
Malurus lamberti	Variegated Fairy-wren	LC	X		X		X	X	X			X
Malurus leucopterus	White-winged Fairy-wren	LC	X	X		X			X	X		X
Malurus splendens	Splendid Fairy-wren	LC			X	X				X	X	X
Stipiturus ruficeps	Rufous-crowned Emu-wren	LC										

Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Acanthizidae Thornbills, Geryones, Fieldwrens & Whitefaces												
Acanthiza apicalis	Broad-tailed Thornbill	LC	X		X	X	X	X	X	X	X	X
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	LC				X		X		X	X	X
Acanthiza robustirostris	Slaty-backed Thornbill	LC		X	X	X	X	X		X	X	X
Acanthiza uropygialis	Chestnut-rumped Thornbill	LC				X	X	X	X		X	X
Aphelocephala leucopsis	Southern Whiteface	LC				X	X	X	X	X	X	X
Gerygone fusca	Western Gerygone	LC										
Pyrrholaemus brunneus	Redthroat	LC			X	X	X	X	X		X	X
Smicrornis brevirostris	Weebill	LC	X	X	X	X	X	X	X		X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Pardalotidae Pardalotes												
Pardalotus rubricatus	Red-browed Pardalote	LC			X		X	X				
Pardalotus striatus	Striated Pardalote	LC	X	X		X	X			X	X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Meliphagidae Honeyeaters, Chats												
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	LC	X	X	X	X	X	X	X	X	X	X
Anthochaera carunculata	Red Wattlebird	LC		X		X	X				X	X
Certhionyx niger	Black Honeyeater	LC										
Certhionyx variegatus	Pied Honeyeater	LC							X	X		
Epthianura aurifrons	Orange Chat	LC		X							X	
Epthianura tricolor	Crimson Chat	LC	X	X		X	X	X	X	X	X	X
Lichenostomus plumulus	Grey-fronted Honeyeater	LC		X	X	X	X				X	
Lichenostomus virescens	Singing Honeyeater	LC	X	X	X	X	X	X	X	X	X	
Lichmera indistincta	Brown Honeyeater	LC				X					X	X
Manorina flavigula	Yellow-throated Miner	LC	X	X	X	X	X	X	X	X	X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Phylidonyris albifrons	White-fronted Honeyeater	LC	X	X		X	X		X		X	
Petroicidae Australian Robins												
Microeca fascinans	Jacky Winter	LC			X	X					X	X
Petroica cucullata	Hooded Robin	LC	X		X	X	X	X	X	X	X	
Petroica goodenovii	Red-capped Robin	LC	X	X	X	X	X	X	X	X	X	X
Pomatostomidae Babblers												
Pomatostomus superciliosus	White-browed Babbler	LC	X		X	X	X	X	X	X	X	
Cinclosomatidae Whipbirds, Wedgebills, Quail Thrushes												
Cinclosoma castaneothorax	Chestnut-breasted Quail-thrush	LC			X		X	X				X
Cinclosoma castanotus	Chestnut Quail-thrush	LC				X						
Psophodes occidentalis	Chiming Wedgebill	LC										

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Neosittidae Sitellas												
Daphoenositta chrysoptera	Varied Sittella	LC			X	X					X	
Pachycephalidae Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers												
Colluricincla harmonica	Grey Shrike-thrush	LC		X	X	X	X	X	X	X	X	X
Oreoica gutturalis pallescens	Crested Bellbird (central/northern)	LC	X	X	X	X	X	X	X	X	X	
Pachycephala rufiventris	Rufous Whistler	LC	X	X	X	X	X	X	X	X	X	X
Dicruridae Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo												
Grallina cyanoleuca	Magpie-lark	LC	X		X	X	X	X	X	X	X	X
Rhipidura fuliginosa	Grey Fantail	LC										
Rhipidura leucophrys	Willie Wagtail	LC	X	X	X	X	X	X	X	X	X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Campephagidae Cuckoo-shrikes, Trillers												
Coracina maxima	Ground Cuckoo-shrike	LC	X		X			X	X	X	X	X
Coracina novaehollandiae	Black-faced Cuckoo-shrike	LC	X	X	X	X	X		X	X	X	X
Lalage tricolor	White-winged Triller	LC				X		X	X	X		
Artamidae Woodswallows, Butcherbirds, Currawongs												
Artamus cinereus	Black-faced Woodswallow	LC	X	X	X	X	X		X	X	X	X
Artamus minor	Little Woodswallow	LC			X	X				X		X
Artamus personatus	Masked Woodswallow	LC			X	X		X	X	X	X	X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Cracticidae Currawongs, Magpies & Butcherbirds												
Cracticus nigrogularis	Pied Butcherbird	LC	X	X	X	X	X	X	X	X	X	X
Cracticus tibicen	Australian Magpie	LC	X	X	X	X	X	X	X	X	X	X
Cracticus torquatus	Grey Butcherbird	LC	X			X	X	X	X	X	X	X
Strepera versicolor	Grey Currawong	LC				X	X	X	X		X	
Corvidae Ravens, Crows												
Corvus bennetti	Little Crow	LC	X	X	X	X	X	X		X	X	X
Corvus orru	Torresian Crow	LC			X	X	X	X	X	X		X
Ptilonorhynchidae Bowerbirds												
Ptilonorhynchus maculatus	Western Bowerbird	LC	X		X	X				X		
Motacillidae Old World Pipits, Wagtails												
Anthus australis	Australian Pipit	LC	X			X	X	X	X	X	X	

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Estrilidae Grass Finches & Mannikins												
Taeniopygia guttata	Zebra Finch	LC	X	X	X	X	X	X	X	X	X	X
Dicaeidae Flowerpeckers												
Dicaeum hirundinaceum	Mistletoebird	LC				X			X	X	X	X
Hirundinidae Swallows, Martins												
Cheramoeca leucosternus	White-backed Swallow	LC	X	X		X	X			X	X	
Hirundo ariel	Fairy Martin	LC			X	X						
Hirundo neoxena	Welcome Swallow	LC				X				X		X
Hirundo nigricans	Tree Martin	LC			X	X				X	X	
Sylviidae Old World Warblers												
Cincloramphus cruralis	Brown Songlark	LC				X	X	X				X
Cincloramphus mathewsi	Rufous Songlark	LC	X		X							

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Mammalia												
Tachyglossidae Echidnas												
Tachyglossus aculeatus	Echidna	LC	X		X	X			X		X	

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Dasyuridae Carnivorous Marsupials												
Antechinomys laniger	Kultarr	LC								X		
Dasycercus blythi	Brush-tailed Mulgara	P4 LC				X						X
Ningaui ridei	Wongai Ningaui	LC			X							X
Ningaui yvonneae	Southern Ningaui	LC				X					X	
Pseudantechinus macdonnellensis	Fat-tailed Pseudantechinus	LC										
Sminthopsis crassicaudata	Fat-tailed Dunnart	LC									X	X
Sminthopsis dolichura	Little long-tailed Dunnart	LC				X		X		X	X	X
Sminthopsis hirtipes	Hairy-footed Dunnart	LC			X	X				X	X	X
Sminthopsis longicaudata	Long-tailed Dunnart	P4 LC								X		
Sminthopsis macroura	Stripe-faced Dunnart	LC						X		X		X

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Sminthopsis ooldea	Ooldea Dunnart	LC				X					X	X
Burramyidae Pygmy Possums												
Cercartetus concinnus	Western Pygmy-possum	LC										X
Macropodidae Kangaroos, Wallabies												
Macropus fuliginosus	Western Grey Kangaroo	LC		X	X	X	X				X	
Macropus robustus	Euro	LC	X		X	X	X		X	X	X	
Macropus rufus	Red Kangaroo	LC	X	X	X	X		X	X		X	
Emballonuridae Sheath-tailed Bats												
Taphozous hilli	Hill's Sheathtail-bat	LC									X	
Molossidae Freetail Bats												
Austronomus australis	White-striped Freetail-bat	LC	X	X		X	X	X	X		X	
Ozimops petersi	Inland Freetail-bat	LC				X		X		X	X	

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Vespertilionidae Ordinary Bats												
Chalinolobus gouldii	Gould's Wattled Bat	LC			X	X		X		X	X	
Nyctophilus geoffroyi	Lesser Long-eared Bat	LC			X	X					X	X
Scotorepens balstoni	Inland Broad-nosed Bat	LC			X			X		X	X	
Vespadelus baverstocki	Inland Forest Bat	LC							X			
Vespadelus finlaysoni	Finlayson's Cave Bat	LC			X			X		X	X	

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Muridae Rats, Mice												
Mus musculus	House Mouse	Introduced			X	X		X		X	X	X
Notomys alexis	Spinifex Hopping-mouse	LC			X	X		X		X	X	X
Pseudomys bolami	Bolam's Mouse	LC										
Pseudomys desertor	Desert Mouse	LC				X		X			X	X
Pseudomys hermannsburgensis	Sandy Inland Mouse	LC			X	X		X		X	X	X
Canidae Dogs, Foxes												
Canis lupus	Dingo/Dog	LC/Introduced		X	X	X			X		X	
Vulpes vulpes	Red Fox	Introduced		X		X	X		X		X	
Felidae Cats												
Felis catus	Cat	Introduced		X	X	X	X	X		X	X	

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Class **Family** *Species*	Common Name	Conservation Status	GH 2015a	GH 2015b	Rapallo 2015	KEC 2014	GH 2014	KLA 2012	GH 2011	TE 2011	ecologia 2009	DPaW 2015
Equidae Horses												
Equus caballus	Horse	Introduced				X						X
Bovidae Horned Ruminants												
Bos taurus	European Cattle	Introduced	X	X	X	X		X	X			
Capra hircus	Goat	Introduced				X	X					
Ovis aries	Sheep	Introduced										
Camelidae Camels												
Camelus dromedarius	Camel	Introduced	X	X	X	X	X		X		X	
Leporidae Rabbits, Hares												
Oryctolagus cuniculus	Rabbit	Introduced	X	X	X	X	X	X	X	X	X	X

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APPENDIX C

DPAW NATUREMAP & EPBC ACT DATABASE SEARCH RESULTS

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Greg Harewood on 16/11/2015

Kingdom	Animalia
Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Line'
Vertices	28° 52' 03" S,122° 25' 00" E 28° 45' 02" S,122° 23' 32" E 28° 38' 10" S,122° 24' 16" E 28° 36' 51" S,122° 29' 58" E 28° 33' 38" S,122° 36' 59" E 28° 32' 55" S,122° 40' 46" E 28° 29' 24" S,122° 47' 56" E 28° 27' 39" S,122° 48' 40" E 28° 23' 43" S,122° 57' 17" E 28° 24' 44" S,123° 11' 00" E 28° 25' 28" S,123° 13' 47" E 28° 20' 30" S,123° 23' 25" E 28° 15' 49" S,123° 29' 42" E 28° 05' 36" S,123° 45' 37" E 28° 02' 14" S,123° 45' 55" E
Group By	Species Group

Species Group	Species	Records
Amphibian	11	183
Bird	107	757
Invertebrate	79	357
Mammal	27	504
Reptile	104	9229
TOTAL	**328**	**11030**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Amphibian					
1.	25375	*Cyclorana maini (Sheep Frog)*			
2.	25376	*Cyclorana platycephala (Water-holding Frog)*			
3.		*Cyclorana sp.*			
4.	25422	*Neobatrachus aquilonius (Northern Burrowing Frog)*			
5.	25425	*Neobatrachus kunapalari (Kunapalari Frog)*			
6.		*Neobatrachus sp.*			
7.	42303	*Neobatrachus sudellae (Desert Trilling Frog)*			
8.	25427	*Neobatrachus sutor (Shoemaker Frog)*			
9.	25430	*Notaden nichollsi (Desert Spadefoot)*			
10.	42306	*Platyplectrum spenceri (Centralian Burrowing Frog)*			
11.	25434	*Pseudophryne occidentalis (Western Toadlet)*			
Bird					
12.	24559	*Acanthagenys rufogularis (Spiny-cheeked Honeyeater)*			
13.		*Acanthiza (Acanthiza) apicalis subsp. apicalis*			
14.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
15.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
16.	24264	*Acanthiza robustirostris (Slaty-backed Thornbill)*			
17.	24265	*Acanthiza uropygialis (Chestnut-rumped Thornbill)*			
18.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
19.	24312	*Anas gracilis (Grey Teal)*			
20.	24316	*Anas superciliosa (Pacific Black Duck)*			
21.	24561	*Anthochaera carunculata (Red Wattlebird)*			
22.	25528	*Aphelocephala leucopsis (Southern Whiteface)*			
23.	24267	*Aphelocephala leucopsis subsp. leucopsis (Southern Whiteface)*			
24.	24285	*Aquila audax (Wedge-tailed Eagle)*			
25.	24341	*Ardea pacifica (White-necked Heron)*			
26.	24610	*Ardeotis australis (Australian Bustard)*			
27.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
28.	24356	*Artamus personatus (Masked Woodswallow)*			
29.	24318	*Aythya australis (Hardhead)*			
30.		*Barnardius zonarius*			
31.	24725	*Cacatua roseicapilla subsp. assimilis (Galah)*			
32.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
33.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
34.		*Certhionyx (Certhionyx) variegatus*			
35.	24564	*Certhionyx variegatus (Pied Honeyeater)*			
36.	24377	*Charadrius ruficapillus (Red-capped Plover)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
37.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
38.		*Cheramoeca leucosterna*			
39.	24431	*Chrysococcyx basalis (Horsfield's Bronze Cuckoo)*			
40.	24833	*Cincloramphus cruralis (Brown Songlark)*			
41.	24834	*Cincloramphus mathewsi (Rufous Songlark)*			
42.	25580	*Cinclosoma castaneothorax (Chestnut-breasted Quail-thrush)*			
43.	42311	*Cinclosoma marginatum (Western Quail-thrush)*			
44.	25581	*Climacteris affinis (White-browed Treecreeper)*			
45.	24396	*Climacteris rufa (Rufous Treecreeper)*			
46.		*Colluricincla (Colluricincla) harmonica*			
47.		*Colluricincla (Colluricincla) harmonica subsp. rufiventris*			
48.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
49.	24399	*Columba livia (Domestic Pigeon)*	Y		
50.	24361	*Coracina maxima (Ground Cuckoo-shrike)*			
51.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
52.	24416	*Corvus bennetti (Little Crow)*			
53.	25593	*Corvus orru (Torresian Crow)*			
54.		*Corvus sp.*			
55.	24671	*Coturnix pectoralis (Stubble Quail)*			
56.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
57.	25595	*Cracticus tibicen (Australian Magpie)*			
58.	25596	*Cracticus torquatus (Grey Butcherbird)*			
59.	24322	*Cygnus atratus (Black Swan)*			
60.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
61.	24470	*Dromaius novaehollandiae (Emu)*			
62.		*Elanus axillaris*			
63.		*Elseyornis melanops*			
64.		*Eolophus roseicapillus*			
65.	24567	*Epthianura albifrons (White-fronted Chat)*			
66.	24568	*Epthianura aurifrons (Orange Chat)*			
67.	24570	*Epthianura tricolor (Crimson Chat)*			
68.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
69.	24368	*Eurostopodus argus (Spotted Nightjar)*			
70.	25621	*Falco berigora (Brown Falcon)*			
71.	25622	*Falco cenchroides (Australian Kestrel)*			
72.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
73.		*Gallus gallus*			
74.	42314	*Gavicalis virescens (Singing Honeyeater)*			
75.	24401	*Geopelia cuneata (Diamond Dove)*			
76.	25530	*Gerygone fusca (Western Gerygone)*			
77.	24443	*Grallina cyanoleuca (Magpie-lark)*			
78.	24491	*Hirundo neoxena (Welcome Swallow)*			
79.	25661	*Lichmera indistincta (Brown Honeyeater)*			
80.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
81.	25651	*Malurus lamberti (Variegated Fairy-wren)*			
82.	25652	*Malurus leucopterus (White-winged Fairy-wren)*			
83.	25654	*Malurus splendens (Splendid Fairy-wren)*			
84.		*Manorina (Myzantha) flavigula*			
85.	24583	*Manorina flavigula (Yellow-throated Miner)*			
86.	24736	*Melopsittacus undulatus (Budgerigar)*			
87.	24598	*Merops ornatus (Rainbow Bee-eater)*		IA	
88.		*Microeca (Microeca) fascinans*			
89.	24740	*Neophema splendida (Scarlet-chested Parrot)*			
90.		*Neopsephotus bourkii*			
91.	24742	*Nymphicus hollandicus (Cockatiel)*			
92.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
93.		*Onychoprion fuscata*			
94.	24618	*Oreoica gutturalis (Crested Bellbird)*			
95.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
96.	25682	*Pardalotus striatus (Striated Pardalote)*			
97.	24630	*Pardalotus striatus subsp. westraliensis (Striated Pardalote)*			
98.	24659	*Petroica goodenovii (Red-capped Robin)*			
99.	24409	*Phaps chalcoptera (Common Bronzewing)*			
100.		*Phylidonyris (Meliornis) novaehollandiae*			
101.		*Phylidonyris (Meliornis) novaehollandiae subsp. longirostris*			
102.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
103.	24752	*Polytelis alexandrae (Princess Parrot)*		P4	
104.	24683	*Pomatostomus superciliosus (White-browed Babbler)*			
105.	42344	*Purnella albifrons (White-fronted Honeyeater)*			
106.	24278	*Pyrrholaemus brunneus (Redthroat)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
107.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
108.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
109.	30948	*Smicrornis brevirostris (Weebill)*			
110.	24329	*Stictonetta naevosa (Freckled Duck)*			
111.	25597	*Strepera versicolor (Grey Currawong)*			
112.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
113.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
114.	30870	*Taeniopygia guttata (Zebra Finch)*			
115.	42351	*Todiramphus pyrrhopygius (Red-backed Kingfisher)*			
116.		*Tribonyx ventralis*			
117.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
118.	24851	*Turnix velox (Little Button-quail)*			

Invertebrate

119.		*Acariformes sp.*			
120.		*Amblyomma limbatum*			
121.		*Aname mellosa*			
122.		*Argiope protensa*			
123.		*Artoriopsis expolita*			
124.		*Asadipus auld*			
125.		*Aurecocrypta lugubris*			
126.		*Austracantha minax*			
127.		*Backobourkia collina*			
128.		*Backobourkia heroine*			
129.	33935	*Branchinella simplex (fairy shrimp)*		P1	
130.		*Calomyrmex sp.*			
131.		*Camponotus sp.*			
132.		*Cardiocondyla nuda*			
133.		*Cavasteron crassicalcar*			
134.		*Cerapachys sp.*			
135.		*Conopterum mucronatum*			
136.		*Cryptoerithus occultus*			
137.		*Dingosa humphreysi*			
138.		*Ethmostigmus curtipes*			
139.		*Fissarena laverton*			
140.		*Helicoverpa punctigera*			
141.		*Heliocheilus cladotus*			
142.		*Heliothis punctifera*			
143.		*Hoggicosa alfi*			
144.		*Hoggicosa bicolor*			
145.		*Hoggicosa castanea*			
146.		*Hoggicosa forresti*			
147.		*Hogna kuyani*			
148.		*Holconia nigrigularis*			
149.		*Ilyocryptus cf. smirnovi (SAP)*			
150.		*Iridomyrmex chasei*			
151.		*Iridomyrmex difficilis*			
152.		*Iridomyrmex hartmeyeri*			
153.		*Iridomyrmex purpureus*			
154.		*Iridomyrmex sp.*			
155.		*Isopedella saundersi*			
156.		*Isopedella tindalei*			
157.		*Lampona ampeinna*			
158.		*Lampona foliifera*			
159.		*Lamponina elongata*			
160.		*Lamponina scutata*			
161.		*Latrodectus hasseltii*			
162.		*Lycosa australicola*			
163.		*Lycosa woonda*			
164.		*Mainosa longipes*			
165.		*Masasteron piankai*			
166.		*Melophorus sp.*			
167.		*Meranoplus sp.*			
168.		*Minasteron minusculum*			
169.		*Missulena occatoria*			
170.		*Molycria vokes*			
171.		*Monomorium sp.*			
172.		*Nephila edulis*			
173.		*Nomindra yeni*			
174.		*Odontomachus ruficeps*			
175.		*Odontomachus sp.*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
176.		*Parartemia bicorna*			Y
177.		*Parartemia laticaudata*			Y
178.		*Parartemia sp.*			
179.		*Pediana horni*			
180.		*Pediana tenuis*			
181.		*Podomyrma sp.*			
182.		*Polyrhachis sp.*			
183.		*Rheotanytarsus sp. (SFM)*			
184.		*Rhytidoponera sp.*			
185.		*Scolopendra morsitans*			
186.		*Storena sinuosa*			
187.		*Synothele meadhunteri*			
188.		*Tamopsis marri*			
189.		*Tamopsis piankai*			Y
190.		*Trichocyclus arabana*			
191.		*Triops sp.*			
192.		*Urodacus hoplurus*			
193.		*Urodacus yaschenkoi*			
194.		*Venator yalkara*			
195.		*Wandella stuartensis*			Y
196.		*Wydundra kennedy*			
197.		*Wydundra uluru*			
Mammal					
198.	24087	*Antechinomys laniger (Kultarr)*			
199.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
200.	30903	*Dasycercus blythi (Brush-tailed Mulgara, Ampurta)*		P4	
201.	24258	*Equus caballus (Horse)*	Y		
202.	24128	*Lagostrophus fasciatus subsp. fasciatus (Bernier Is. Banded Hare-wallaby, Mernine)*		T	
203.		*Macropus robustus subsp. robustus*			
204.	24136	*Macropus rufus (Red Kangaroo, Marlu)*			
205.		*Macropus sp.*			
206.	24168	*Macrotis lagotis (Bilby, Dalgyte)*		T	
207.	24223	*Mus musculus (House Mouse)*	Y		
208.	24146	*Myrmecobius fasciatus (Numbat, Walpurti)*		T	
209.	24094	*Ningaui ridei (Wongai Ningaui)*			
210.	24224	*Notomys alexis (Spinifex Hopping-mouse)*			
211.	24229	*Notomys mitchellii (Mitchell's Hopping-mouse)*			
212.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
213.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
214.	24103	*Pseudantechinus macdonnellensis (Fat-tailed Pseudantechinus)*			
215.	24106	*Pseudantechinus woolleyae (Woolley's Pseudantechinus)*			
216.	24235	*Pseudomys desertor (Desert Mouse)*			
217.	24237	*Pseudomys hermannsburgensis (Sandy Inland Mouse)*			
218.	24243	*Rattus fuscipes (Western Bush Rat)*			
219.	24108	*Sminthopsis crassicaudata (Fat-tailed Dunnart)*			
220.	24109	*Sminthopsis dolichura (Little long-tailed Dunnart)*			
221.	24114	*Sminthopsis hirtipes (Hairy-footed Dunnart)*			
222.	24115	*Sminthopsis longicaudata (Long-tailed Dunnart)*		P4	
223.	24116	*Sminthopsis macroura (Stripe-faced Dunnart)*			
224.	24117	*Sminthopsis ooldea (Ooldea Dunnart)*			
Reptile					
225.	30833	*Amphibolurus longirostris (Long-nosed Dragon)*			
226.		*Antaresia sp.*			Y
227.	25319	*Antaresia stimsoni subsp. orientalis (Stimson's Python)*			
228.	42374	*Brachyurophis fasciolatus subsp. fasciatus (Narrow-banded Shovel-nosed Snake)*			
229.	42380	*Brachyurophis fasciolatus subsp. fasciolatus (Narrow-banded Shovel-nosed Snake)*			
230.	42381	*Brachyurophis semifasciatus (Southern Shovel-nosed Snake)*			
231.	30886	*Cryptoblepharus australis*			
232.	30893	*Cryptoblepharus buchananii*			
233.	25020	*Cryptoblepharus plagiocephalus*			
234.	25458	*Ctenophorus caudicinctus (Ring-tailed Dragon)*			
235.	24867	*Ctenophorus caudicinctus subsp. infans (Ring-tailed Dragon)*			
236.	24868	*Ctenophorus clayi (Collared Dragon)*			
237.	24873	*Ctenophorus fordi (Mallee Sand Dragon)*			
238.	25459	*Ctenophorus isolepis (Crested Dragon, Military Dragon)*			
239.	24875	*Ctenophorus isolepis subsp. gularis (Central Military Dragon)*			
240.	24882	*Ctenophorus nuchalis (Central Netted Dragon)*			
241.	24884	*Ctenophorus pictus (Painted Dragon)*			
242.	24886	*Ctenophorus reticulatus (Western Netted Dragon)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
243.	24889	*Ctenophorus scutulatus (Lozenge-marked Dragon)*			
244.		*Ctenophorus sp.*			
245.	25025	*Ctenotus ariadnae*			
246.	25461	*Ctenotus brooksi*			
247.	25032	*Ctenotus calurus*			
248.	25037	*Ctenotus dux*			
249.	25041	*Ctenotus grandis subsp. grandis*			
250.	25042	*Ctenotus greeri*			
251.	25044	*Ctenotus hanloni*			
252.	25045	*Ctenotus helenae*			
253.	25050	*Ctenotus leae*			
254.	25052	*Ctenotus leonhardii*			
255.	25057	*Ctenotus nasutus*			
256.	25064	*Ctenotus pantherinus subsp. ocellifer (Leopard Ctenotus)*			
257.	25062	*Ctenotus piankai*			
258.	25066	*Ctenotus quattuordecimlineatus*			
259.	25074	*Ctenotus schomburgkii*			
260.	25075	*Ctenotus severus*			
261.	25080	*Ctenotus uber subsp. uber (Spotted Ctenotus)*			
262.	25090	*Cyclodomorphus melanops subsp. melanops (Slender Blue-tongue)*			
263.	24997	*Delma butleri*			
264.	25001	*Delma nasuta*			
265.	25247	*Demansia psammophis subsp. psammophis (Yellow-faced Whipsnake)*			
266.	24926	*Diplodactylus conspicillatus (Fat-tailed Gecko)*			
267.	25469	*Diplodactylus granariensis*			
268.	24940	*Diplodactylus pulcher*			
269.		*Diplodactylus sp.*			
270.	25092	*Egernia depressa (Southern Pygmy Spiny-tailed Skink)*			
271.	25094	*Egernia formosa*			
272.	25109	*Eremiascincus richardsonii (Broad-banded Sand Swimmer)*			
273.	25301	*Furina ornata (Moon Snake)*			
274.	24957	*Gehyra purpurascens*			
275.	24959	*Gehyra variegata*			
276.	24961	*Heteronotia binoei (Bynoe's Gecko)*			
277.	25125	*Lerista bipes*			
278.	25130	*Lerista desertorum*			
279.	25131	*Lerista distinguenda*			
280.		*Lerista kingi*			
281.		*Lerista sp.*			
282.	42411	*Lerista timida*			
283.	25005	*Lialis burtonis*			
284.	41411	*Liopholis inornata (Desert Skink)*			
285.	41412	*Liopholis kintorei (Great Desert Skink, Tjakura)*		T	
286.	41417	*Liopholis striata (Night Skink)*			
287.	41420	*Lucasium bungabinna (Southern Sand Plain Gecko)*			
288.	30938	*Lucasium damaeum*			
289.	42415	*Lucasium squarrosum*			
290.	30933	*Lucasium stenodactylum*			
291.	25184	*Menetia greyii*			
292.	24904	*Moloch horridus (Thorny Devil)*			
293.	25190	*Morethia butleri*			
294.	25248	*Neelaps bimaculatus (Black-naped Snake)*			
295.	24966	*Nephrurus laevissimus*			
296.	24967	*Nephrurus levis subsp. levis*			
297.	24971	*Nephrurus vertebralis*			
298.	25254	*Parasuta monachus*			
299.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
300.	25261	*Pseudechis australis (Mulga Snake)*			
301.	25262	*Pseudechis butleri (Spotted Mulga Snake)*			
302.	42416	*Pseudonaja mengdeni (Western Brown Snake)*			
303.	25263	*Pseudonaja modesta (Ringed Brown Snake)*			
304.	25009	*Pygopus nigriceps*			
305.	24982	*Rhynchoedura ornata (Western Beaked Gecko)*			
306.	25305	*Simoselaps anomalus (Desert Banded Snake)*			
307.	25266	*Simoselaps bertholdi (Jan's Banded Snake)*			
308.	24923	*Strophurus assimilis (Goldfields Spiny-tailed Gecko)*			
309.	24924	*Strophurus ciliaris subsp. aberrans*			
310.	24927	*Strophurus elderi*			
311.	24931	*Strophurus intermedius*			
312.	25518	*Strophurus spinigerus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
313.	24946	*Strophurus strophurus*			
314.	24949	*Strophurus wellingtonae*			
315.	25269	*Suta fasciata (Rosen's Snake)*			
316.	25202	*Tiliqua multifasciata (Central Blue-tongue)*			
317.	25203	*Tiliqua occipitalis (Western Bluetongue)*			
318.	30814	*Tympanocryptis cephalus (Pebble Dragon)*			
319.	24983	*Underwoodisaurus milii (Barking Gecko)*			
320.	25210	*Varanus brevicauda (Short-tailed Pygmy Monitor)*			
321.	25211	*Varanus caudolineatus*			
322.	25212	*Varanus eremius (Pygmy Desert Monitor)*			
323.	25216	*Varanus giganteus (Perentie)*			
324.	25215	*Varanus gilleni (Pygmy Mulga Monitor)*			
325.	25218	*Varanus gouldii (Bungarra or Sand Monitor)*			
326.	25524	*Varanus panoptes (Yellow-spotted Monitor)*			Y
327.	25223	*Varanus panoptes subsp. rubidus*			
328.	25526	*Varanus tristis (Racehorse Monitor)*			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

Australian Government
Department of the Environment

EPBC Act Protected Matters Report

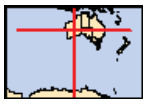
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 16/11/15 17:51:47

Coordinates
Buffer: 0.0Km



Summary

Matters of National Environmental 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:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	6
Listed Migratory Species:	6

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at 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 Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	6
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	10
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely 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
Mammals		
Notoryctes caurinus Kakarratul, Northern Marsupial Mole [295]	Endangered	Species or species habitat may occur within area
Sminthopsis psammophila Sandhill Dunnart [291]	Endangered	Species or species habitat likely to occur within area
Reptiles		
Liopholis kintorei Great Desert Skink, Tjakura, Warrarna, Mulyamiji [83160]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
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		

Name	Threatened	Type of Presence
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
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

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Mammals		
Camelus dromedarius Dromedary, Camel [7]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Equus asinus Donkey, Ass [4]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Carrichtera annua Ward's Weed [9511]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-28.87721 122.41836,-28.86575 122.42168,-28.85917 122.42824,-28.83341 122.44664,-28.8185 122.44997,-28.77199 122.44826,-28.76593 122.44113,-28.75759 122.43726,-28.73595 122.41035,-28.7228 122.40528,-28.63287 122.40442,-28.63291 122.41353,-28.62921 122.42103,-28.62061 122.42368,-28.62232 122.4344,-28.617631 122.457963,-28.617219 122.48633,-28.605842 122.518946,-28.590263 122.543858,-28.560321 122.591988,-28.561604 122.648743,-28.554254 122.683161,-28.545151 122.691959,-28.516215 122.750174,-28.504325 122.769996,-28.502497 122.778622,-28.48856 122.79312,-28.481395 122.803084,-28.467401 122.805315,-28.463949 122.814907,-28.420727 122.919341,-28.41176 122.9304,-28.40344 122.94928,-28.39832 122.95792,-28.41496 123.0856,-28.41656 123.13968,-28.41496 123.1464,-28.41848 123.16016,-28.41688 123.16912,-28.41944 123.1848,-28.42648 123.2008,-28.42872 123.22544,-28.4252 123.23504,-28.41368 123.2584,-28.38392 123.31472,-28.34264 123.3928,-28.30776 123.42864,-28.27864 123.46608,-28.25784 123.50608,-28.25816 123.51184,-28.22872 123.57264,-28.22648 123.58256,-28.18488 123.66256,-28.15896 123.66768,-28.156601 123.690702,-28.14328 123.72304,-28.1276 123.76592,-28.1212 123.77936,-28.054003 123.843344,-28.011181 123.847331

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-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
-Parks and Wildlife Commission NT, Northern Territory Government
-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, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-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.

Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

APPENDIX D

SIGNIFICANT SPECIES PROFILES

Buff-snouted Blind Snake *Anilios margaretae*

Status and Distribution: This species is listed as Priority 2 by DPaW. Limited number of records. Original specimen was collected at Lake Throssel in 1962 (~77 km north east of Gruyere). Since this time it has been recorded at two other locations in WA, these being Neale Junction Nature Reserve (~200Km south east - 2008) and south of Neale Junction Nature Reserve (~ 200k south south east – 2011) (DPaW 2015), and twice in South Australia over 700 km away (Maralinga – 2010 and Oak Valley School – 2012) (Atlas of Living Things 2015), indicating a wide distribution across the Great Victoria Desert. Not recorded during Level 2 fauna surveys at Yamarna (KLA 2012) or Gruyere (Rapallo 2015).

Habitat: Recorded in playa and sheoak (*Casuarina cristata*) habitat associated with Lake Throssell while to the south the blind snake was recorded in *Acacia* shrublands on the border of tree and shrub steppe between sandhills and sandplains (MBS 2014). Like other blind snakes this is a burrowing worm-like snake that feeds mostly on the larvae and pupae of ants and termites.

Likely presence in survey area: The status of this species in the survey area is difficult to determine. Given the presence of suitable habitat (i.e. sand dunes and sand plains) its presence cannot be discounted despite not being recorded during previously fauna surveys in the general area (ecologia 2009, KLA 2012, KEC 2014 and Rapallo 2015). While there are limited records for this species, it appears to have a wide distribution across the Great Victoria Desert. The lack of records could be attributed to the areas remoteness and the secretive habits of blind snakes.

Extent of potential habitat within the survey area: Sand plains and sand dunes (461 ha - ~37.6% of total area).

Great Desert Skink *Liopholis kintorei*

Status and Distribution: This species is listed as Schedule 3 under the *WC Act* and as Vulnerable under the *EPBC Act*. The species appears to have occurred in widespread, but connected, populations in the past in the Great Sandy, Gibson, Great Victoria and Tanami Deserts in the eastern interior of WA and adjacent areas in south-western NT and northwestern SA.

The current known distribution consists of but is not limited to seven isolated populations. Three populations occur in WA at Patjarr (population estimated to be less than 2500 individuals), near the Kiwirrkura community, including the vicinity of Lake Mackay (<500 individuals), and in Rudal River NP (unknown population size). Populations also occur in the NT in the Tanami Desert, including Rabbit Flat, Sangster's Bore, The Granites and near Kintore, (< 2250 individuals); in Uluru - Kata Tjuta NP including part of the Yulara borefields (< 500 individuals); and in the Yulara lease lands including part of the Yulara borefields (< 350 individuals). Only one

population is known to persist in SA, near Watarru on the Anangu-Pitjantjatjara Lands (< 50 individuals) (McAlpin 2001).

Habitat: Arid sand flats and clay based loamy soils vegetated with spinifex (Wilson and Swan 2013). The species generally occurs on red sandplains and sand ridges (Cogger *et al*. 1993). Populations in the Gibson Desert occur on sandplains with a surface cover of fine gravel (Pearson *et al*. 2001). Vegetation usually consists of hummock grassland (*Triodia basedowii, T. pungens* and *T. schinzii*), with some scattered shrubs and occasional trees (e.g. *Acacia spp., Eucalyptus* spp*., Hakea* spp*., Grevillea* spp*. and Allocasuarina decaisneana*) (Cogger *et al.* 1993, McAlpin 2001).

Likely presence in survey area: No evidence of the distinctive burrows or associated scat latrines made by this species were observed during the field survey or during more detailed fauna surveys in the general area (ecologia 2009, TE 2011, KLA 2012, KEC 2014 and Rapallo 2015).

Habitat in some sections of the survey area does appear superficially suitable (sand plains and sand dunes vegetated with spinifex) and the site falls within the historical range of the species but a lack of actual records from the immediate vicinity suggest the probability of the species being present is very low.

Closest DPaW records are from ~100 west of Laverton in 1967 and south of Warburton (275 km north east of Gruyere) in 1963. The closest, more recent records are from the Gibson Desert Nature Reserve (370 km north, north east of Gruyere) in 1997 (DPaW 2015). Available evidence therefore suggests this species is locally extinct despite the presence of apparently suitable habitat.

Not considered a potential species based on currently available information.

Extent of potential habitat within the survey area: Sand plains and sand dunes (461 ha - ~37.6% of total area).

Woma *Aspidites ramsayi*

Status and Distribution: The south western population is classified as Priority 1 by DPaW. The species as a whole is known from four potentially disjunct populations - Southwestern: Yuna, Wialki & Menzies south to Boddington; Narembeen & Marvel Loch and east to western edge of Nullarbor Plain. Peron Peninsula. Arid northwestern: of Eighty-Mile Beach, west to Mundabullangana. Central: Tanami Desert in WA & arid E Australia. Womas were formally abundant in southwestern sandplain habitats, but the few more recent records come from widely scattered localities in the wheatbelt and are old adults (Storr *et al.* 2002).

Habitat: Woodlands, heaths and shrublands, often with spinifex (Wilson and Swan 2013). A nocturnal, terrestrial snake which shelters in hollow logs, animal burrows or thick herbage during the day. Feeds on small mammals, ground birds and reptiles (Cogger 2014). The Woma occurs in a variety of arid sandplain habitats including desert sandplain and dune systems and is strongly associated with red desert sandplains supporting spinifex hummock grasslands (Maryan 2002).

Likely presence in survey area: Outside current documented range. Closest DPaW are from Kookynie and Kitchener, well away from the survey area (DPaW 2015). Not recorded during any recent surveys at or near Laverton, Yamarna or Tropicana (ecologia 2009, TE 2011, KLA 2012, KEC 2014 and Rapallo 2015). Yilka Traditional Owners (Harvey Murray (HM) and Harvey Murry (HJ)) stated that they have never seen this species in this area. Available evidence therefore suggests this species is locally extinct despite the presence of apparently suitable habitat.

Not considered a potential species based on currently available information.

Extent of potential habitat within the survey area: Sand plains and sand dunes (461 ha - ~37.6% of total area).

Malleefowl *Leipoa ocellata*

Status and Distribution: This species is listed as Schedule 3 under the *WC Act* and as Vulnerable under the *EPBC Act*. Originally common, but now generally rare to uncommon and patchily distributed.

Current distribution mainly southern arid and semi-arid zones, north to Shark Bay, Jingemarra, Colga Downs and Yeelirrie, east to Earnest Giles Range, Yeo Lake, lower Ponton Creek and to Eucla and west and south to Cockleshell Gully, the Wongan Hills, Stirling Range, Beaufort Inlet, Hatters Hill, Mt Ragged and Point Malcolm (Johnstone and Storr 1998).

Habitat: Mainly scrubs and thickets of mallee *Eucalyptus* spp., boree *Melaleuca lanceolata* and bowgada *Acacia linophylla*, dense litter forming shrublands and dense mulga woodland.

Likely presence in survey area: No evidence of this species (individuals, foot prints, feathers or recent/old nest mounds) was observed during the survey period. Habitat appears unsuitable or at best marginal along the entire pipeline route primarily due to the generally sparse nature of the vegetation and/or a lack of leaf litter.

Individual malleefowl have very occasionally been observed in the general vicinity of Yamarna (pers. comms. “Driller” and TOs) but no recent active or inactive mounds have ever been recorded despite several fauna and flora surveys over significant areas of land associated with the proposed mining operations. This would suggest

that the habitats present are unsuitable for breeding and that the observations made are of transient individuals.

A single old abandoned nest mound has previously been observed within the Yamarna Project area several years ago (pers. comm. Jim Williams) though its actual age and exact location are unclear.

Malleefowl and malleefowl mounds have also been recorded at Tropicana and at the eastern end of Tropicana to Sunrise Dam pipeline route (KEC 2014).

At this stage listed as a potential species due to possibility for occasional transient individuals to occur but considered unlikely to breed in the survey area.

Extent of potential habitat within the survey area: Vegetated breakaways, rocky hillslopes, clay loam plains, drainage depressions and quartz rocky plains (794 ha - ~64.8% of total area). Most habitat does however appear marginal in quality at best.

Great Egret *Ardea alba*

Status and Distribution: This species of egret is listed as Schedule 5 under the *WC Act and as* Migratory under the *EPBC Act* including international agreements to which Australia is a signatory. The great egret is common and very widespread in any suitable permanent or temporary habitat (Morcombe 2004).

Habitat: Wetlands, flooded pasture, dams, estuarine mudflats, mangroves and reefs (Morcombe 2004).

Likely presence in survey area: Very rarely recorded in this general area. Suitable habitat limited to depressions when inundated

Not listed as a potential species based on currently available information.

Extent of potential habitat within the survey area: Drainage depressions when inundated (49 ha - ~4.0 % of total area). Most habitat does however appear marginal in quality at best.

Cattle Egret *Ardea ibis*

Status and Distribution: This species of egret is listed as Schedule 5 under the *WC Act and as* Migratory under the *EPBC Act* including international agreements to which Australia is a signatory. The cattle egret is common in the northern sections of its range but is an irregular visitor to the better watered parts of the state (Johnstone and Storr 1998). The population is expanding (Morcombe 2004).

Habitat: Moist pastures with tall grasses, shallow open wetlands and margins, mudflats (Morcombe 2004).

Likely presence in survey area: Very rarely if ever recorded in this general area. Suitable habitat limited to depressions when inundated

Not listed as a potential species based on currently available information.

Extent of potential habitat within the survey area: Drainage depressions when inundated (49 ha - ~4.0 % of total area). Most habitat does however appear marginal in quality at best.

Peregrine Falcon *Falco peregrinus*

Status and Distribution: This species is listed as Schedule 7 under the *WC Act*. Individuals of this species are uncommon/rare but wide ranging across Australia. Moderately common at higher levels of the Stirling Range, uncommon in hilly, north west Kimberley, Hamersley and Darling Ranges; rare or scarce elsewhere (Johnstone and Storr 1998).

Habitat: Diverse from rainforest to arid shrublands, from coastal heath to alpine (Morcombe 2004). Mainly about cliffs along coasts, rivers and ranges and about wooded watercourses and lakes (Johnstone and Storr 1998). The species utilises the ledges, cliff faces and large hollows/broken spouts of trees for nesting. It will also occasionally use the abandoned nests of other birds of prey. Also known to utilise decommissioned open cut pit walls for nesting.

Likely presence in survey area: Previously recorded at Tropicana (ecologia 2009). The species potentially utilises some sections of the survey area as part of a much larger home range for foraging purposes only. Would only be represented by a very small number of individuals for limited periods.

Extent of potential habitat within the survey area: Foraging habitat - sand plains, sand dunes, breakaways, clay loam plains, rocky hillslopes, drainage depressions and quartz rocky plains (1,255 ha – 100% of total area). Breeding habitat - Large trees with open spouts suitable for nesting or abandoned bird of prey nests – total number unknown, but none observed during field survey.

Grey Falcon *Falco hypoleucos*

Status and Distribution: Listed as Schedule 3 under the *WC Act*. Within WA found in the northern half south to about 26°S (Gascoyne, Lake Carnegie and Warburton), casual further south (Johnstone and Storr 1998).

Habitat: Lightly treed plains, gibber deserts, sand ridges, pastoral lands, timbered water courses but seldom in driest deserts (Pizzey & Knight 2012). It has a distribution centred around ephemeral or permanent drainage lines, utilising old

nests of other bird species situated in the tallest trees along the river systems (Garnett and Crowley 2000).

Likely presence in survey area: The survey area is just outside this species current main documented range though it has been recorded near Murrin Murrin and near Salt Creek (60 km south-east of Tropicana). This paucity of previous records and the lack of tree-lined watercourses within the survey area itself would suggest that grey falcons would only occur as nonbreeding, irregular visitors.

May occur very occasionally but not listed as a potential species.

Extent of potential habitat within the survey area: Foraging habitat - sand plains, sand dunes, breakaways, clay loam plains, rocky hillslopes, drainage depressions and quartz rocky plains (1,255 ha – 100% of total area). No suitable breeding habitat.

Migratory Shorebirds

A number of migratory shorebirds have previously been recorded in the general area. Not all specific species are discussed in detail.

Status and Distribution: Most migratory shorebirds are listed under Schedule 5 of the WC Act, as Migratory under the *EPBC Act* and under international agreements to which Australia is a signatory. All species are either widespread summer migrants to Australia or residents. State and Federal conservation status varies between species.

Habitat: Varies between species but includes beaches and permanent/temporary wetlands varying from billabongs, swamps, lakes, floodplains, sewerage farms, saltwork ponds, estuaries, lagoons, mudflats sandbars, pastures, airfields, sports fields and lawns.

Likely presence in study area: Migratory shorebirds are only occasionally recorded in this vicinity and then only in small numbers, for short periods of time. Manmade dams and flooded areas maybe use by one or more species on very rare occasions, but as these areas (if present) represent very marginal habitat and the likely infrequent and temporary nature of such visitations, no migratory shorebirds are listed as a potential species. No evidence of any migratory shorebirds being present found during the field survey

Extent of potential habitat within the survey area: Drainage depressions when inundated (49 ha - ~4.0 % of total area). Most habitat does however appear marginal in quality at best.

Oriental Plover *Charadis veredus*

Status and Distribution: The oriental plover is listed as Schedule 5 under the *WC Act* and as Migratory under the *EPBC Act* including international agreements to which Australia is a signatory. Breeds in Mongolia and Manchuria – regular summer migrant to Australia (September to March) (Pizzey & Knight 2012). Kimberley, north western interior (Lake Gregory) and north west coastal plains (south to tropic); casual or vagrant elsewhere (south to 32°15'S) (Johnstone and Storr 1998).

Habitat: Mainly sparsely vegetated plains including samphire and short grasses flats. Also beaches, tidal flats, salt works and sewage ponds (Johnstone and Storr 1998).

Likely presence in survey area: This species would only occur in the general area as a casual/vagrant on very rare occasions at best. Habitat within the survey area itself appears unsuitable for this species to utilise.

Not listed as a potential species based on currently available information.

Extent of potential habitat within the survey area: No suitable habitat identified.

Princess Parrot *Polytelis alexandrae*

Status and Distribution: This species is listed as Priority 4 by the DPaW and as Vulnerable under the *EPBC Act*. Rare, highly nomadic (Pizzey & Knight 2012). Found in the eastern deserts north to the Edgar Ranges, west to the Gregory Range, Well 18, Mt Bates, Lake Throssell and Mt Luck and south to Queen Victoria Spring and Carlisle Lakes, casual further north (Fossil Downs, Bohemia Downs) and west (head of Gascoyne, head of the Murchison, Wiluna, Wanjarri, Sandstone, Laverton, Kookynie, Menzies, Kanowna). Also deserts of eastern Australia (Johnstone and Storr 1998).

Habitat: Arid shrubland, particularly mulga, Desert Oak and Spinifex country including trees along watercourses (Simpson and Day 2010). The princess parrot inhabits sand dunes and sand flats supporting open woodlands and shrublands that usually consist of scattered stands of *Eucalyptus* (including *E. gongylocarpa* and mallee species), *Casuarina* or *Allocasuarina* trees and an understorey of shrubs such as *Acacia* (especially *A. aneura*), *Senna, Eremophila, Grevillea, Hakea* and a ground cover dominated by Triodia species (DotE 2013).

Likely presence in survey area: The species may frequent the survey area at times, but given it is highly nomadic, its frequency of occurrence would be very low and generally temporary. Areas containing *Euclayptus gongylocarpa* woodland are of most significance as they have the potential to contain larger trees with hollows that may represent potential breeding habitat.

Extent of potential habitat within the survey area: Foraging habitat - sand plains, sand dunes, breakaways, clay loam plains, rocky hillslopes, drainage depressions and quartz rocky plains (1,255 ha – 100% of total area). Breeding habitat - Large trees with hollows suitable for nesting – total number unknown, though a small number of potential hollows observed during field survey.

Night Parrot *Pezoporus occidentalis*

Status and Distribution: This species is listed as Schedule 1 under the *WC Act* and as Endangered under the *EPBC Act*. Historical evidence indicates that night parrots were distributed over much of semi-arid and arid Australia (Garnett and Crowley 2000). Extremely secretive and hard to flush, in WA there are only three accepted records of night parrots since 1935, all from the Pilbara region (1979, 1980 and 2005; DotE 2015). The most recent record is from Minga Well (35 km north east of Marillana) during a fauna survey at Fortescue Metals Group's Cloudbreak lease (Bamford 2005).

Habitat: Preferred habitat is thought to be spinifex grasslands or samphire and chenopod shrublands on claypans, floodplains or the margins of salt lakes, creeks or other water bodies (Johnstone and Storr 1998; Higgins 1999; DotE 2015).

Likely presence in survey area: There are no recent records of this species in the area and it is generally accepted as being locally and possibly regionally extinct despite the presence of apparently suitable habitat.

Not listed as a potential species based on currently available information.

Extent of potential habitat within the survey area: Vegetated sand plains (460 ha – 37.6 % of total area).

Fork-tailed Swift *Apus pacificus*

Status and Distribution: The fork-tailed swift is listed as Schedule 5 under the *WC Act* and as Migratory under the *EPBC Act* including international agreements to which Australia is a signatory. It is a summer migrant (Oct-Apr) to Australia (Morcombe 2004).

Habitat: Low to very high airspace over varied habitat from rainforest to semi desert (Morcombe 2004).

Likely presence in survey area: It is potentially a very occasional summer visitor to the survey area but is entirely aerial and largely independent of terrestrial habitats.

Not listed as a potential species given it would only occur very rarely and then only for short periods.

Extent of potential habitat within the survey area: Foraging habitat – almost totally aerial and therefore any section of the survey area (1,255 ha – 100% of total area). Breeding habitat – absent (0%).

Rainbow Bee-eater *Merops ornatus*

Status and Distribution: This species is listed as Schedule 5 under the *WC Act* and as Migratory under the *EPBC Act* including international agreements to which Australia is a signatory. The rainbow bee-eater is a common summer migrant to southern Australia but in the north they are resident (Morcombe 2004).

Habitat: Open country, of woodlands, open forest, semi arid scrub, grasslands, clearings in heavier forest, farmlands (Morcombe 2004). Breeds underground in areas of suitable soft soil firm enough to support tunnel building. Nest is a burrow usually dug at a slight angle in flat ground, sometimes into sandy banks or cuttings and often on margins of roads and tracks (Johnstone and Storr 1998).

Likely presence in survey area: Common seasonal visitor to southern half of WA. Likely to use the survey area on occasions though it would not be specifically attracted to the site. Some potential for the species to breed in some sections of the survey area where ground conditions are suitable. Population levels would however not be significant as it usually breeds in pairs and rarely in small colonies (Johnstone and Storr, 1998).

Extent of potential habitat within the survey area: Foraging habitat – vegetated sand plains, sand dunes, rocky hillslopes, breakaways, clay loam plains, drainage depressions and quartz rocky plains (1, 255 ha – 100% of total area). Breeding habitat - sand plains and sand dunes (461 ha - ~37.6% of total area).

Striated Grasswren (sandplain) *Amytornis striatus striatus*

Status and Distribution: This sub-species is listed as Priority 4 by DPaW. Found in the eastern deserts between lats.20° and 28°39'S (north to Sahara Track and Well 48 and including much of Great Sandy, Gibson and Great Victoria Deserts), west to Erliston and south to 39 km ENE of Laverton, 27 km S of Neale Junction and the Serpentine Lakes, with an apparently isolated population between Meekatharra and Wiluna and another near Queen Victoria Spring (Johnstone and Storr 1998).

Habitat: Mainly spinifex, with or without low shrubs (especially *Thryptomene maisonneuvei*) and herbage, on sandy or loamy plains; also bushy acacias (especially *A. ligulata* and *A. aneura*) on sandridges and interdunes, usually with spinifex (Johnstone and Storr 1998).

Likely presence in survey area: Not observed during the field survey however this species was recorded at several locations along the Tropicana to Sunrise Dam

pipeline route (KEC 2014) and it is therefore could occur in suitable habitat within the pipeline route, mainly in the central/eastern section.

Extent of potential habitat within the survey area: Sand plains, sand dunes and clay/loam plains (802 ha – 65.4% of total area).

Thick-billed Grass-wren (western ssp) *Amytornis textilis textilis*

Status and Distribution: Listed as Priority 4 by DPaW. Historically, the 'western' thick-billed grasswren was found in the Shark Bay area, including Peron Peninsula and Dirk Hartog Island, at Wongan Hills, east of Broomehill, between Beverley and Narembeen, Mt Magnet, Lake Austin, Lake Way and Lake Violet, Yalgoo, Kalgoorlie and Laverton. There is some doubt as to the extent of the thick-billed grasswren's former distribution over the Nullarbor Plain. Currently restricted to the Shark Bay region including Peron Peninsula and the nearby pastoral stations of Nanga, Hamelin, Woodleigh and Carbla (Cale 2000).

Habitat: Occurs in acacia-dominated shrublands, dense shrub associations in drainage depressions, and *Triodia* spinifex with acacia shrubland components. All these habitats feature recumbent shrubs where the foliage extends to the ground. In acacia-dominated shrublands, shrub clumps of high foliage density appear important determinants of thick-billed grasswren presence. These shrub clumps may provide the thick-billed grasswren with ideal nesting sites (Cale 2000).

Likely presence in survey area: This species has not been recorded in this general area for over 100 years and is therefore considered to be locally and regionally extinct despite the presence of some apparently suitable habitat (shrublands).

Not considered a potential species based on currently available information.

Extent of potential habitat within the survey area: Densely vegetated sand plains, sand dunes, rocky hillslopes, breakaways, clay loam plains, drainage depressions and quartz rocky plains (1,255 ha – 100% of total area). Many areas may however be marginal due to lack of dense shrubs.

Grey Wagtail *Motacilla cinerea*

Status and Distribution: The grey wagtail is listed as Schedule 5 under the *WC Act* and as Migratory under the *EPBC Act* including international agreements to which Australia is a signatory. A rarely recorded, accidental vagrant that has on a few occasions been recorded on widely separated parts of the Australian coastline (Pizzey & Knight 2012).

Habitat: In Australia, near running water in disused quarries, sandy, rocky streams in escarpments and rainforest, sewerage ponds, ploughed fields and airfields (Pizzey & Knight 2012).

Likely presence in survey area: This species preferred habitat is absent from the survey area and under normal circumstances it would not occur.

Not listed as a potential species based on currently available information.

Extent of potential habitat within the survey area: No habitat suitable for this species to utilise appears to be present.

Yellow Wagtail *Motacilla flava*

Status and Distribution: The yellow wagtail is listed as Schedule 5 under the *WC Act* and as Migratory under the *EPBC Act* including international agreements to which Australia is a signatory. A regular summer migrant to mostly coastal northern Australia, vagrant in southern Australia (Pizzey & Knight 2012).

Habitat: Habitat requirements for the yellow wagtail are highly variable, but typically include open grassy flats near water. Habitats include open areas with low vegetation such as grasslands, airstrips, pastures, sports fields; damp open areas such as muddy or grassy edges of wetlands, rivers, irrigated farmland, dams, waterholes; sewage farms, sometimes utilise tidal mudflats and edges of mangroves (Pizzey & Knight 2012).

Likely presence in survey area: This species preferred habitat is absent from the survey area and under normal circumstances it would not occur.

Not listed as a potential species based on currently available information.

Extent of potential habitat within the survey area: No habitat suitable for this species to utilise appears to be present.

Brush-tailed Mulgara *Dasycercus blythi*

Status and Distribution: Listed as Priority 4 by the DPaW. Because most previous records did not distinguish among the two species of mulgara now recognised (i.e. brush-tailed and crest-tailed), there is some ambiguity about the distribution of both species. Widespread but patchy in sandy regions of arid central Australia and WA. Has declined in the south and east of range (Menkhorst & Knight 2011).

Habitat: The brush-tailed mulgara occur in a range of vegetation types including hummock grass plains, sand ridges, mulga shrubland on loamy sand, however, the principal habitat is mature hummock grasslands of spinifex, especially *Triodia basedowii* and *T. pungens* where it lives in burrows that it digs on the flats between

low sand dunes (Van Dyck & Strahan 2008). The location of brush-tailed mulgara colonies may be influenced by the presence of better watered areas such as paleo-drainage systems or drainage lines in sand plain or sand dune habitats (Masters *et al.* 2003).

Likely presence in survey area: There is a paucity of records of this species in the area and no evidence of its presence was observed during the field survey. The current status in the survey area is therefore difficult to determine. The most recent nearby records are just south west of Yamarna from 1990 (DPaW 2015) and it was also recorded at several locations along the Tropicana to Sunrise Dam pipeline route (KEC 2014). This information coupled with the fact that habitat in some sections of the survey area appears suitable (e.g. sand plains, sand ridges, *Acacia* shrubland on loamy sand) suggests that the species may be present in some areas.

Extent of potential habitat within the survey area: Sand plains, sand dunes and clay/loam plains (802 ha – 65.4% of total area).

Southern Marsupial Mole *Notoryctes typhlops*

Status and Distribution: Listed as Priority 4 by the DPaW. The southern marsupial mole is widely distributed throughout the arid areas of central Australia, mainly in the central deserts of the Northern Territory, Western Australia and South Australia (Burbidge *et al*. 1988). These regions include the Great Sandy, Little Sandy, Gibson, Tanami, Great Victoria and western Simpson Deserts. Recent survey work suggests they are more widespread and common than currently suspected (Van Dyck & Strahan 2008).

Habitat: Deep loose sand appears to be a requirement for the southern marsupial mole and the species is most often recorded in sandy dunes with various *Acacias* and other shrubs (Corbett 1975, Johnson & Walton 1989). Such habitat is widespread and typical of the sandy deserts. The southern marsupial mole may also occur in some sandy plains, and might also occupy sandy river flats, especially in areas where aeolian dunes also occur (Benshemesh 2004).

Likely presence in survey area: No evidence of this species has to date been found at Gruyere and the proposed pipeline route lacks suitable habitat with only a very small area of dunes being present, which also makes sandplain areas unlikely habitat. Based on this available information it is considered unlikely that the species occurs within the survey area.

Not listed as a potential species based on available information.

Extent of potential habitat within the survey area: Sand dunes (1 ha – ~0.1% of total area).

Sandhill Dunnart *Sminthopsis psammophila*

Status and Distribution: The sandhill dunnart is listed as Schedule 2 under the *WC Ac*t and as Endangered under the *EPBC Act*. The species is known from only four locations including southern Northern Territory, South West Great Victoria Desert (Including Queen Victoria Springs Nature Reserve), Yellabinna sand dunes in Central South Australia and the Eyre Peninsula in South Australia (Menkhorst and Knight 2011). In Western Australia the species appears to be restricted to the south western fringe of the Great Victoria Desert inhabiting yellow sand dune systems with long unburnt mature hummock grasslands (*Triodia* sp.) and often in association with Mallee or Marble Gum, *Callitris* and an associated complex shrub understorey (GHD 2010, Churchill 2009, DPaW 2015).

Sandhill dunnarts in Western Australia have been captured in Queen Victoria Springs, (Pearson and Robinson, 1990) and near Mulga Rock in the Great Victoria Desert (Hart and Kitchener 1986) and in the Plumridge Nature Reserve (ecologia 2009).

Habitat: A variety of sandy habitats usually with sand dunes and an understorey of *Triodea* spp. hummock grass. Overstorey vegetation can vary but in Great Victoria region most often associated with low open *Eucalyptus* and *Callitris* woodlands (Van Dyck & Strahan 2008). Low parallel sand dunes carrying open woodland with diverse low shrub layer and hummock grass (Menkhorst and Knight 2011). Long unburnt spinifex sandplain between yellow sand dunes (KEC 2014).

Likely presence in survey area: This species optimum habitat in the Great Victoria Desert area is yellow sand dune systems with long unburnt mature hummock grasslands (*Triodia* sp.). This habitat is absent from the survey area.

Not listed as a potential species.

Extent of potential habitat within the survey area: No suitable habitat for this species appears to be present.

Long-tailed Dunnart *Sminthopsis longicaudata*

Status and Distribution: Listed as Priority 4 by DPaW. Known from several widespread localities between the Pilbara, NE Goldfields and Gibson Desert WA and the western MacDonald Ranges, Northern Territory (Menkhorst and Knight 2011).

Habitat: This species is noted as favouring rocky ranges but is also known from more open country with only a gravel/stony mantle (Van Dyck and Strahan 2008, TE 2011).

Likely presence in survey area: Recorded during the "Granny Deeps" fauna survey in 2011 which lies in close proximity to the pipeline route option near Laverton (TE 2011). May therefore occur in suitable habitat, most likely in western sections of the pipeline route.

Extent of potential habitat within the survey area: Breakaways, rocky hillslopes and quartz/rocky plains (404 ha – 33.0 % of total area).

Numbat *Myrmecobius fasciatus*

Status and Distribution: Listed as Scheduled 2 under the *WC Act* and as Vulnerable under the *EPBC Act*. Once occurred across much of arid and semi arid southern Australia, now restricted to a few remnant forests of Wandoo, Powderbark Wandoo or jarrah in South West WA (Menkhorst & Knight 2001). Rare, scattered. Found only at Dryandra, Perup and six other translocation sites (Van Dyck & Strahan 2008).

Habitat: Generally dominated by eucalypts that provide hollow logs and branches for shelter and termites for food (Van Dyck & Strahan 2008).

Likely presence in study area: Available evidence suggests this species is locally and regionally extinct.

Not listed as a potential species.

Extent of potential habitat within the survey area: No habitat suitable for this species to utilise appears to be present.

Bilby *Macrotis lagotis*

Status and Distribution: The bilby is listed as Schedule 3 under the *WC Ac*t and as Vulnerable under the *EPBC Act*. Current known distribution in suitable habitat extends from Tanami Desert west to near Broome and south to Warburton. Former distribution extended south to Margaret River, though apparently absent from coastal plain (Burbidge 2004).

Habitat: Current habitat includes *Acacia* shrublands, spinifex and hummock grassland (Menkhorst and Knight 2011). Mitchell grass and stony downs country if cracking clay, also desert sand plains and dune fields sometimes with spinifex hummock grassland and acacia shrubland (Van Dyck *et al.* 2013).

Likely presence in survey area: Not recorded during any recent surveys at or near Laverton, Yamarna or Tropicana (ecologia 2009, TE 2011, KLA 2012, KEC 2014 and Rapallo 2015) and all available evidence suggests this species is locally extinct despite the presence of apparently suitable habitat.

Not listed as a potential species based on currently available information.

Extent of potential habitat within the survey area: Sand plains, sand dunes, quartz/rocky plains, clay/loam plains and drainage depressions (1,175 ha - ~95.9% of total area).

Central Long-eared Bat *Nyctophilus major tor*

Status and Distribution: Listed as Priority 4 by DPaW. Historical distribution included the Coolgardie, Hampton and northern Avon Bioregions in Western Australia, Gawler Bioregion and western part of the 'Eyre and York Blocks' Bioregion in South Australia. A specimen from Ooldea in the Great Victoria Desert Bioregion of South Australia. One other specimen from a car grill after a night-time drive from Marla (Stony Plains Bioregion of SA) to Alice Springs in the Northern Territory via the Stuart Highway in c.1985. No historical data on abundance.

Up till last decade only known from 15 localities in Western Australia and 19 in South Australia. No evidence that range has contracted, but it is apparently rare in Great Victoria Desert, Nullarbor and Stony Plains Bioregions while it is locally common in Coolgardie, Hampton, Gawler and western Eyre-York Block Bioregions (Duncan *et al.* (ed) 1999).

Habitat: Gleans ground, bark and foliage surfaces; forages in and against cluttered airspaces. The species is often netted, and sometimes caught in pit traps, in heavy eucalypt woodlands and tall woodlands of the Coolgardie Bioregion of Western Australia with a tall shrub understorey of *Melaleuca lanceolata, M. pauperiflora, M. quadrifaria, Eremophila spp*. etc. Less common in open woodlands. Has been netted at dams in the Coolgardie and Hampton Bioregions of Western Australia while in South Australia has been associated with a range of mallee (*Eucalyptus*) species, *Acacia papyrocarpa*, *A. ramulosa, Casuarina cristata* and found to the fringes of the treeless Nullarbor Plain (Duncan *et al* (ed) 1999). Roosts in tree cavities, in foliage and under loose bark (Churchill 2008).

Likely presence in survey area: Possibly recorded within the Gruyere Project area but the calls of a closely related species could not be separated in this instance (Rapallo 2015). Recorded at Tropicana (ecologica 2009) but not further west or north west (TE 2011, KEC 2014) despite the presence of apparently suitable habitat.

Not listed as a potential species based on this information.

Extent of potential habitat within the survey area: Sand plains, sand dunes, breakaways, clay loam plains, drainage depressions and quartz rocky plains (1, 255 ha – 100% of total area). Requires tree hollows, foliage and loose bark for roosting (Churchill 2008).

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The conclusions are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of preparing the report. Also it should be recognised that site conditions, can change with time.

Within the limitations imposed by the scope of services, the field assessment and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

In preparing the report, the Author has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise stated in the report, the Author has not verified the accuracy of completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. The Author will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to the Author.

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The Author will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

Date	Time	Govt Department/ Stakeholder	Section	Stakeholder Name(s)	Gold Road Member Name(s)	Project Area	Discussion/Outcomes	Consultation Type	Document Reference	Key Words
28-Aug-15	13:00	Department of Mines and Petroleum	Strategic Projects	Ian Mitchell Trent Richards Mike Wilde Graham Cobby	Glenn Firth Wayne Trumble	Gruyere Project Gas Pipeline	Provide DMP with an update on the baseline survey data, map out project approvals requirements for Gruyere, seek further advice from DMP on approvals pathways and timing, get clarity on which regulatory stakeholders we need to engage with and when this should occur. The gas pipeline project was also introduced to DMP-P at this meeting.	Formal Meeting Presentation	N/A	Lead agency Approvals
17-Aug-15 / 22-Aug-15	6 days	Representative members of Yilka and Central Desert Native Title Services	Yilka People	Harvey Murray / Harvey Murray Junior / Kassey Murray / Marika	Jim Williams (Botanica)	Gas Pipeline	Identifying and discussing flora, fauna and other matters that are significant to the Yillka that occur along the Midline gas pipleline route option.	Fieldwork	N/A	Fauna survey Flora survey Gas
20-Aug-15	11:16	Department of Mines and Petroleum	Strategic Projects	Ian Mitchell (DMP)	Glenn Firth (Gold Road)	Gas pipeline	Seeking a meeting with DMP-P as part of the 28/8 meeting to introduce the gas pipeline project and receive advice.	Email	N/A	Approvals Gas
28-Aug-15	13:00	Department of Mines and Petroleum	Strategic Projects	Ian Mitchell / Trent Richards / Mike Wilde / Graham Cobby (DMP)	Glenn Firth (Gold Road) Wayne Trumble	Gruyere Gas pipeline	Provide DMP with an update on the baseline survey data, map out project approvals requirements for Gruyere, seek further advice from DMP on approvals pathways and timing, get clarity on which regulatory stakeholders we need to engage with and when this should occur. The gas pipeline project was also introduced to DMP-P at this meeting.	Formal Meeting and presentation	N/A	Approvals Gas
17-Sep-15	17:15	Shire of Laverton	Councillors	Steven Deckert (CEO) / Cr Patrick Hill / Cr Beatrice Fuamatu / Cr Geoff Walder / Russell Williams / Graham Stanley	Glenn Firth (Gold Road) Leigh Beck (Gold Road)	Gruyere Gas pipeline Access roads	Provide SoL with an update on the project and seek advice on local government approvals required and timing. The gas pipeline project, water supply and transport routes were also introduced to SoL at this meeting.	Formal Meeting Presentation	N/A	Local Government
23-Sep-15 / 25-Sep-15	3 days	Senior men		Senior men	None	Gruyere Gas pipeline Access roads	Cultural mapping of the Gruyere project area footprint, including access roads, borefields and gas pipelines was conducted by *Wati* who have the cultural authority for the area.	Survey		Cultural heritage
27-Nov-15	17:00	Office of the Environmental Protection Authority	Assessment and Compliance Division	Peter Tapsell (OEPA)	Nicole Garbin (MBS) Kristy Sell (MBS) Glenn Firth (Gold Road)	Gruyere Gas Pipeline	Email from Glenn Firth to Peter Tapsell explaining that the combined mine and water EPA referral document for the Gruyere Project is being written. Also, that the flora and fauna studies along the gas pipeline route have been completed and requesting a pre-referral meeting for the gas pipeline with Ian Mitchell present for December 2015 or January 2016.	Email	Gas Pipeline Project	Approvals OEPA Referral
15-Jan-16	11:00	Gold Fields	Granny Smith Mine	Gemma Class	Sharon Goddard (Gold Road) Glenn Firth (Gold Road)	Gas Pipeline	Alignment around Granny Smith Mine. L38-245	Meeting	N/A	Approvals Gas
20-Jan-16	14:43	Office of the Environmental Protection Authority	Assessment and Compliance Division	Chris Stanley (OEPA)	Nicole Garbin (MBS) Kristy Sell (MBS) Glenn Firth (Gold Road)	Gas Pipeline	Email from Kristy Sell to Chris Stanely of OEPA requesting a meeting to make a presentation to the OEPA regarding Gold Road's gas pipeline project and to discuss whether there would be a need for a referral.	Email	Meeting for Gold Road Gruyere Project Gas Pipeline Proposal	Approvals Gas
22-Jan-16	15:43	Office of the Environmental Protection Authority	Assessment and Compliance Division	Robert Hughes (OEPA)	Nicole Garbin (MBS)	Gas Pipeline	Phone call from Nicole Garbin to Robert Hughes, returning Robert's call.	Phone Call	Meeting for Gold Road Gruyere Project Gas Pipeline Proposal	Approvals Gas

Date	Time	Govt Department/ Stakeholder	Section	Stakeholder Name(s)	Gold Road Member Name(s)	Project Area	Discussion/Outcomes	Consultation Type	Document Reference	Key Words
23-Jan-16	16:00	Office of the Environmental Protection Authority	Assessment and Compliance Division	Robert Hughes (OEPA) Sally Bowman (OEPA)	Kristy Sell (MBS)	Gas Pipeline	Phone call and email from Robert Hughes to Kristy Sell regarding arranging a meeting to discuss the gas pipeline project for a week when Sally Bowman has returned to the office and questions regarding who will operate the pipeline and if the mine will operate under diesel gen sets in the early stage.	Email Phone Call	Meeting for Gold Road Gruyere Project Gas Pipeline Proposal	Approvals Gas
29-Jan-16	9:26	Office of the Environmental Protection Authority	Assessment and Compliance Division	Robert Hughes (OEPA) Sally Bowman (OEPA)	Kristy Sell (MBS)	Gas Pipeline	Email from Kristy Sell to Robert Hughes advising that Gold Road would like to meet with Sally Bowman and for Robert to organise a meeting date and details.	Email	Meeting for Gold Road Gruyere Project Gas Pipeline Proposal	Approvals OEPA Referral
29-Jan-16	10:34	Office of the Environmental Protection Authority	Assessment and Compliance Division	Robert Hughes (OEPA) Sally Bowman (OEPA)	Kristy Sell (MBS)	Gas Pipeline	Email from Robert Hughes to Kristy Sell advising that Sally Bowman can meet up from 11-12pm on 4/02/16 and asks if that is a suitable time.	Email	Meeting for Gold Road Gruyere Project Gas Pipeline Proposal	Approvals Gas
04-Feb-16	11:00	Office of the Environmental Protection Authority	Assessment and Compliance Division	Chris Stanley (OEPA) Sally Bowman (OEPA)	Kristy Sell (MBS) Glenn Firth (Gold Road) Sim Lau (Gold Road)	Gas Pipeline	Meeting with OEPA to discuss referral of the gas pipeline project.	Meeting	Meeting for Gold Road Gruyere Project Gas Pipeline Proposal	Approvals Gas
16-Feb-16	13:00	Department of Mines and Petroleum	Operations, Environment and Native Vegetation Branch	Ian Mitchell (DMP) Jeremy Quartermaine (DMP)	Glenn Firth (MBS) Nicole Garbin (MBS)	Gas Pipeline	Meeting with DMP to provide a briefing regarding the gas pipeline project and to discuss the project approvals and schedule.	Meeting	Meeting for Gold Road Gruyere Project Gas Pipeline Proposal	Approvals Gas
18-Feb-16	15:00	Shire of Laverton	Councillors	Russell Williams	Glenn Firth (Gold Road) Sharon Goddard (Gold Road)	Gruyere Project Gas Pipeline	I38-245 Alignment around Laverton.	Formal meeting	N/A	Approvals Local Government
18-Feb-16	17:15	Shire of Laverton	Councillors	Steven Deckert (CEO) Cr Patrick Hill Cr Beatrice Fuamatu Cr Geoff Walder Russell Williams Graham Stanley	Glenn Firth (Gold Road) Sharon Goddard (Gold Road)	Gruyere Project Gas Pipeline	Provide SoL with an update on the project and seek advice on local government approvals required and timing. The gas pipeline project, water supply and transport routes were also introduced to SoL at this meeting.	Formal meeting	N/A	Approvals Local Government
18-Apr-16	9:49	Office of the Environmental Protection Authority	Assessment and Compliance	Kathryn Schell (OEPA) Sally Bowman (OEPA)	Kristy Sell (MBS) Glenn Firth (Gold Road)	Gruyere Project Gas Pipeline	Email from Kristy Sell to Kathryn Schell (Cc Sally Bowman, Glenn Firth) regarding the EPA referral for the gas pipeline. Kristy advised there is a small portion of the route where there are 2 potential options and if it's suitable to show these 2 options in the referral document and address the environmental values for both. Kristy wanted to be clear on the acceptability of this approach prior to submission of the referral to the OEPA.	Email	Gas Pipeline Referral Query for Gold Road	Approvals OEPA Referral Gas
18-Apr-16	11:04	Office of the Environmental Protection Authority	Assessment and Compliance	Kathryn Schell (OEPA) Sally Bowman (OEPA)	Kristy Sell (MBS) Glenn Firth (Gold Road)	Gruyere Project Gas Pipeline	Email from Kathryn Schell to Kristy Sell (Cc Sally Bowman, Glenn Firth) advising that the approach as described by Kristy (to present 2 options) within the gas pipeline EPA referral is suitable.	Email	RE: Gas Pipeline Referral Query for Gold Road	Approvals OEPA Referral Gas

Date	Time	Govt Department/ Stakeholder	Section	Stakeholder Name(s)	Gold Road Member Name(s)	Project Area	Discussion/Outcomes	Consultation Type	Document Reference	Key Words
18-Apr-16	12:01	Office of the Environmental Protection Authority	Assessment and Compliance	Kathryn Schell (OEPA) Sally Bowman (OEPA)	Kristy Sell (MBS) Glenn Firth (Gold Road) Nicole Garbin (MBS)	Gruyere Project Gas Pipeline	Email from Kristy Sell to Kathryn Schell thanking Kathryn for the fast response and advising that the 2 option approach will be adopted and that the gas pipeline EPA referral will be submitted soon.	Email	RE: Gas Pipeline Referral Query for Gold Road	Approvals OEPA Referral Gas
26-Apr-16	14:00	Gold Fields Australia	Legal	Kelly Carter Stuart Mathews	Sharon Goddard (Gold Road) Glenn Firth (Gold Road)	Gas Pipeline	Attemp to resolve tenement issues around the alignment of option A through GFA exploration tenements south of Laverton.	Meeting	Gas Pipeline	Gas Pipeline Tenements Consultation
06-May-16	14:00	Focus Minerals	Legal	Dane Etheridge	Sharon Goddard (Gold Road) Glenn Firth (Gold Road)	Gas Pipeline	Attemp to resolve tenement issues around the alignment of option A through GFA exploration tenements south of Laverton.	Meeting	Gas Pipeline	Gas Pipeline Tenements Consultation
09-May-16	13:00	Department of Mines and Petroleum	Environmental Management Branch	Ian Mitchell (DMP) Graham Cobby (DMP)	Glenn Firth (Gold Road) Sim Lau (Gold Road)	Gas Pipeline	Project update presentation.	Meeting	Gas Pipeline	Gas Pipeline Tenements Consultation Approvals