Environment Plan

Officer Basin Saltpan-Dragoon AEM-PTP Airborne Survey
STP-SPA-0096 and STP-SPA-0097

Prepared by:
Petrex Australia Pty Ltd
On 02 March 2025

DOCUMENT CONTROL TABLE

Document #	**Sequential Revision #**	**Date of Revision**	**Author**
1000	0	27 May 2024	Josh Chadwick
1st Draft	1	6/2/25	James Ross (Low Ecological Services)
1st Draft review	1	7/02/2025	Bill Low (Low Ecological Services)
2nd Draft	1.1	7/02/2025	James Ross
3rd Draft	1.2	02/03/2025	Josh Chadwick

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1. Introduction

1.1 Overview

Petrex Australia Pty Ltd (**Petrex**) is a private company focused on exploring and developing energy resources in Western Australia's Officer Basin. Petrex is the owner of STP-SPA-0096 and STP-SPA-0097. In late 2018 and early 2019 Petrex acquired an AEM-PTP survey called the Pinemont Officer Basin Aerial Survey over the Officer Basin, Western Australia. More recently in 2021 Petrex reprocessed over 1,000kms of historical 2D seismic in the northwest of the Officer Basin over granted permits EP500 and EP502 and has recently had an environment plan approved for a geochemical survey over EP500 and EP502, located in close proximity to STP-SPA-0096 and STP-SPA-0097.

1.2 Scope

This Environment Plan (**EP**) has been prepared for the proposed airborne survey (**Airborne Survey**) over STP-SPA-0096 and STP-SPA-0097 (**Project**). This EP has been developed in accordance with the Department of Energy, Mines, Industry Regulation and Safety (**DEMIRS**) '*Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia'* (DMP, 2016) under the *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012*.

Further, this EP provides Petrex with a practical environmental performance tool for these proposed activities.

This EP was established to identify key risks and potential environmental impacts during the proposed activities on STP-SPA-0096 and STP-SPA-0097 and to provide detailed management and mitigation strategies to minimise environmental impacts during the activities.

1.3 Licence Holder and Operator Details (regulation 37/36 and 38/37)

Petrex is the registered owner of STP-SPA-0096 and STP-SPA-0097 under the *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012*. Tables 1 and 2 outline the Titleholder and Operator Contact details. Petrex has lodged its notice of operator form with the regulator in accordance with the *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012*. Petrex will lodge an updated notice of operator form on grant of STP-SPA-0096 and STP-SPA-0097 and will provide an updated environment plan with the notice of operator form as an appendix.

Table 1 - Titleholder Details

Title	Registered Holder	Classification / Status	Operator of the Survey	Address
STP-SPA-0096	**Petrex Australia Pty Ltd**	**Application**	**Petrex Australia Pty Ltd**	**Suite 6, 29 The Avenue, Nedlands**
STP-SPA-0097	**Petrex Australia Pty Ltd**	**Application**	**Petrex Australia Pty Ltd**	**Suite 6, 29 The Avenue, Nedlands**

Table 2 - Petrex Contact Details

Company Name	**Petrex Australia Pty Ltd**
Nominated Liaison Person	**Josh Chadwick**

Position	**Operations Manager**
Business Address	**Suite 6, 29 The Avenue Nedlands WA 6009**
Telephone Number	**0439986902**
Email Address	**jchadwick@petrexaustralia.com.au**

2. Description of the Activity (Regulation 14(1))

The Airborne Survey is a passive airborne geophysical acquisition survey over STP-SPA-0096 and STP-SPA-0097 located in the Officer Basin, Western Australia. The Project is for airborne geophysical measurements only and does not include any drilling, hydraulic fracturing or extraction activities.

The purpose of the Project is to map the 3D electrical potential of the area, enabling the identification of areas of upward fluid flow for potential future conventional resource extraction.

A total of 1974 Line km of airborne survey lines, in a grid of 12 E-W parallel lines approximately ~20 km apart, will be acquired within STP-SPA-0096 and STP-SPA-0097 (the **Operational Area**) (Figure 1). The minimum survey altitude is five hundred (500) feet or 150m above ground level undertaken by a light aircraft, however, could be adjusted higher if required. The flight lines shown in Figure 1 are the approved flight lines from DEMIRS. The aircraft will use the boundary of the permit to connect each flight line as applicable, with regard to the proximity of environmentally sensitive areas adjacent to the permits.

Point	**X (m), Y(m) – GDA94 Z51**	**Latitude, Longitude MGA94**
NE (1)	801580m, 7447099m	126.00°, -23.083°
SE (2)	801580m, 7176285m	126.00°, -25.50 °
SW(3)	431719m, 7176285m	122.33°, -25.50°
NW(4)	431719m, 7447099m	122.33°, -23.083°

Table 1-1 – Coordinates of the airborne AEM-PTP survey area

Line	**Start X (m), Y(m) – GDA94 Z51**	**End X (m), Y(m) – GDA94 Z51**
1	431134m, 7444903m	499487m, 7445126m
2	432198m, 7423352m	602322m, 7423135m
3	431475m, 7399348m	678566m, 7399496m
4	431631m, 7382274m	720774m, 7380090m
5a	432089m, 7368686m	500244m, 7368823m
5b	542645m, 7368927m	720627m, 7367765m

6	576687m, 7359472m	728536m, 7358017m
7	627829m, 7348039m	728261m, 7346955m
8	525748m, 7337883m	728778m, 7335778m
9	585253m, 7320237m	728293m, 7316052m
10	610425m, 7309019m	727420m, 7307433m
11	652369m, 7299444m	727630m, 7298183m
12	562618m, 7399739m	704279m, 7312171m

Table 1-2 – Coordinates of the airborne AEM-PTP lines in GDA94 Z51

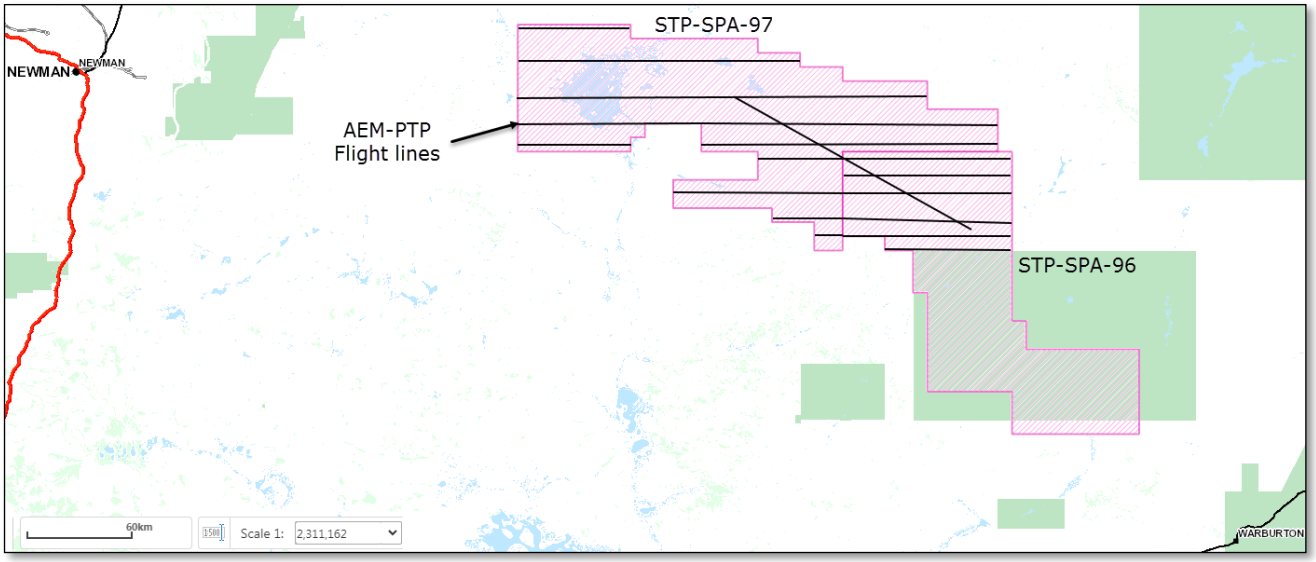


Figure 1 - Activity Defined Operational Area

The Airborne Survey activity is low impact because it is not an on-ground activity and has no requirement to clear vegetation and therefore minimal impacts to vegetation or fauna. No infrastructure is required to be installed or used, no chemicals or hazardous substances will be used, and no heavy machinery will be operated. The Airborne Survey will be undertaken by Pinemont Technologies as a subcontractor to Petrex.

The light vehicle will travel from Perth to the Airborne Survey base location in Newman, Western Australia via national highways. The Newman airport will be used as the take off and landing base for the Airborne Survey.

2.1 Location

The Airborne Survey lines, spaced at approximately ~20kms is proposed in STP-SPA-0096 and STP-SPA-0097. The Project location is approximately 150kms-300kms km east of Newman, within the Officer Basin (Figure 2 and 3). The survey area falls within the Shire of Wiluna, which has a total population of approximately 535 people (Australian Bureau of Statistics, 2021) and the Shire of East Pilbara, which has a total population of approximately 9,760 people (Australia Bureau of Statistics, 2021).

Given the location of the Project, the area is only accessible from April through to October. The survey is proposed for the beginning of August 2025. Hot weather and Aboriginal lore business (which occurs at different times for different groups but is generally during peak summer) prevents conducting aerial and onground activities outside the accessible window of April to October.

STP-SPA-0096 Map

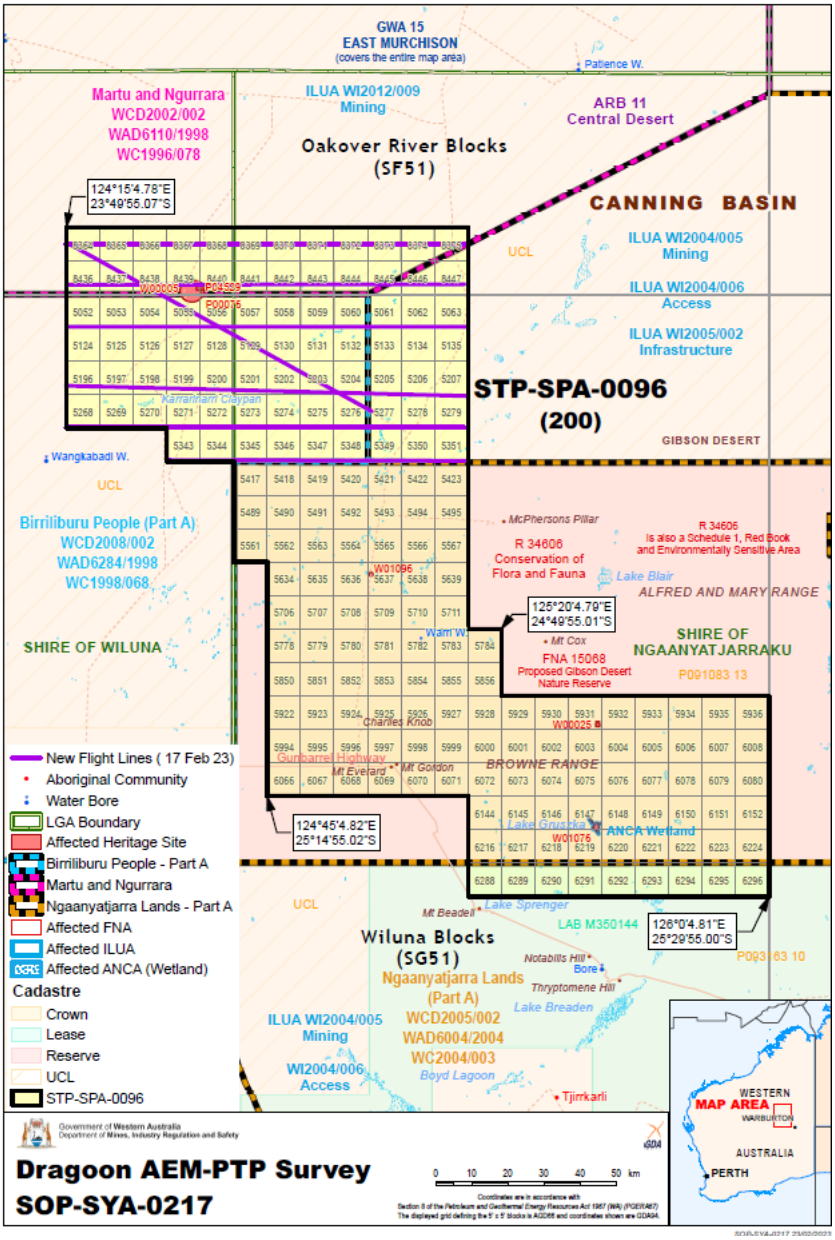


Figure 2 - Map of the proposed sampling lines for STP-SPA-0096.

STP-SPA-0097 Map

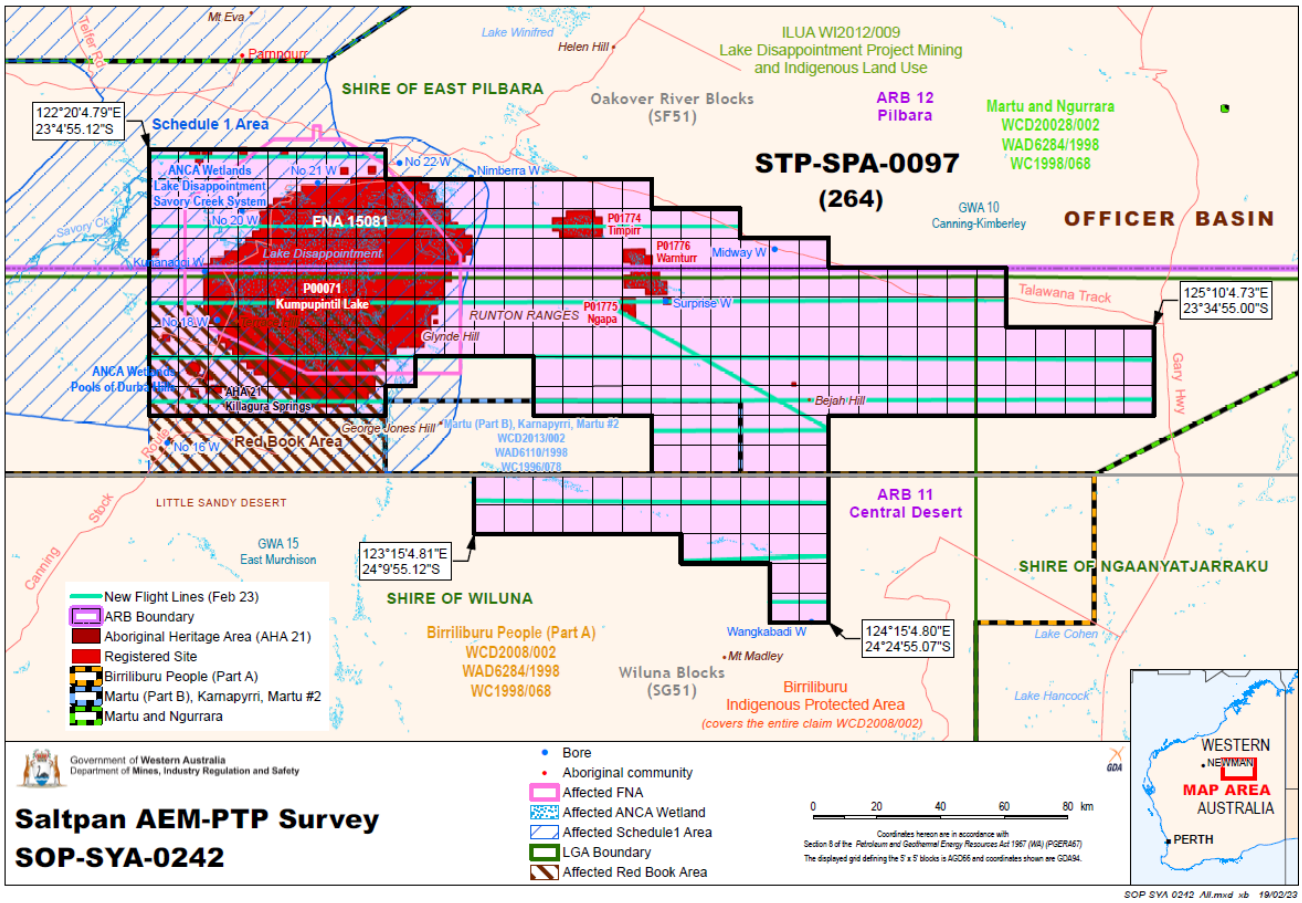


Figure 3 - Map of the proposed sampling lines for STP-SPA-0097.

2.2 Construction and Operational Details

The proposed Airborne Survey will not involve the construction of any landforms or infrastructure and the only operational components will be the driving of a light vehicle along existing public roads to Newman airport and the operation of the aircraft at approximately 150m above natural ground level over the Operational Area.

There are no proposed clearing or additional disturbances on STP-SPA-0096 and STP-SPA-0097.

2.2.1 Care and Maintenance

No care and maintenance activities are required for the Airborne Survey.

2.2.2 Decommissioning

There is no site infrastructure required for the Airborne Survey.

2.2.3 Rehabilitation

There is no proposed clearing or disturbance activities as part of the Airborne Survey. Therefore, no rehabilitation activities will be required.

2.3 Timeframes and Schedules

The survey will be completed during the first week of August 2025 before the hot weather has arrived. It is anticipated that three days will be required for the survey being conducted on STP-SPA-0097 and 2 days for STP-SPA-0096. Mobilisation and demobilisation between

Perth and Newman will take approximately one to two days each. The working hours for the activity will be conducted during daylight hours only.

Table 3 - Timeframes

Item	Timeframe	Proposed Date	Responsibility
Airborne Survey STP-SPA-0096 AND STP-SPA-0097	**1 week**	**1 – 7 August 2025**	**Petrex Australia Pty Ltd**

3. Description of the Environment (Regulation 14(2))

This section refers to the existing environment and surrounds of STP-SPA-0096 and STP-SPA-0097 using historical data and desktop analysis. The Airborne Survey lines are being flown at a minimum of 150m above the natural ground level and Petrex considers that there is no impact with registered Cultural Heritage sites, European Heritage sites, Threatened flora or fauna or an Environmentally Sensitive Area (ESA). A desktop survey was conducted to determine if there were listed plant or animal species in the lease hold areas with a view to assess the unlikely impact of the survey on threatened species and provide advance information on sensitive locations for planning subsequent exploration work. More detailed ground investigation is not required at this stage because the Airborne Survey work will not result in any clearing and has no on-ground element, except landing at Newman airport.

3.1 Natural Environment

The Petrex acreage is located across the Great Victoria Desert and the eastern portion of the Gascoyne region. Refer to Figure 4.

The Great Victoria Desert land surface is dominated by sand plains, dune fields and alluvial wash. It is a region of arid stable sand-ridge desert of Quaternary aeolian sands and drainages overlying Permian / Mesozoic sediments and Proterozoic Officer Basin sediments.

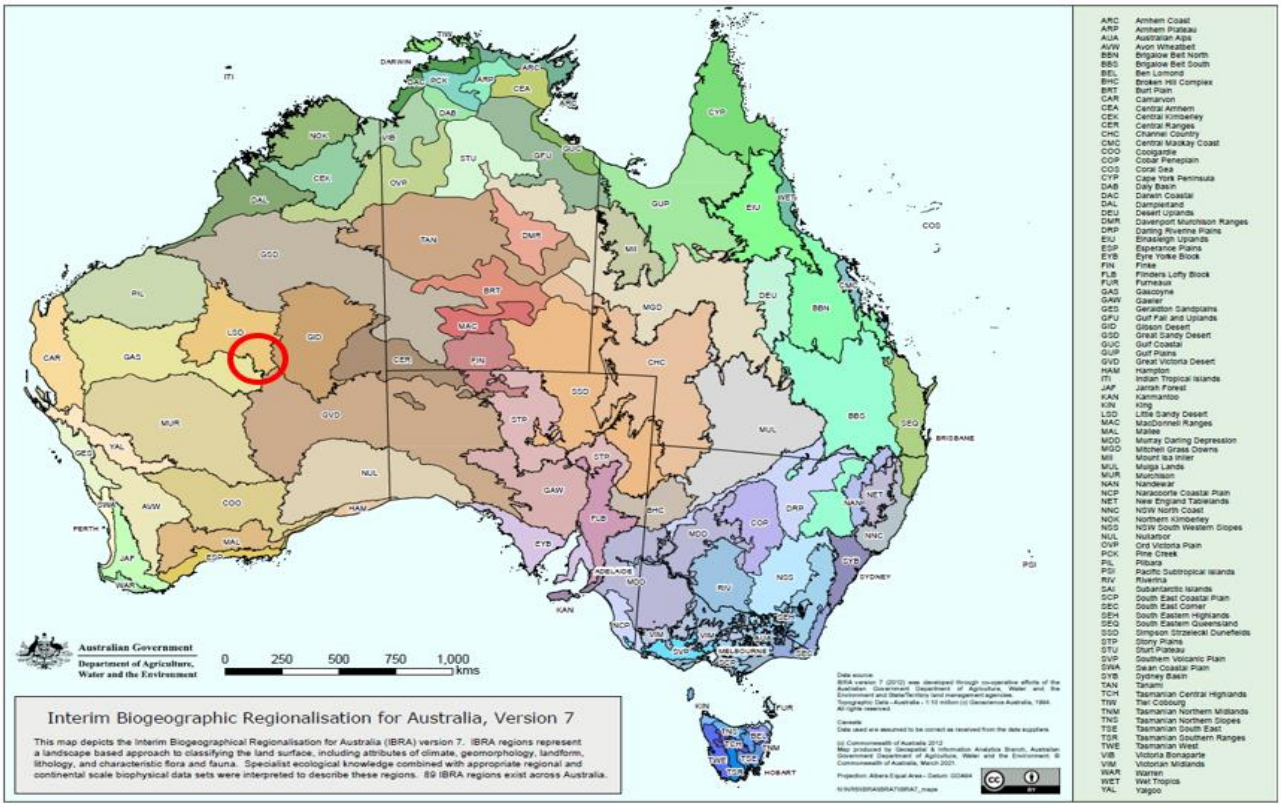


Figure 4 - Bioregions within Australia (Dept. Of Environment and Energy 2012).

3.2 Climate

The Project is located in the Shire of Wiluna and Shire of East Pilbara within the desert region of Western Australia. The area has a mediterranean climate with cool, dry winters and warm, wet summers. The long term (1898-2019) average annual rainfall is about 260 millimetres

(BOM, 2025). Most of the rain falls during the late summer months between January and June. Figure 5 shows the monthly temperature and rainfall averages in the vicinity of the project.

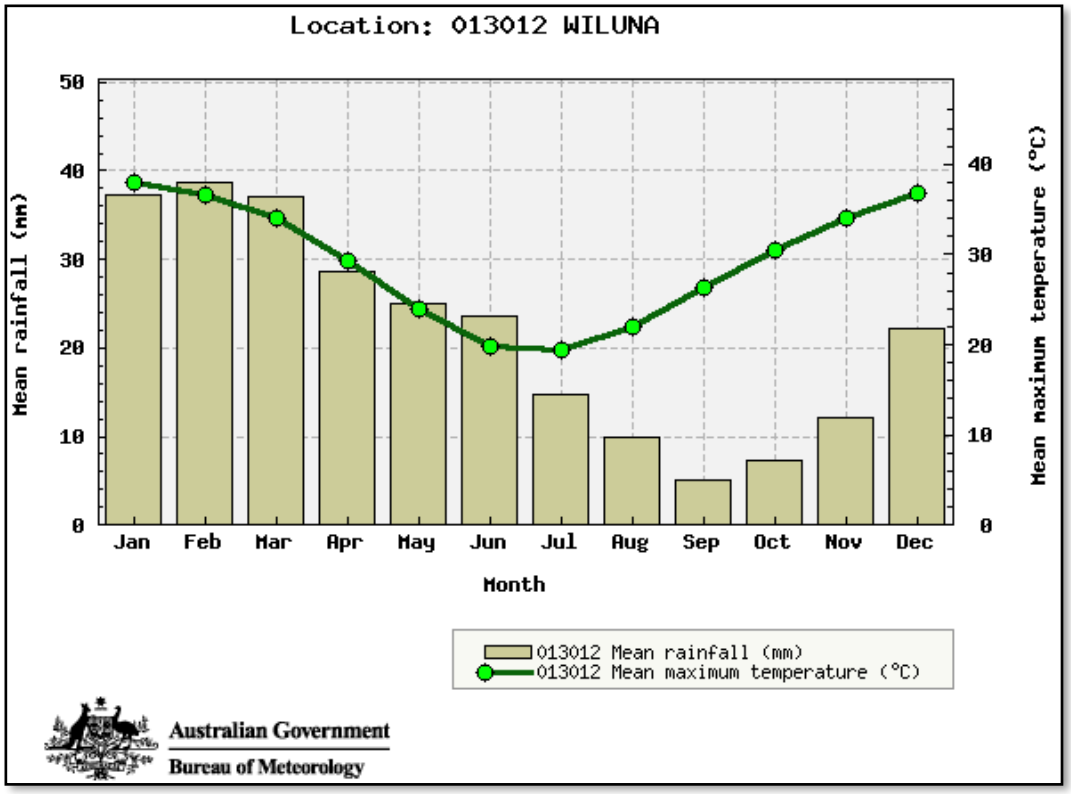


Figure 5 - Climate Data from the Bureau of Meteorology (2023)

During summer from October to April, the advent of hot, monsoonal northerly and easterly winds and lightning storms frequently results in severe fire weather conditions. Wind speed and direction is the major factor influencing the spread of wildfires in this area. A typical daily weather pattern during the fire season starts with light to moderate east to north-easterly winds in early morning. Light to Moderate east to south-easterly breezes take over in the late morning or early afternoon. These usually decrease in the evening returning to the east or north-east.

3.3 Flora, Vegetation and Fauna

An environmental desktop assessment was carried out in January, 2025 (attached in appendix D) in accordance with the principal requirements of the WA EPA Environmental Assessment Guidelines (EAG) for a Level 1 flora and fauna assessment and involved the following key tasks:

- Review of relevant legislative requirements and relevant regulations and guidelines;
- Review of available databases relating to the study area, including:
  - Commonwealth EPBC Act Protected Matters Search Tool, Department of Environment (DoE).
  - DoE Biodiversity Species Profile and Threats Database (SPAT).
  - Atlas of Living Australia (ALA) database
  - Department of Park and Wildlife (DPaW) NatureMap Species database and interactive map.
  - DPaW Flora Database NatureMap.
  - Wetland Database.
  - Birds Australia Birdata Database.
  - Department of Mines and Petroleum, interactive map GeoVIEW.

  - WA Department of Parks and Wildlife (DPAW) Flora, Fauna and Communities database.
  - National Vegetation Information System (NVIS) Mapping Tool V. 4.1.
- Review of relevant publicly available information including published ecological assessment reports, management plans, environmental studies undertaken for existing and proposed resource projects in the region, relevant environmental impact assessments and research papers.

3.3.1 Regional Vegetation

The Interim Biogeographic Regionalisation for Australia (IBRA) divides Australia into 89 bioregions based on major biological and geographical/ geological attributes (Thackway & Cresswell 1995). These bioregions are subdivided into 419 subregions, as part of a refinement of the IBRA framework.

The Project area is located in the Little Sandy Desert, Trainor (LSD02) of the Little Sandy Desert (LSD) bioregion.

Mapping of the vegetation in Western Australia was completed on a broad scale by Beard (1981). These vegetation units were re-assessed by Shepherd et al. (2001) to account for clearing in the intensive land use zone, dividing some larger vegetation units into smaller units.

The Petrex acreage is located within the Great Victoria Desert bioregion within the Eastern region. Vegetation is characterised by a Tree steppe of Eucalyptus gongylorcarpa, Mulga (Acacia aneura) and E. youngiana over hummock grassland dominated by Triodia basedowii (spinifex) on aeolian sands.

This ecosystem can be further divided into vegetation community types. The vegetation systems associated with the Petrex acreage are Acacia Shrub-lands, Acacia Forests, Woodlands and Hummock Grasslands. There are also small pockets of Mallee Woodlands and Shrub-lands interspersed with Acacia Open Woodland across the survey area.

Using the environmentonline.dwer.wa.gov.au interactive map, Threatened Ecological Communities (TEC) were mapped. No TEC's are listed within the Petrex Acreage. The closest TEC found is the Ethel Gorge aquifer stygobiont community, 247km to the west (figure 6). No TEC's will be impacted by the survey

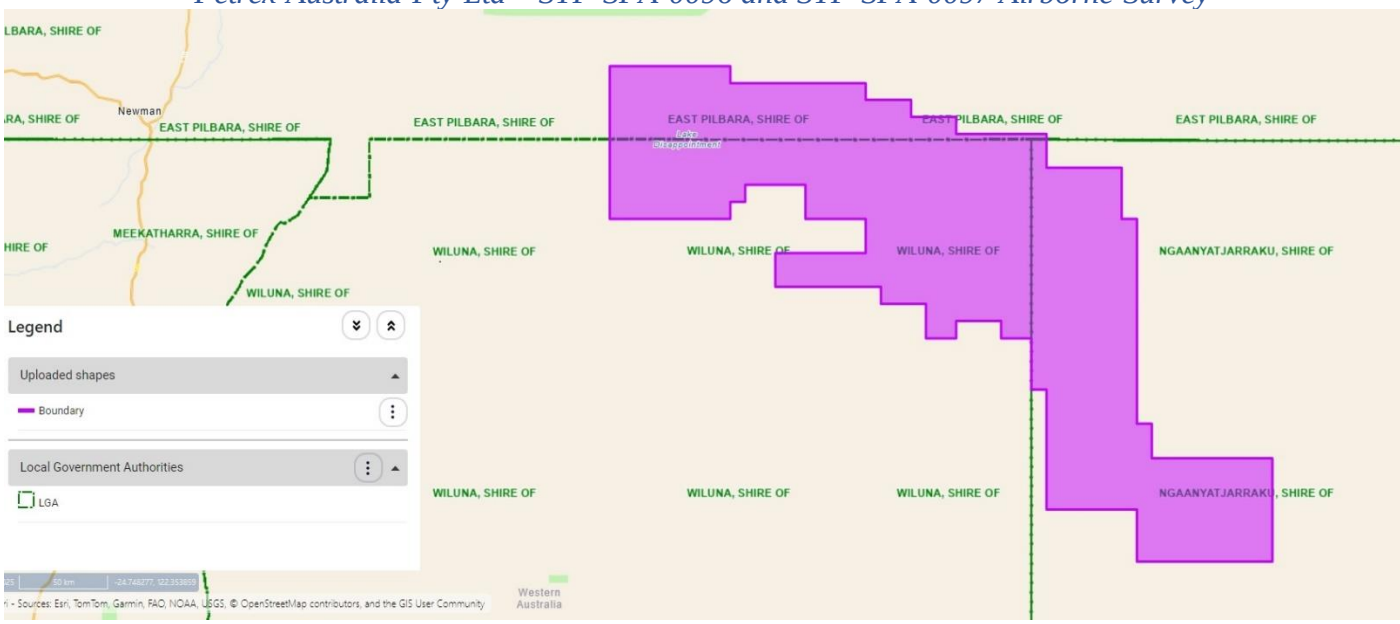


Figure 6 – Threatened Ecological Community map for the survey area. Source: environmentonline.dwer.wa.gov.au/interactive-map Jan 2025

3.3.2 Flora

A flora and fauna desktop survey was conducted by Low Ecological Services P/L in preparation for this EP. The flora and fauna aspects of the survey utilised data from the following database searches;

Data Source	Custodian	Details of search effort
Commonwealth Protected Matters Search Tool	Department of Climate change, Energy, the Environment and Water (DCCEEW)	Date 7/01/25 Buffer 50km Search Area: STP-SPA-0096 & STP-SPA-0097
NatureMap	Department of Biodiversity Conservation and Attractions	Date: 8/01/25 Buffer 50km Search Area: STP-SPA-0096 & STP-SPA-0097 Reference: 05-0125NM
Atlas of Living Australia	CSIRO	Date: 8/01/25 Buffer 50km Search Area: STP-SPA-0096 & STP-SPA-0097

The desktop survey is attached in Annexure D.

The desktop survey identified 15threatened flora species occurring within 50kmof the Operational Area. None of these species will be impacted due to the aerial nature of the survey.

of conservation significance that have the potential to occur in the area. No flora species will be impacted by the airborne survey as there is no groundwork involved, except for take-off and landing at Newman airport

No weeds species were identified in the searches. Any weeds present in the area will not be spread by the survey activities due to the aerial nature of the survey.

3.3.3 Fauna

The desktop survey identified 38 fauna species of conservation significance that could potentially occur in the area, four reptile, twenty-three bird and eleven mammal species. These are listed in the report in Appendix D.

Reptiles and terrestrial mammals won't be affected by the survey due to its aerial nature. Bat species will not be impacted due to the survey being conducted during daylight hours.

Birds are unlikely to be affected by the survey due to the controls are in place to reduce the risk of bird strike which involve flying at a minimum altitude of 150m and altering the flightpath when flying above surface water or bird populations.

Fauna species are unlikely to be impact by the survey due to the aerial nature of the survey and the controls set in place as well as the conduct of surveys during daylight hours when many vertebrates are sheltering in burrows or shade.

Refer to *STP-SPA-0096 and STP-SPA-0097 Flora and Fauna Desktop Survey (Low Ecological Services, 2025)* in appendix D for the full flora and fauna desktop survey and database searches

3.4 Soils and Land Systems

The Petrex acreage is located across the Little Sandy Desert and the eastern portion of the Gascoyne region. Refer to Figure 4.

The Little Sandy Desert land surface is dominated by sand plains, dune fields and alluvial wash. It is a region of arid stable sand-ridge desert of Quaternary aeolian sands and drainages overlying Permian/Mesozoic sediments and Proterozoic Officer Basin sediments.

The Project area ranges from 120m to 240m in elevation.

Further investigation is not required at this stage because the Airborne Survey will not result in any clearing or disturbance to the ground.

3.5 Hydrogeology

3.5.1 Surface Water

The survey site lies within the Goldfields-Murchison drainage division covering an area of approximately seven hundred and fifty thousand (750,000) km^2. Surface water is generally insignificant as a water supply. Sources of drainage within the Petrex acreage tend to be ephemeral (prone to cyclonic activity) and once accumulated into depressions become saline. Figure 7 and 8 illustrates the hydrological features in the area surrounding the project area. The major hydrological feature is Lake Disappointment and its primary inflow, Savory Creek in the west of the project area. Other smaller lakes and rivers do occur in the project area, and like Lake Disappointment and Savory Creek, are ephemeral and would only flow and hold water during floods following a cyclonic rain event.

The presence of standing water will depend on rainfall over the previous months. The area usually contains no surface water apart from some natural springs and wells in and around the Durba Hills. High rainfall in the months before the survey will increase the chance of surface water present in the project area. It is noted that due to extensive rain-bearing cold fronts during the current winter (2023) that karst and other depressions may have accumulations of water that could last into the summer months.

The Airborne Survey activities will not impact the surface water as the aircraft will be flying at 150m above natural ground level. Figures 7 and 8 illustrate the Airborne Survey lines (spaced at ~20km) projected over the Dept. of Primary Industries and Regional Development online mapping tool (Natural Resource Information (WA)).

None of the survey lines within the Airborne Survey will occur within 5kms of a public drinking water source area or an Aboriginal community drinking water bore. The closest PDWSA is ~250km from the survey area, being Newman Water Reserve.

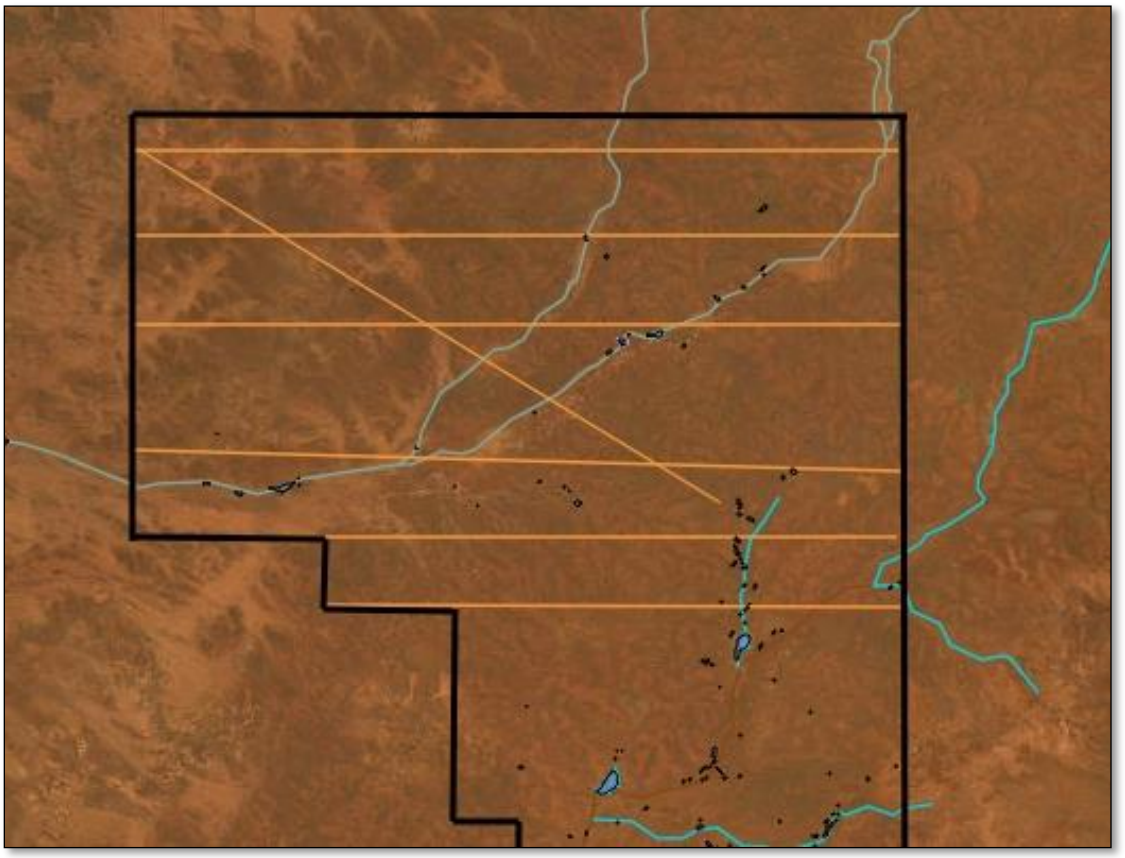


Figure 7 – STP-SPA96 (DPIRD online mapping tool) satellite imagery illustrating ephemeral lakes and streams in the area of flightlines

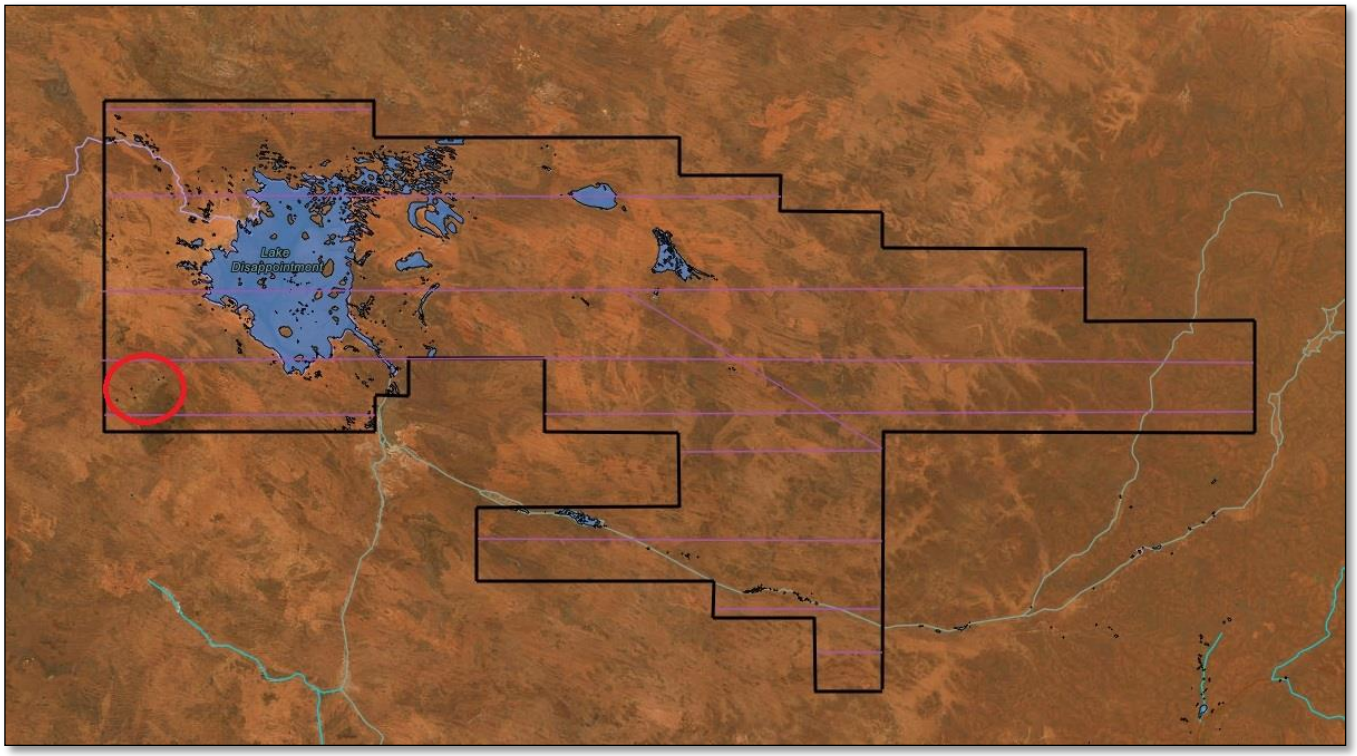


Figure 8– STP-SPA97 (DPIRD online mapping tool) satellite imagery illustrating ephemeral lakes and streams in the area of flightlines (Durba Hills circled)

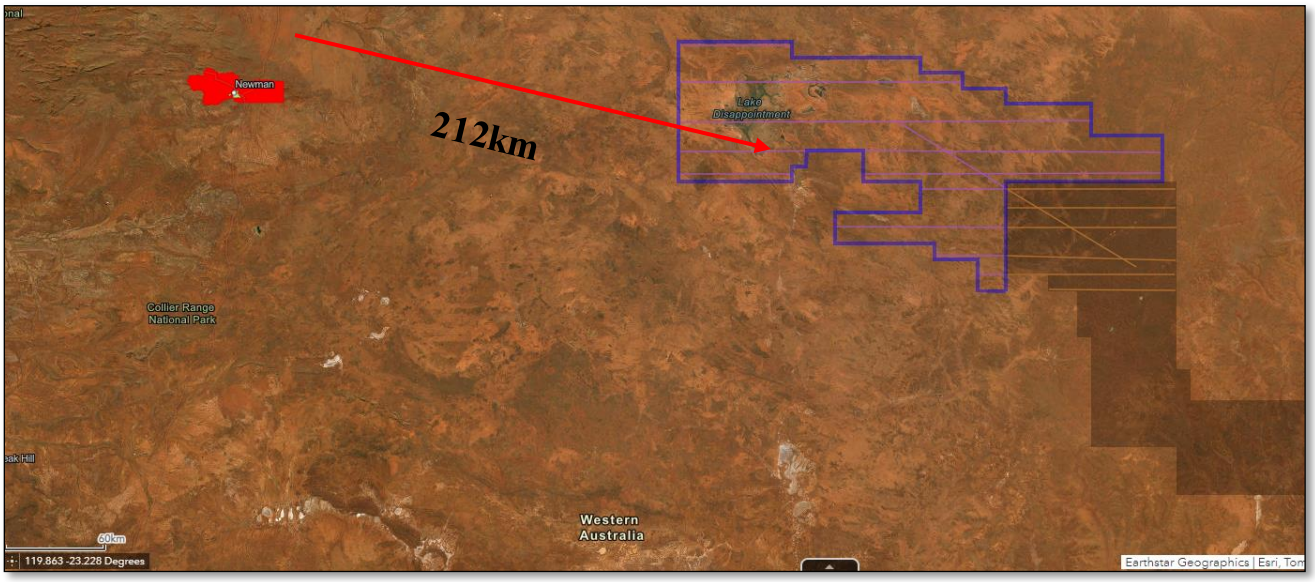


Figure 9 – Map illustrating the distance to the closest PDSA (Dept. of Primary Industries and Regional Development 2023)

3.6 Heritage

3.6.1 Native Title

Current Native Title determinations exist over the Operational Area. The Native Title holders at STP-SPA-0096 and STP-SPA-0097 are:

(a) the Mungarlu Ngurrarankatja Rirraunkaja (Birriliburu People).
(b) The Ngaanyatjarra Council; and
(c) The Martu Native Title Holders.

3.6.2 Aboriginal Heritage

A search of the Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (**ACHIS**) identified five 'Registered Sites' within the boundary of STP-SPA-0096 and 32 'Registered Sites' within the boundary of STP-SPA-0097. Refer to table 9 and figure 10.

Table 9: Heritage sites in the project area.

Permit	**ID**	**Name**	**Status**	**Place Type**
STP-SPA-0096	2114	Woolnough Hiils	Register	Artefacts / Scatter; Grinding areas / Grooves; Traditional Strcuture; Painting; Shell
	2134	Tsakalos Range	Register	Painting
	2148	Lake Gruszka	Register	Artefacts/Scatter; Modified Tree
	8144	Woolnough Hills Shelter	Register	Painting
	12057	Woolnough Hills	Register	Painting

STP-SPA-0097	7098	Byakungaiawarna Camp	Register	Artefacts Scatter; Camp
	7101	Pungarli 7	Register	Artefacts / Scatter
	7102	Miriwiri Rockhole	Register	Artefacts / Scatter; Camp; Water Source
	7103	Miriwiri Creek	Register	Artefacts / Scatter; Camp; Water Source
	7104	Jilpuru	Register	Artefacts /Scatter; Camp; Water Source
	7105	Kunanya	Register	Artefacts / Scatter; Camp; Water Source
	10398	Pungkulyi	Register	Creation / Dreaming Narrative ; Water Source
	10401	Lady Victoria Hills	Register	Creation / Dreaming Narrative
	10402	Corkorrnyina	Register	Creation / Dreaming Narrative; Water Source
	10403	Sir Fowell Headland	Register	Creation / Dreaming Narrative
	10404	Matalirri	Register	Creation / Dreaming Narrative
	10409	Timpirr	Register	Creation / Dreaming Narrative
	10410	Ngapa	Register	Creation / Dreaming Narrative
	10411	Warnturr	Register	Creation / Dreaming Narrative
	10412	Pajanyjanya	Register	Creation / Dreaming Narrative; Water Source
	10444	McFadden Range	Register	Creation / Dreaming Narrative
	11856	Bejah Hills	Register	Painting
	12018	Djila Claypan; Durba Hills	Register	Ritual / Ceremonial; Creation / Dreaming Narrative
	12019	Cloud Complex	Register	Ritual / Ceremonial; Creation / Dreaming Narrative
	12020	Nangarba Durba Hills	Register	Ritual / Ceremonial; Creation / Dreaming Narrative

	12091	Diebil Spring	Register	Ritual / Ceremonial; Creation / Dreaming Narrative
	12093	Durba Hills	Register	Creation / Dreaming Narrative; Engraving; Painting; Water Source
	12094	Biella Spring	Register	Artefacts / Scatter; Creation / Dreaming Narrative; Painting; Water Source
	12095	Killagurra Springs	Register	Ritual / Ceremonial; Creation / Dreaming Narrative
	12096	Durba Spring Upper Gorge	Register	Creating / Dreaming Narrative; Grinding Areas / Grooves; Painting; Plant Resource
	12097	Outlier Claypan	Register	Artefacts / Scatter; Creation / Dreaming Narrative
	12098	Killagurra/Well 17	Register	Artefacts / Scatter; Ritual / Ceremonial; Creation / Dreaming Narrative; Painting; Water Source
	12099	Durba Spring Entrance	Register	Artefacts / Scatter; Camp; Creation / Dreaming Narrative; Painting
	12100	Durba Spring South Complex	Register	Creation / Dreaming Narrative; Engraving; Painting; Water Source
	12102	Onegunya Rockhole/Wangudju	Register	Artefacts / Scatter; Camp; Engraving; Water Source
	12103	Kumpupinti Lake	Register	Ritual / Ceremonial; Creation / Dreaming Narrative
	1205	Runton Range	Register	Artefacts / Scatter; Painting; Water Source

ACHIS searches were completed with the boundary of each of STP-SPA-0096 and STP-SPA-0097 (the boundary of the Operational Area) and is attached to this Environment Plan as Annexure D.

'Registered Sites' have been assessed as meeting Section 5 of the Aboriginal Heritage Act 1972 (AH Act). 'Other Heritage Places' consists of Stored Data/Not a Site or Lodged places, described below.

Petrex has consulted with each of the relevant native title groups to notify them of the Airborne Survey. Petrex is in the final stages of negotiating an access deed with the Birriliburu native title group. This negotiation will be completed and the access deed signed prior to commencing the Project. The Martu and Ngaanyatjarra Council have each not requested Petrex enter into an access deed.

Petrex management recognises the need and is committed to the preservation of Indigenous and European cultural heritage and artefacts. Petrex will conduct operations by giving due consideration to relevant Cultural Heritage legislation and shall:

- Comply with the Aboriginal Heritage Act 1972 (WA);
- Ensure that all workers, contractors and management are aware of their obligation to never disturb or remove items of cultural significance (e.g., skeletal remains, stone artefact scatters, stone tools, shell middens, scarred trees, stone arrangements and rock art);
- Ensure that all workers, contractors, and management are aware of their obligation to immediately report discoveries of items of cultural significance.
- Give due consideration to cultural heritage issues and their significance in the wider community.
- Immediately report any discoveries of items of cultural significance, (e.g., skeletal remains, stone artefact scatters, stone tools, shell middens, scarred trees, stone arrangements and rock art) do not disturb the site, document with photos, mark the site, record the grid reference, and report the findings to the Petrex Site Representative.
- If an item of cultural significance is discovered, the Petrex Site Representative will report findings to the relevant native title group, and, if required, the Department of Planning, Lands and Heritage (DPLH); and
- Conduct operations with regard to areas of cultural significance.

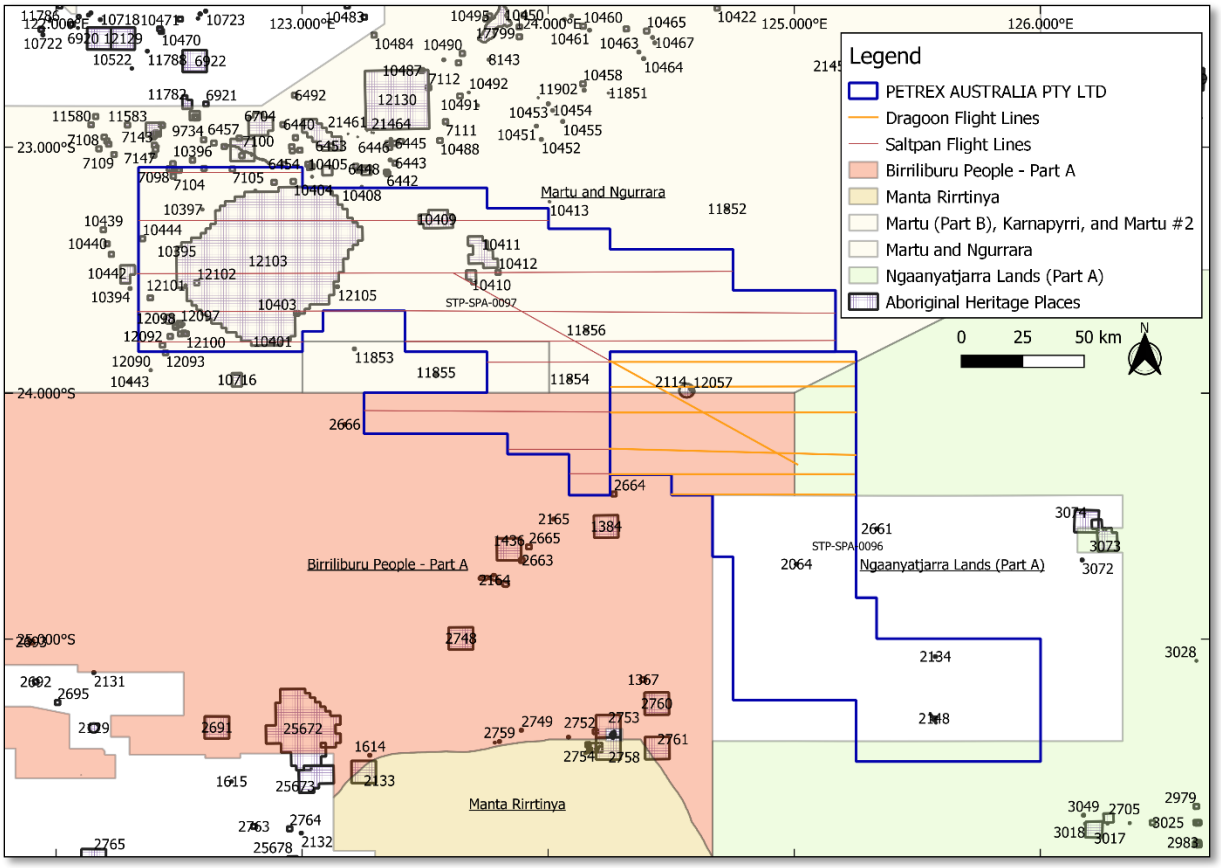


Figure 10 - Heritage sites and Native Title Determined areas in the area of the Airborne Survey.

3.7 Socio-economic Environment

The Midwest region has a resident population of approximately 54,000 (ABS). The population is widely distributed, with the population spread among towns, stations and Aboriginal communities. Land uses include pastoralism and mining. The Project will take place within the Shire of Wiluna.

The Project is not located near any towns. The nearest town is Newman approximately 150kms west of the Operational Area. There is one Aboriginal community (Parnngurr) located approximately 40kms north of the most northern boundary of STP-SPA-0097. This community is identified by the light red circle on the map in Figure 3.

3.8 Values and Sensitivities

Based on the DEMIRS *Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia* (DEMIRS 2016), factors considered to be sensitive include:

- Areas of protected of rare or endangered flora and fauna
- Areas of significant habitat (including wetlands and mangroves)
- Areas of temporal significance (including breeding grounds, migration routes and resting and aggregation areas)
- Cultural and heritage sites
- Marine and terrestrial protected areas
- Groundwater.

Desktop and database searches were used to identify any sensitive or locally or regionally important areas that may be affected by the activities and events in this scope of work (Ref to Appendix D).

The Airborne Survey flight lines for STP-SPA-0097 are located over the known Environmentally Sensitive Area (ESA), Lake Disappointment (Object ID 2459) and the Pools of the Durba Hills (Object ID 2458) The Airborne Survey flight lines for STP-SPA-0096 are close to the known Environmentally Sensitive Area (ESAs), the Pila Nature Reserve (Object ID 4960) – 400m from the boundary. See figure 11.

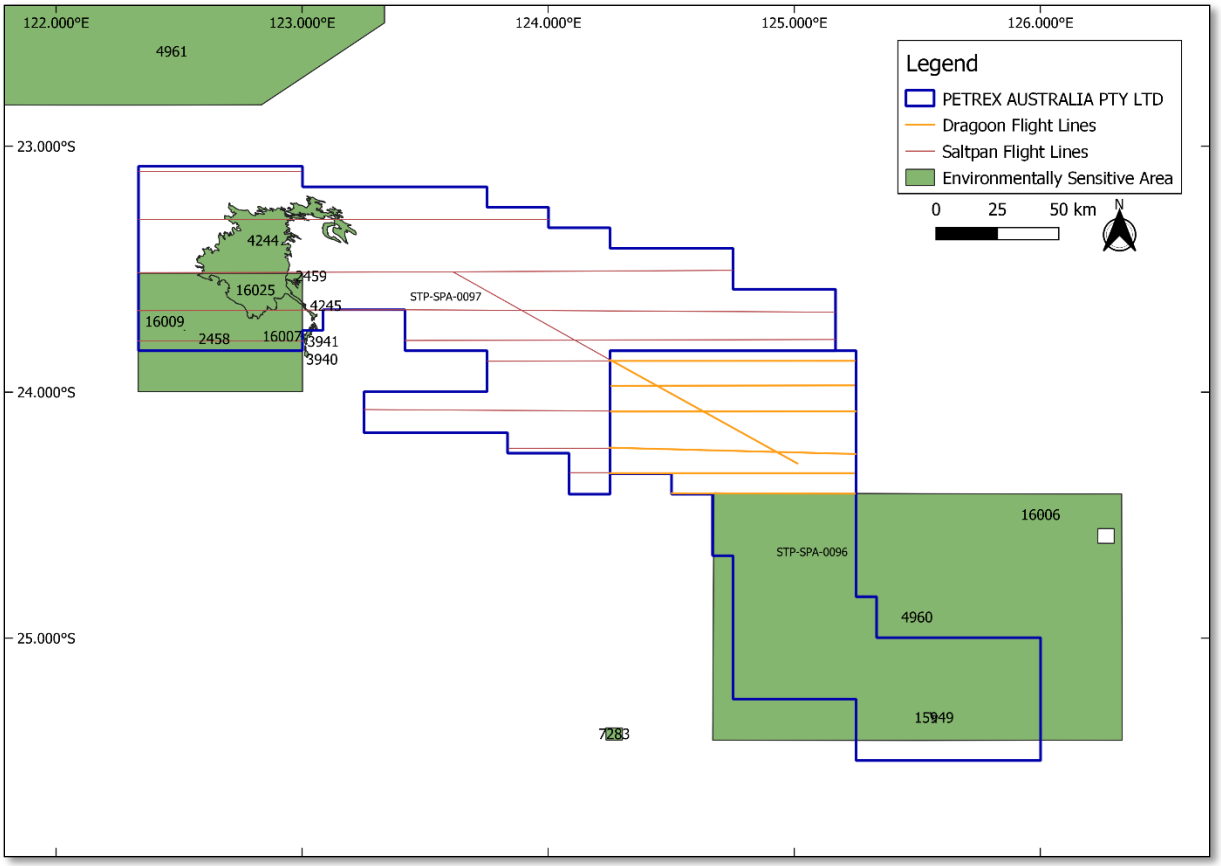


Figure 11 - Environmental Sensitive Areas (dark green polygons),

4. Environmental Risk Assessment and Management (Regulation 14(3))

This section provides details of the potential environmental risks arising from the Airborne Survey and how Petrex will manage these risks.

PETREX AUSTRALIA

OFFICER BASIN - RISK MATRIX

EXTREME Level of risk is unacceptable for continuous operations and risk management measures are to be implemented as a matter of priority to reduce the risk to an acceptable level unless otherwise approved by the Board. However, if an HSE risk is assessed as Extreme then operations must cease immediately or activity should not be allowed to proceed.

HIGH Risk tolerable only if ALARP. Risks must be reviewed and possible risk treatments identified. Evaluation then to be made as to whether the risk treatments should be implemented. Operational risks assessed as High must be approved by the relevant Officer before being allowed to proceed.

MEDIUM Risks are defined as generally acceptable. However, efforts are still necessary to reduce HSE risks as per ALARP principles.

LOW Acceptable risk and no further risk reduction required unless costs of risk treatment far outweighed by benefits achieved.

		LIKELIHOOD				
	Historical	Has occurred once or twice in the industry, or is unheard of but considered credible	Has occurred a number of times in the industry, but not in the Company, or risk assessment team has had no first hand experience	Has occurred once or twice in the Company, or risk assessment team have first hand experience	Has occurred frequently in the Company, or risk assessment team have experienced many times	Has occurred frequently at the location, or when conducting a particular activity
	Frequency: (Continuous Operation)	Less than once every 1,000 years at location ($< 1 \times 10^{-3}$ per annum)	Once every 100 - 1,000 years at location ($1x10^{-3}$ - $1x10^{-2}$ per annum)	Once every 10 - 100 years at location ($1x10^{-2}$ - $1x10^{-1}$ per annum)	Once every 1 - 10 years at location ($1x10^{-1}$ - 1 per annum)	More than once per year at location (> 1 per annum)
	Probability: (Single Activity)	< 0.1% chance of occuring	0.1% - 1% chance of occuring	1% - 10% chance of occuring	10% - 90% chance of occuring	> 90% chance of occuring
		1	2	3	4	5
		Highly Unlikely (rare)	Unlikely	Possible	Likely	Highly Likely (almost certain)
CONSEQUENCE / SEVERITY	**People**	**Environment**	**Asset / Production / Value**	**Reputation**		
	Multiple Fatalities (or permanent disabling injuries or illness)	- Persistent severe environmental impact extending over a large area - Damage cannot be fully rehabilitated - Duration of harm >5 years	> $100M AUD	- International media interest - Collapse of share price - Litigation certain, potential for Director criminal charges	5	**Catastrophic**
	Single Fatality (or permanent disabling Injury or illness)	- Severe environmental impact requiring extensive measures to restore polluted or damaged environment. - Duration of harm <5 years.	$10M - $100M AUD	- National media interest - Litigation almost certain - Negative publicity and share price under pressure	4	**Major**
	Severe injury resulting in long term partial disability or disfigurement / Lost Time Injury ≥ 3 days	- Limited but non-permanent environmental impact, recoverable within one year	$1M - $10M AUD	- Widespread interest and adverse shareholder and broker interest - Lawsuits possible	3	**Significant (Moderate)**
	Medical Treatment / Alternative Duties Injury / Lost Time Injury < 3 days /	- Environmental impact, however localised with rapid recovery. - Impact external to facility.	$100k - $1M AUD	- Workforce concern - Limited community impact and interest - Reportable to regulatory authorities	2	Minor
	No significant effects / First Aid Injury	- Minor environmental impact contained within site	<$100k AUD	- Little internal or external attention	1	**Minimal (Insignificant)**

MEDIUM

LOW

Figure 11 – Petrex's Risk Matrix

4.1 Risk Assessment Methodology

This risk assessment process has been applied to the Airborne Survey based on the principles of AS/NZA ISO 31000:2009 Risk Management – Principles and Guidelines. The risk assessment process is composed of three key steps:

- Risk Identification – identify and document environmental risks and impacts associated with the organisation activities, goods and services with the use of the hierarchy control measures. These hierarchy control measures include the identification of the most appropriate measures which would reduce the environmental risk of the activity. It was considered for each activity in it's own right. The hierarchy controls that were used are shown in in Figure 12a, whereby each risk element was assessed using the pyramid of controls to reduce the occurrence or significance of each risk.
- Qualitatively ranking potential environmental risks to establish relative significance.
- Establishing and documenting risk treatments to mitigate potentially significant environmental impacts.

All components of the Airborne Survey relevant to the scope of this EP are detailed in Section 2. The Qualitative Risk Rating Matrix, along with the corresponding descriptions of consequence and likelihood levels can be seen in Tables 10, 11, 12 and 13.

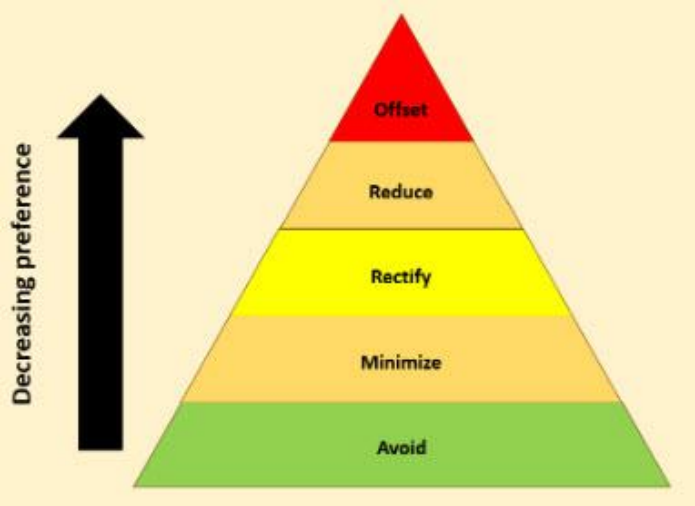


Figure 12a – Petrex's hierarchy of controls applied to each element of the risk table 13.

4.2 Identification of Sources of Risk and Associated Impacts

The environmental risk assessment process identifies aspects of the Airborne Survey activities that pose an inherent risk (risk pathway), identifies potential impacts arising from the risk pathway and assigns a ranking to the inherent risk. Control measures are then identified for each inherent risk to ensure it is an 'As Low As Reasonably Practicable' (ALARP) level. Following implementation of the control measures, a residual risk ranking is applied. Refer to Table 14 for the risk assessment results.

In some circumstances, the initial risk may be extremely low or negligible and may not require any treatment options. In circumstances where there are existing standards or practices that apply to environmental risks, they will be used as appropriate risk treatment.

These potential interactions, or environmental aspects, were categorised for use in the risk assessment of the activities described in this EP comprised:

- Ground and vegetation disturbance;
- Physical interaction with fauna;
- Fire;
- Air emissions;
- Noise and vibration emissions;
- Waste;
- Accidental release – chemical handling, storage and use.

4.3 Consequence

After identifying the potential hazards, the potential consequences were assessed and evaluated. Consequence is defined using Petrex's Operations Risk Matrix (Tables 10,11). The level of consequence is determined by the potential level of impact based on:

- The spatial scale or extent of potential hazards of the environmental aspect within the receiving environment;
- The nature of the receiving environment (within the spatial extent), including proximity to sensitive receptors, relative importance, and sensitivity or resilience to change;
- The impact mechanisms (cause and effect) of the environmental hazard within the receiving environment (e.g. persistence, toxicity, mobility, bioaccumulation potential);
- The duration and frequency of potential effects and time for recovery; and
- The potential degree of change relative to the existing environment or to criteria of acceptability.

4.4 Management Measures and ALARP

The process for identifying management measures depends on the ALARP decision context set for that hazard and aspect. Regardless of the process, management measures are assigned according to defined Environmental Performance Objectives, with the objective to eliminate, prevent, reduce, or mitigate consequences associated with each identified environmental impact and risk.

4.5 ALARP Decision Context

The ALARP decisions were made in accordance with DEMIRS Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia (DMIRS, 2021), which recommends that Operators apply a systematic decision-making approach in demonstrating that impacts and risks have been continuously reduced to levels that are ALARP. To this end, Petrex has adopted the Oil and Gas UK (OGUK) ALARP principle (OGUK, 2014) which considers impact severity and several guiding factors in determining to which level management measure analysis and evaluation is required (Figure). These include:

- Activity type;
- Risk and uncertainty; and
- Stakeholder influence.

A Type A decision is made if the risk is relatively well understood, the potential impacts are low[1], activities are well practiced, and there is no significant stakeholder interest. However, if good practice is not sufficiently well-defined, consideration is given to commonly utilised management measures for similar activities in similar environments.

A Type B decision is made if there is greater uncertainty or complexity around the activity and / or risk, the potential impact is moderate[2] , and the risk generates several concerns from stakeholders. In this case, established good practice is not considered sufficient and further assessment is required to support the decision and ensure the risk is ALARP.

A Type C decision typically involves sufficient complexity, high potential impact, uncertainty, or stakeholder interest to require a precautionary approach. In this case, relevant good practice still has to be met, additional assessment is required, and the precautionary approach applied for those management measures that only have a marginal cost benefit[3].

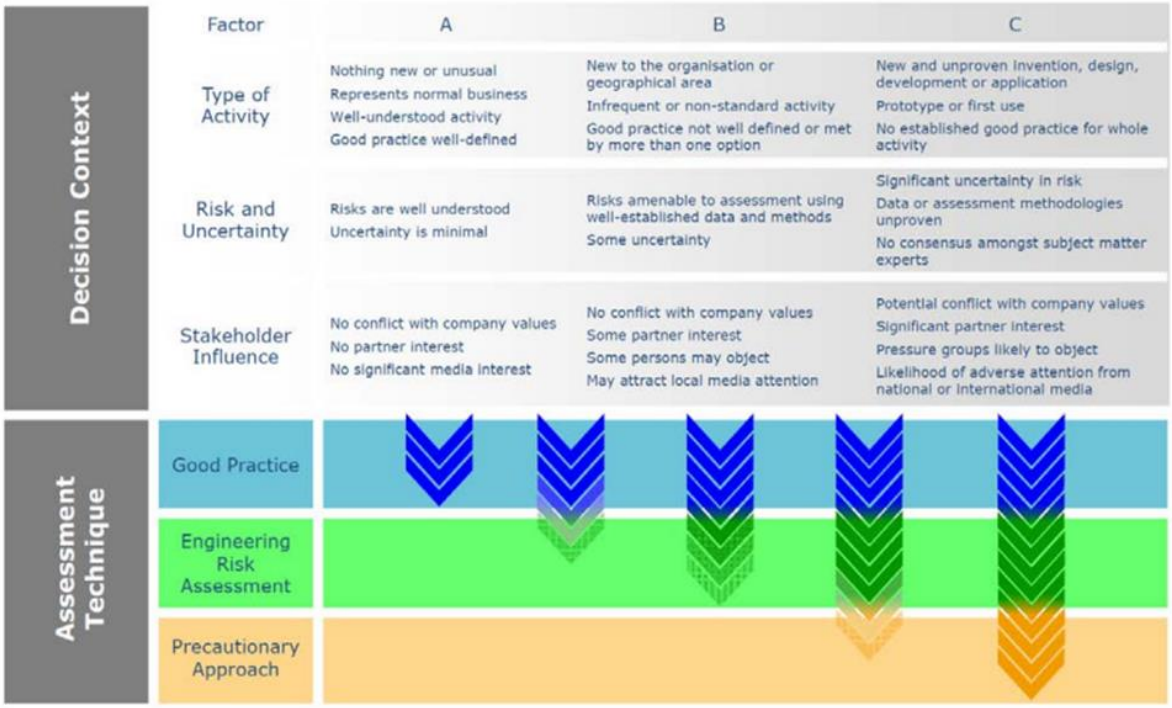


Figure 13 - ALARP Decision Support Framework

In accordance with the regulatory requirement to demonstrate that environmental impacts and risks are ALARP, Petrex has considered the above decision context in determining the level of assessment required and applied it to each aspect described in Section 5.

The assessment techniques considered (and described below) include:

[1] Specifically, PETREX regard potential impacts to be low where the consequence has been ranked as Significant or below (≤ 3) and the risk is evaluated to be Medium or Low.

[2] Specifically, PETREX regard potential impacts to be moderate where the consequence is Significant or above (≥ 3) or the risk is evaluated to be High or above.

[3] Specifically, PETREX apply a Type C decision where potential impacts are as per note 2 above, but where additional complexity, uncertainty and stakeholder interest are present.

- Good practice;
- Engineering risk assessment; and
- Precautionary approach.

4.6 Good Practice

OGUK (2014) defines 'Good Practice' as "The recognised risk management practices and measures that are used by competent organisations to manage well-understood hazards arising from their activities".

'Good Practice' can also be used as the generic term for those measures that are recognised as satisfying the law. For this EP, sources of good practice include:

- Requirements from Commonwealth and State legislation and regulations;
- Relevant Commonwealth and State policies;
- Approval conditions / requirements from Part IV EP Act approvals;
- Relevant Commonwealth and State guidance;
- Relevant industry standards; and
- Relevant international conventions.

If the ALARP technique is determined to be 'Good Practice', further assessment ('Engineering Risk Assessment') is not required to identify additional management measures. However, additional management measures that provide a suitable environmental benefit for an insignificant cost are identified.

4.7 Engineering Risk Assessment

All potential impacts and risks that require further assessment are subject to an engineering risk assessment. Based on the various approaches recommended by OGUK (2014), Petrex believes the methodology most suited to this activity is a comparative assessment of risks, costs, and environmental benefit. A cost-benefit analysis should show the balance between the risk benefit (or environmental benefit) and the cost of implementing the identified measure, with differentiation required such that the benefit of the risk reduction measure can be seen and the reason for the benefit understood.

Petrex completes a cost benefit analysis by looking at the control measure being proposed and re-considers the likelihood and consequence of the hazard associated with its implementation. Where there is a reduction in consequence level or likelihood level there is a clear environmental benefit that can be attached to that control measure. The cost of implementing this control is then considered having regard to financial cost of implementation. However, in many cases a specific financial costing is unable to be provided, but where possible an indicative cost (and justification for that cost) is to be provided. Further to this, financial costs are not just considered by themselves, but in conjunction with other factors where relevant such as environmental, safety, operational and logistical factors. The environmental benefit is then assessed against the cost and where the cost is considered grossly disproportionate to the level of benefit achieved the control measures is not selected for use.

4.8 Precautionary Approach

OGUK (2014) state that if the assessment, taking into account all available engineering and scientific evidence, is insufficient, inconclusive, or uncertain, then a precautionary approach to hazard management is needed. A precautionary approach means that uncertain analysis is replaced by conservative assumptions that result in management measures being more likely to be implemented.

That is, environmental considerations are expected to take precedence over economic considerations, meaning that a management measure that may reduce environmental impact is more likely to be implemented. In this decision context, the decision could have significant economic consequences to an organisation.

4.9 Likelihood

The likelihood (probability) of a defined consequence occurring was determined, taking into account confirmed management measures in place. The likelihood of a particular consequence occurring was identified using one of the six likelihood categories shown in figure 12. Likelihood was considered both during inherent risk ratings (prior to the application of management measures) and residual risk ratings (following the application of management measures).

Further definition around likelihood rankings to support the level determined is also included in figure 12.

4.10 Quantification of the Level of Risk

The Risk Matrix (figure 12) was applied following the detailed evaluation of potential impacts and risks from the activities covered in this EP. This matrix uses consequence and likelihood rankings, which when combined, result in a risk level between Extreme and Low risk. Risk assessment outcomes are based solely on risk assessment to the environment (as defined under the PGER(E)R).

4.11 Risk Acceptance Criteria

Petrex assesses the Risk through the following criteria:

- HSE risks assessed to have residual levels of Extreme are unacceptable and the associated activities must not be undertaken;
- Risks assessed to have residual levels of High are acceptable, however these risks require additional treatments to be identified and evaluated to determine if they should be implemented;
- Risks assessed to have residual levels of Medium and Low are inherently considered to be acceptable.

4.12 Environmental Performance Objectives, Standards, and Measurement Criteria

Environmental performance objectives, performance standards, and measurement criteria were defined to address the potential environmental impacts and risks identified during the risk assessment in accordance with DEMIRS (2018) Guidance Note.

Petrex is committed to conducting activities associated with the petroleum activity in an environmentally responsible manner and aims to implement good practice environmental management as part of a program of continual improvement to

continuously reduce potential impacts and risks to ALARP. Petrex defines environmental performance objectives, standards, and measurement criteria that relate to managing the identified environmental risks as:

- Environmental Performance Objectives: the level of performance in managing the potential environmental impacts and environmental risks from each petroleum activity,
- Environmental Performance Standards (EPS): measurable statements of performance of a system, item of equipment, person, or procedure that are used to manage environmental impacts and risks for the duration of the petroleum activity, and
- Measurement Criteria: compliance and assurance statement or records that detail how Petrex enacts the outlined performance standard; these are used to determine whether the environmental performance objectives and standards have been met and whether the implementation strategy has been complied with. If no practicable quantitative target exists, a qualitative criterion is set.

4.13 Acceptability

An *unacceptable* level of impact or risk is described as the level at which an organisation or stakeholder will not accept it under any circumstances.

A *tolerable* level of impact or risk is described as the level at which an organisation or stakeholder is willing to tolerate a risk that is not of an acceptable level, where it is controlled under specific circumstances or for a limited period of time only. Impacts and risks should only be tolerated because there are not feasible means to significantly reduce it further.

An *acceptable* level of impact or risk is described as the level at which further action is not worthwhile because it will not result in significant reductions in impact or risk levels.

The environmental risk assessment for environmental aspects associated with the activities documented in this EP is included in the following subsections.

A summary of the aspects, risk rankings and ALARP Decision Context is included as *Table* 9.

Table 10 - Risk Assessment Outcome Summary

Aspects	Inherent Risk	ALARP Decision Context	Residual Risk
Fauna Aircraft interaction	Medium	Type A	Low
Fire	Medium	Type A	Low
Air Emissions (greenhouse gas emissions, dust)	Low	Type A	Low
Spill/Loss of hydrocarbons	Low	Type A	Low
Interaction with Surrounding Land users	Low	Type A	Low
Heritage Sites	Medium	Type A	Low

For each of the Aspects listed in Table 10, a Type A ALARP Decision Context was chosen because the activity represents Petrex's normal operating practice of undertaking field based programs. The activity is well understood by Petrex and its contractors who have over two decades of field based activities. The environmental risks are well understood and quantifiable, and there is little scope for these activities to have a significant impact on the environment or any stakeholders.

Spread of Weeds: Spreading of weeds is unlikely due to the aerial nature of the survey

Interaction with native vegetation: Interaction with native vegetation is unlikely due to the aerial nature of the survey

Fauna Aircraft Interaction: Terrestrial fauna interaction is unlikely due to the aerial nature of the survey and daytime survey not impacting nocturnal fauna. The inherent risk of interaction with airborne fauna is medium, with control measures in place the residual risk is low. The control measures include a minimum flight altitude of 150m, flying only during the daytime for best visibility and avoiding flying over large bodies of water where possible.

Fire: Petrex contractors have been aerial surveying in remote location for many years and understand the risk of fires. Aircraft will carry fire extinguisher and the pilot will be vigilant when refuelling at Newman Airport.

Air Emissions: Petrex contractors will use fully maintained and airworthy aircraft that will operate within the aircraft designed airspeed limit in order to reduce the risk of GHG emissions.

Waste: Petrex contractors will not dispose of any rubbish from the aircraft except into bins at Newman Airport.
Interaction with surrounding land users: Other land users will be likely be remote, however Petrex contractors will conduct themselves in a professional manner and record any interaction on a Stakeholder diary.
Heritage Sites: Petrex has consulted with the relevant Traditional Owners and will have an access deed in place for the Birriliburu Traditional Owners which reduces the risk of any heritage sites being discovered or disturbed to As Low as Reasonably Possible. The survey area is extremely remote, with no to little stakeholders being present in the region.

Table 11 - Qualitative Risk Rating Matrix

	Consequence				
Likelihood	1. Insignificant	2. Minor	3. Moderate	4. Major	5. Catastrophic
5. Almost Certain	L	H	H	E	E
4. Likely	L	M	H	E	E
3. Possible	L	M	M	H	H
2. Unlikely	L	L	M	M	H
1. Rare	L	L	L	M	M

Table 12 - Likelihood Classification

Likelihood	Frequency	Probability	
ALMOST CERTAIN	Occurs more than once per year	The event is expected to occur at some time as there is a history of continuous occurrence with similar projects/activities	91-100%
LIKELY	Typically occurs once or twice per year	There is a strong possibility the event will occur as there is a history of frequent occurrence with similar projects/activities.	61-90%
POSSIBLE	At least once in 3 years	The event might occur at some time as there is a history of infrequent occurrence of similar issues with similar projects/activities.	41-60%
UNLIKELY	At least once in 10 years	Not expected, but there's a slight possibility it may occur at some time.	11-40%
RARE	Once in 15 years	Highly unlikely, but it may occur in exceptional circumstances.	0-10%

Table 13 - Consequence Classification

Environmental Factor	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Biodiversity/Flora/ Fauna/Ecosystem	Alteration or disturbance to an isolated area that is unlikely to affect the habitat species or ecosystem	Alteration or disturbance to less than 5% of a habitat, species or ecosystem resulting in a minor, recoverable impact within 1 year	Alteration or disturbance to 5-30% of a habitat, species or ecosystem resulting in a moderate, recoverable impact within 1-2 years	Alteration or disturbance to 30-70% of a habitat, species or ecosystem result in in a major, recoverable impact within 3-10 years	Alteration of more than 70% of a habitat, species or ecosystem resulting in an extinction or permanent change or reduce threshold level below 30%. Recovery, if possible is greater than 10 years
Water Resources	Negligible impact to site area and no effect to the use of water	Contained low impact with negligible effect on the use of the water	Uncontained impact that will affect the use of the water but can be remediated in the short term	Extensive hazardous impact that requires long term remediation	Uncontained hazardous impact with residual effect, even with long term remediation
Land Degradation	Negligible impact to isolated area	Contained low impact, not impacting on any environmental value	Uncontained impact, able to be rectified in short-term without causing pollution or contamination	Extensive hazardous impact on an environmental value requiring longterm remediation	Uncontained hazardous impact with residual effect, even with long term remediation
Air Quality	No Detectable impact	Contained low impact not impacting on any environmental value	Uncontained impact that will impact on an environmental value, but able to be remediated in short term	Extensive hazardous impact on an environmental value that requires long term remediation	Uncontained hazardous impact on one or more environmental values with residual effect, even with long term remediation
Rehabilitation	Site is safe, stable and non-polluting and does not significantly impact the post drilling land use	The site is safe, all major landforms are stable and any stability or pollution issues are contained and require no residual management. Post drilling land use is not compromised significantly.	The site is safe and any stability or pollution issues require minor, ongoing maintenance by end	The site cannot be considered safe, stable or non-polluting without long-term management. Agreed end land-use requires ongoing management	The site is unsafe, unstable and is causing pollution or contamination that will cause an ongoing residual impact. The post drilling land use cannot be achieved

Table 14 - Risk Assessment

Activity	Risk Pathway	Impacts		Inherent		Controls		Residual	
			Likelihood	Consequence	Risk		Likelihood	Consequence	Risk
Airborne Survey	Fauna / aircraft interaction	• Injury or death of native fauna • Disturbance of fauna during fly over • Bird strike during flying	Possible	Minor	M	• Adhering to minimum flight altitude of 150m. Minimise • Where possible, avoiding areas of the land where a congregation of birds are present (for example around a water source) by increasing altitude while flying over standing water or when bird congregations are sighted Avoid • GPS to ensure pilot is in the correct area. (ensure that there is no extra aircraft movements) Reduce • Work during daylight hours only (reduce interaction with animals at night, when there is reduced visibility) Avoid	Unlikely	Minor	L – Acceptable (Petrex notes there is no other way to undertake the Project and considers the minor risk of fauna interaction during daylight hours as reasonable.)
Airborne Survey	Disturbance to ESA's	• Injury or death of native fauna • Disturbance of fauna during fly over • Bird strike during fly over	Possible	Minor	M	• Adhering to minimum flight altitude of 150m Minimise • Increasing altitude when flying over standing water Avoid • Increasing altitude when bird congregations are sighted Avoid	Unlikely	Minor	L – Acceptable (Petrex notes there is no other way to undertake the Project and considers the minor risk of fauna interaction during daylight hours as reasonable.)
Airborne Survey	Spill/loss of hydrocarbons from aircraft	• Localised contamination of soil or surface water • Impacts to vegetation and flora from spills	Unlikely	Minor	L	• Adhering to Petrex's Spill Response Procedure (best practice) Rectify • Petrex OSCP (best practice) Rectify • Aircraft pre-starts. (preventative maintenance or to see any aircraft damage that may lead to oil leaks) Avoid	Rare	Minor	L – Acceptable (Given the nature of the aircraft used no other reasonable measures can be implemented)
	Fire ignition source from aircraft	Bushfire sparked leading to loss of native flora and fauna habitat	Unlikely	Moderate	M	• Adhering to Emergency Response Procedure. (best practice) Minimise	Rare	Moderate	L – Acceptable

						• Fire extinguisher located in aircraft. Rectify • Maintain minimum flight height of 150m			(Petrex considers fire extinguishers the most appropriate way to mitigate fire risk)
	Interaction with surrounding land users	Noise from aircraft	Unlikely	Insignificant	L	• Ensure the minimum fight height of 150m is maintained. Minimise • Do not fly over communities or towns. Avoid	Rare	Insignificant	L – Acceptable (Pilot to not fly directly over habited buildings)
	Heritage Artefact Interaction	Damage to valuable Aboriginal heritage artefacts	Possible	Minor	M	• Ensure theminimum flight height of 150m is maintained.Minimise • Don't land other than in an emergency within the Operational Area. Use Newman airport.Reduce	Unlikely	Minor	L – Acceptable (Consultation with native title groups and access agreement to determine sensitive areas prior to commencing the Project).

Petrex has considered all the residual risks individually for each activity from table 13 above are **acceptable** and have been reduced to ALARP. The methodology was brainstormed within the group, and with the large variety of experience in field based programs, and given the short program, low personnel and non ground based nature of the Project it has been assessed that there is no other way to reduce the risks below their currently assessed levels. Petrex considers the proposed methodology to be best practice.

5 Objectives, Standards and Measurement Criteria (Regulation 14(5))

The environmental performance objectives, standards and measurement criteria of this EP have been derived from the environmental risk assessment completed in Section 4.

This section provides a measurement of performance for Petrex to ensure the protection of the environment. The S.M.A.R.T (Specific, Measurable, Achievable, Relevant and Timely) principles have been applied to each objective and are summarised in Table 14.

Table 15 - Environmental performance objectives

Risk Pathways	Environmental Performance Objective	Environmental Performance Standards	Measurement Criteria
Fauna/aircraft interaction	No injury or death of native fauna attributed to aircraft strikes	All personnel to have undertaken Petrex site induction which includes details relating to fauna management and safety. • Risks to fauna from aircraft strike will be minimised by:Not flying at night • Adhering to minimum altitude of 150m • Being aware of standing water present being used by animals particularly birds. by referring to weather reports and visually spotting surface water and congregating birds from the cockpit.	Internal Audit Report Form (PET_IAR_001) will show no incidents of injury or death of native fauna attributed to aircraft collisions. The induction and training will demonstrate that all personnel and contractors involved in the Project have completed the site induction which includes fauna management and safety.
Interaction with native vegetation	No unplanned loss of or damage to native vegetation or flora	All personnel to have undertaken Petrex site induction which includes details relating to flora disturbance. Adhering to minimum flight altitude of 150m	Internal Audit Report Form (PET_IAR_001) and report will show there were no incidents of unplanned loss of or damage to native vegetation or flora. Petrex Induction and Training Register (MAC_CMS_REG_006) will demonstrate that all personnel and contractors involved in the Project have completed the site induction which includes flora management.
Spill / loss of hydrocarbons from aircraft	No loss of containment of hydrocarbons during Airborne Survey	All personnel to have undertaken Petrex site induction which includes an understanding of spill management. A spill kit will be readily available at Newman airport in accordance with Petrex's Spill Response Procedure (PET_SRP_001). Any clean up, control and containment of hazardous spills will be dealt with in accordance with Petrex's Spill Response Procedure. Any contaminated material will be recovered and/or disposed of off site. Aircraft and machinery pre-start check – including a check of all fuel hoses and couplings to ensure they are in good condition and not leaking.	The Induction and Training Register will demonstrate that all personnel and contractors involved in the surveying activities have completed the site induction which includes details relating to spill management as well as having undergone familiarisation/training with the Emergency Response Procedure for the site. Inspection records to confirm there is no evidence of spills which have not been responded to. Waste records confirm that waste generated from spill events are segregated appropriately and disposed of by a suitably licensed contractor. Any spills or leaks that do occur are promptly contained and remediated (evidence recorded in incident reports).

Fire ignition source from aircraft or personnel	No fires sparked from the aircraft.	All personnel to have undertaken Petrex site induction which includes an understanding of fire management.	The Induction and Training Register will demonstrate that all personnel and contractors involved in the surveying activities have completed the site induction
	In the event of a fire, minimise the impact of fire through the use of firefighting equipment as outlined in the SMS	Training will be conducted in accordance with the Emergency Response Procedure (ERP) that describes initial actions, reporting requirements and evacuation procedures. Aircraft to be fitted with a fire extinguisher. **Bush Fire Regulations 1954** Petrex will comply with the Bush Fire Regulations 1954 and specifically will: Maintain firefighting equipment onsite during operations.	Which includes an understanding of fire management on site, as well as having undergone familiarisation/training with the ERP for the site. Training records confirm that personnel are aware of the initial actions, reporting requirement and evacuation and assembly requirements in response to a fire event. Audit prior to mobilisation to site and annual inspection records will demonstrate aircraft contain a maintained fire extinguisher.
Interaction with other land users	Ensure interactions with other land users are minimised	Petrex will record all interactions associated with any stakeholders and include the following information: - The details of complaint or interaction received; and -Any action taken in response to the complaint. Maintain flight route on pre-approved flight lines to ensure flying over communities or towns does not occur.	Annual review of the complaints management system verifies that any air emission complaints have been appropriately managed and closed out.
Waste	Ensure waste is disposed of correctly.	Petrex will record the amount of waste generated throughout the survey duration and where it was disposed of. Petrex will record any details of any complaints about waste generated.	Annual review verifies that waste are monitored and reported quarterly to DEMIRS including volumes. Annual review of the complaints management system verifies that any waste complaints have been appropriately managed and closed out. Waste records confirm that waste generated from spill events are segregated appropriately and disposed of by a suitably licensed contractor.
Heritage Artifact Interaction	Ensure no interaction that harms Aboriginal cultural heritage	Petrex will ensure that there is no activity that occurs onground except for take of and landing at Newman airport.	No onground activity occurs at any point during the survey on STP-SPA-0096 or STP-SPA-0097. No incident reports lodged in respect of heritage artifact interaction.

6 Legislation and Other Requirements (Regulation 14(6))

6.1 Legislation

The *Petroleum and Geothermal Energy Resources Act* 1967 (PGER Act) provides regulatory jurisdiction to DEMIRS for exploration and development of all onshore petroleum resources in Western Australia. The PGER Act regulates all onshore petroleum operators to ensure they meet the applicable Commonwealth and State environmental laws and regulations.

6.1.1 State Legislation

The key State Legislation applicable to this EP includes:

- *Petroleum and Geothermal Energy Resources Act 1967* (PGER Act)
- *Petroleum and Geothermal Energy Resources Regulations 2012* (PGERR)
- *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012* (PGER(E)R)
- *Schedule of Onshore Petroleum Exploration and Production Requirements 1991*(Onshore Schedule)
- *Environmental Protection Act 1986* (EP Act)
- *Environment Protection and Biodiversity Conservation Act 1999 (*EPBC Act)
- *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations)
- *Aboriginal Heritage Act 1972* (AH Act)
- *Biodiversity Conservation Act 2016* (BC Act).
- *Contaminated Sites Act 2003* (CS Act)
- *Rights in Water and Irrigation Act 1914* (RIWI Act).

6.1.1.1 Petroleum and Geothermal Energy Resources Act

The DEMIRS regulates petroleum and geothermal activities under the following environmental regulations:

- PGER Act
- *Petroleum (Submerged Land) (Environmental) Regulations 2012*
- *Petroleum Pipelines (Environmental) Regulations 2012.*

The purpose of these regulations is to ensure petroleum or geothermal activity is carried out in a manner consistent with the principles of ecologically sustainable development and in accordance with an EP that:

- Demonstrates the environmental impacts and risks of the activity will be reduced to ALARP.
- Has appropriate environmental performance objectives and environmental performance standards.
- Has appropriate measurement criteria for determining whether objectives and standards have been met.

Petrex is required to submit an EP to DEMIRS and attain approval under the PGER Act, as enforced under the PGER(E)R, prior to commencing activities associated with the survey.

6.1.1.2 Schedule of Onshore Petroleum Exploration and Production Requirements 1991

The Onshore Schedule outlines the legislative requirements for conducting onshore petroleum site inspection activities in Western Australia. The purpose of the schedule is to ensure activities are

conducted in a professional, safe and environmentally responsible manner. Petrex will abide by all relevant aspects of the Onshore Schedule throughout the Airborne Survey.

6.1.1.3 Environmental Protection Act 1986

The *Environmental Protection Act 1986* (EP Act) oversees the prevention, control, and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement, and management of the environment.

Under the EP Act, the regulations that apply to this EP include the *Environmental Protection Regulations 1987, Environmental Protection (Controlled Waste) Regulations 2004,* and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004.*

6.1.1.4 Aboriginal Heritage Act 1972

The *Aboriginal Heritage Act 1972* (AH Act) ensures protection for places and objects in Western Australia that are significant to Aboriginal people and their cultural connections. These places and objects are recognised as Aboriginal Heritage Sites (DPLH 2018) and are protected under the AH Act, requiring approvals under Section 18 to disturb a registered site.

6.1.1.5 Aboriginal Cultural Heritage Act 2021

The Aboriginal Cultural Heritage Act 2021 provides a modern framework for the recognition, protection, conservation and preservation of Aboriginal cultural heritage while recognising the fundamental importance of Aboriginal cultural heritage to Aboriginal people.

There is one 'Registered Site' (place ID 2666) and two 'Lodged Sites' (place ID 1384 and 2664) within STP-SPA-0096 and STP-SPA-0097. Within the actual area where the Airborne Survey will be undertaken, there are no registered sites identifiable through AHIS.

6.1.1.6 Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 and the *Biodiversity Conservation Regulations 2018* provide protection for biodiversity, with a focus on matter regarding threatened ecological communities and threatened flora and fauna species (DBCA 2018).

There are no potential impacts to threatened flora and/or fauna within the survey area.

6.1.1.7 Contaminated Sites Act 2003

The *Contaminated Sites Act 2003* (CS Act) oversees the identification, management, and remediation of contaminated sites. The CS Act requires known or suspected contamination to be reported to DWER, investigated and if necessary, remediated.

There are no known contaminated sites recorded within the survey area, however if any contamination is encountered, it will be reported to DEMIRS and DWER and managed accordingly.

6.1.1.8 Rights in Water and Irrigation Act 1914

The *Rights in Water and Irrigation Act* 1914 (RIWI Act) governs rights in water resources, provision for the regulation, management, use and protection of water resources and for related purposes.

The site is not located in a Surface Water Proclamation Area. No water is proposed to be extracted as part of the Airborne Survey.

6.1.2 Commonwealth Legislation

The relevant Commonwealth legislation that may apply to the survey areas are:

- *Native Title Act 1993* (NT Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

- *National Greenhouse and Energy Reporting Act 2007* (NGER Act)
- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984.*

6.1.2.1 Native Title Act 1993

Under the *Native Title Act 1993* (NT Act*)* Native Title was granted to the Mungarlu Ngurrarankatja Rirraunkaja (Birriliburu People), Martu Native Title Holders and Ngaanyatjarra Council. Petrex has an access deed with the Birriliburu People which grants access to the exclusive determined lands to conduct petroleum operations. The Martu and Ngaanyatjarra Council have not objected to the notice of the Airborne Survey under s29 of the NT Act and during consultation about the Project, have not requested Petrex enter into an access deed.

6.1.2.2 Environment Protection and Biodiversity Conservation Act 1999

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), an 'action' requires the approval of the commonwealth minister for the Department of the Environment and Energy (DoEE) if the action has, will have or is likely to have significant impact on any of the following Matters of National Environmental Significance (MNES).

- World Heritage properties
- National Heritage places
- Ramsar wetlands of international importance
- Nationally threatened animal and plant species and ecological communities
- Migratory species protected under international agreements
- The Great Barrier Reef Marine Park
- Commonwealth marine environment
- Nuclear actions
- A water resource, in relation to coal seam gas development and large coal mining developments.

The MNES that occur in the search area are as follows.

- Nine (9) Migratory Species
- Twelve (12) Listed Threatened Species
- Eleven (11) Listed Marine Species
- Two (2) Nationally Important wetlands (Lake Disappointment and the Pools of the Durba Hills)

There is an overall low risk from the activity to the MNES in the area due to the aerial nature of the survey.

MNES search data provided in desktop survey in Appendix D.

6.2 International Conventions and Agreements

The international conventions and agreements that are relevant to onshore surveying include:

- *Convention on the Conservation of Migratory Species of Wild Animals 1983* (commonly known as the Bonn Convention).

- *Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment* (commonly referred to as the Japan Australia Migratory Bird Agreement (JAMBA)).
- *Agreement between the Government of Australia and the Government of the Republic of Korea on the Protection of Migratory Birds* (commonly referred to as the Republic of Korea Australia Migratory Bird Agreement (ROKAMBA)).
- *Convention on Wetlands of International Importance Especially as Waterfowl Habitat* (Ramsar Convention).
- *Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer.*
- *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.*

The proposed Airborne Survey will not significantly impact migratory birds, wildlife or wetlands. Any hazardous or other wastes generated will be disposed of off-site at appropriate facilities within the State.

6.3 Australian Standards

The Codes of Practice that apply to the site inspection activities include *AS 1678: Emergency Procedure Guide and ASNZS ISO 31000:2009 Risk Management.*

6.4 Codes of Practice

The industry code of practices that apply to the survey activity is the *Australian Petroleum Production and Exploration Association (*APPEA) *Code of Environmental Practice* (APPEA 2008).

The objectives of the APPEA are summarised as follows:

- To avoid disturbance of sites of cultural heritage significance where practicable and reduce the risk to cultural heritage values to ALARP and to an acceptable level.
- To reduce the impacts on soils and surface drainage to acceptable levels and to reduce the risk of impact to ALARP.
- To reduce the impacts to vegetation and wildlife habitats to acceptable levels and to reduce the risk of impact to ALARP.
- To reduce the risk of introduction (or spread) of weeds, pests and pathogens to ALARP and to an acceptable level.
- To reduce the impact on other land users to an acceptable level and to reduce the risk of impact to ALARP.
- To reduce the impact of noise, light, odours, traffic and vibration to an acceptable level and to reduce the risk of impacts to ALARP.
- To reduce the volume of waste produced to ALARP and to an acceptable level. Ensure that relevant wastes are disposed of in appropriate facilities.
- To reduce the visual impacts of survey operations to ALARP and to an acceptable level
- To discourage third party access following completion of operation to ALARP and to an acceptable level
- To reduce greenhouse emissions to ALARP and to an acceptable level.

Petrex has considered this code of practice in the development of this EP and will adhere where applicable for the proposed low-impact survey.

6.5 Other Requirements

The survey intersects three (3) defined Environmentally Sensitive Areas; Lake Disappointment, the Pools of the Durba Hills and Pila Nature Reserve (figure 11)

The survey is unlikely to impact any ESAs due to the aerial nature of the survey.

6.6 Referrals to other Government Agencies

This EP has considered the above legislation and due to its low impact nature, it should not require any referrals, permits or licenses relevant to the environmental management of the activity. There is no proposed clearing of vegetation, and the proposed activities would be exempt under Regulation 5, Item 24 – Clearing under a Petroleum Act of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, which allows clearing for exploration approved under various Petroleum Acts.

7 Implementation Strategy (Regulation 15)

The implementation strategy ensures that environmental impacts and risks associated with the Airborne Survey activities are continuously reduced to ALARP and that the environmental performance objectives and standards established in Section 5 of this EP are met.

7.1 Systems, Practices and Procedures

This section details the proposed procedures and mitigation measures that Petrex and their contractors will implement to ensure all potential environmental impacts and risks associated with the Airborne Survey remain ALARP and that all legal and corporate obligations are met.

The below table sets out the Petrex proposed management system for the Airborne Survey. Petrex's corporate Environment Policy Statement is attached to this Environment Plan as Annexure C.

Table 16 - Petrex Safety Management System

Identification No.	Policies
PET_EPS_001	Environment Policy Statement (Petrex)
PET_CHSP_001	Corporate Health and Safety Policy (Petrex)
	Procedures
PET_SRP_001	Spill Response Plan
PET_HRRF_001	Hazard and Risk Report Form
PET_JMF_001	Journey Management Form
PET_IAR_001	Internal Audit Report Form

The above policies and procedures are used to measure environmental performance and criteria to ensure all proposed activities are conducted in an ALARP manner. Petrex will undertake a pre-mobilisation review (2 weeks prior to mobilisation) of all the risks and control measures identified in Section 4 to ensure that no other information relevant to the survey has been identified or needs to be modified (i.e. weather conditions that need to be accounted for – large rainfall in the Operational Area which needs to be delayed). This review will be captured with meeting minutes and any update to the EP undertaken through a Management of Change.

7.2 Roles and Responsibilities of Personnel

To meet the requirements of Regulation 15 of the PGER(E)R, a clear Chain of Command for the implementation of the petroleum activity is outlined in figure 14. Detailed roles and responsibilities are further described in Section 7.2.1.

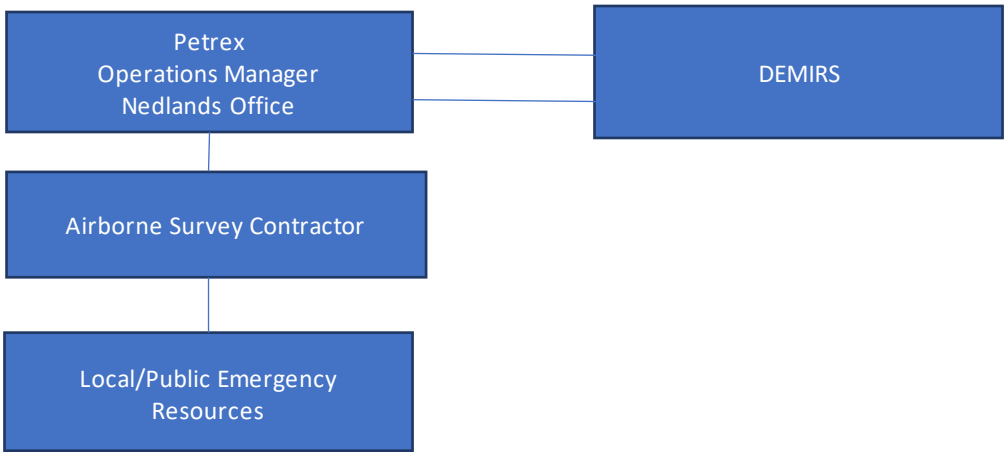


Figure 14 - Chain of Command

7.2.1 Roles and Responsibilities

This EP and its commitments and controls will be implemented and managed by Petrex. In accordance with this EP, the site activities will be conducted in the field by Petrex contractors. Detailed roles and responsibilities of key personnel for the identified management strategies are defined in Table 16.

Table 17 - Roles and Responsibilities

Role	Responsibility
Petrex Operations Manager	Ensure the EP is implemented to the satisfaction of the DEMIRS and in accordance with all legal requirements. Provide resources for the effective implementation of this EP Identify and support implementation of risk-based environmental improvement plans Ensure appropriate and effective emergency response capability Facilitate communication with company personnel, government and the public in the event of an incident and undertakes full investigation of the incident. Ensure all personnel receive environmental training, induction and awareness programs applicable to their position. Update and maintain induction materials and records. Undertake internal and external reporting requirements.
Airborne Survey Contractor	Implement this EP Ensure that Petrex and contracting company's environmental procedures and emergency response procedures are communicated and understood by all personnel. Ensure appropriate induction and environmental education of the workforce. Maintain clear communications between Petrex and the workforce. Ensure that Petrex and the contractor's work procedures are compliant with this EP Ensure site inspections are carried out as required. Ensures emergency response and spill response is carried out in accordance with this EP and relevant procedures. Report incidents immediately to Petrex (e.g., all spills of hydrocarbons and/or chemicals) Ensure procedures are carried out correctly. Ensuring that consultation with elected Health and Safety Representatives, committees and employees is maintained as applicable.

Petrex Personnel and Contractor's personnel	Effectively apply work procedures. Actively seek and participate in appropriate training and induction. Identify hazards and encourage improvement and risk reduction wherever possible. Immediately report any incidents or near misses to supervisor.

7.3 Training and Competencies

Petrex has selected the contractor for the Airborne Survey who have been engaged by Petrex in the past so they understand the location, nature and environment in which the Airborne Survey will be conducted. They have also had prior experience in conducting airbrone surveys of similar nature for both Petrex and for other petroleum explorers.

Petrex's induction process prior to the Airborne Survey addresses all environmental matters and will be provided to all Petrex employees and contractors, prior to commencing work. Environmental induction training of the workforce will include:

- Knowledge of the relevant environmental legislation and responsibilities.
- A review of this EP to ensure all contractors and Petrex employees are aware of the regulations governing the conduct of the Airborne Survey.

The environmental induction will include an overview of environmental matters and the appropriate management procedures relating to surveying. This includes information on the following:

- Incident reporting
- Aboriginal heritage
- Significant fauna – including conservation significant species relevant to the activity
- Surface water
- Hydrocarbon and chemical management
- Hydrocarbon and chemical spills management

Operators and employees will be made aware of the Spill Response Procedure outlined in Section 8.

7.4 Monitoring, Auditing, Management of Non-Conformance, and Review

Environmental monitoring and auditing will be undertaken by Petrex in accordance with the PGER(E)R and the Onshore Schedule, and the Schedule of Geothermal Exploration and Production Requirements 2009. In addition, the requirements under the PGER Act.

Petrex commits to participating regularly in internal monitoring, auditing and inspections to assess environmental performance and compliance, and to review the effectiveness of the environmental management system.

7.4.1 Monitoring

Monitoring and inspections will be undertaken on a routine basis (in this case at the end of the sampling survey) for reporting requirements and include the following:

- Unplanned impacts (incidents) outside of routine operations i.e. accidental spill.
- Planned impacts, i.e. greenhouse gas emission calculation.

- Routine site inspections carried out by contractors crosschecking procedures, forms and schedules where appropriate, to ensure all mitigation measures and implementation strategies are being upheld and implemented on site.

7.4.2 Auditing & Management of Non-Conformance

Internal environmental auditing is required under Regulation 15(6) of the PGER(E)R which requires operators to have an EP that contains an implementation strategy that includes monitoring, auditing and management of non-compliance and performance. Results from these audits will be used in the annual or closeout reporting for the activity, to demonstrate compliance with the approved EP. Auditing of the Airborne Survey will be undertaken by Petrex Operations Manager or delegate after the Airborne Survey has been completed.

During the audit, the findings will be recorded by the auditor. Upon completion of the audit, the auditor is required to review the findings and categorise each item under one of the following:

- Major non-conformance – A non-conformance that indicates an aspect of the management system is non-existent or not being utilised, may affect the services provided to clients, or multiple instances of the same minor non-conformance indicating a systematic failure. Issues must be rectified within 30 days.
- Minor non-conformance – A non-conformance that is not likely to cause the failure of the management system, or a single observed lapse in procedures or processes. Issues must be rectified within 90 days.
- Observation – A situation or condition of an aspect of the management system that may be weak, cumbersome, redundant or overly complex. Observations do not require action, however should be taken seriously by management to allow for continual improvement in the process.

7.4.3 Review

An audit summary report will be prepared by the internal auditor, using the official Internal Audit Report Form. The summary should comment generally on the degree of conformance identified, itemise any findings raised during the audit, and at the auditor's discretion, make recommendations for corrective action and/or improvements.

In this case an audit will be conducted after the survey due to the extreme remoteness of the survey area and lack of communications with Petrex headquarters.

The audit will include the following:

- Stakeholder diary
- Daily checklists
- Conformance with EPS and EPOs
- Induction signoff

The audit summary report shall be discussed with management and be retained and filed appropriately.

7.5 Record Keeping

Petrex will use an end of day report procedure during surveying and mobilisation to and from the survey locations. The end of day report will be completed by the Airborne Survey contractor to record the days progress and any incidents or reportable events that took place. If any incidents during the conduct of the survey occurs, the Airborne Survey crew will endeavour to contact DEMIRS within 2 hours (noting that there is **no** mobile phone coverage in this remote area of Western Australia) via

satellite phone. This message will be relayed to Petrex management who will mobilise other resources to help with any incident.

7.6 Details of Chemicals and Other Substances

No chemicals or other substances will be used during the Airborne Survey.

8 Oil Spill Contingency Plan (Regulation 15(10))

The only potential hydrocarbon spill risk is from the fuel tank of the aircraft. Pre-start inspections of the aircraft will be undertaken before every use and spill kits will be provided at Newman airport and all personnel will be inducted to ensure hydrocarbon management and safety.

If a hydrocarbon spill occurs, the Spill Response Procedure (PET_SRP_1) will be followed (Annexure B). Petrex is responsible for covering all costs in the event of an oil spill.

9 Reporting (Regulations 16, 28, 29 and 30)

9.1 Prestart and Cessation Notifications

Petrex will inform DEMIRS of the start date prior to commencing any Project activities (i.e., Date of first mobilisation to site) and provide notification of the completion date within one week from cessation of surveying activities (i.e., date of demobilisation from site).

It is proposed the Airborne Survey will be undertaken in the first week of August 2025.

9.2 Activity Reporting (Annual Environmental Reports)

Legislation under the PGER(E)R, Onshore Schedule and the PGER Act, requires operators to report various environmental aspects of their operations to DEMIRS, and all environmental reports submitted electronically to: petroleum.environment@DEMIRS.wa.gov.au

The environmental activity reporting includes;

- Activity Reporting (Annual)
- Incident Reporting (As required)
- Emissions and discharges reporting (Quarterly).

Environmental reporting requirement on compliance, emission/discharges and incidents are listed below. The activity/environmental report will be submitted to DEMIRS annually, within 3 months of activity completion.

The Annual Environmental Report (AER) will be structured: (for further information on the structure of the AER please see http://www.dmp.wa.gov.au/Documents/Environment/ENV-PEB-187.pdf)

1. Scope
2. Summary of Works and Operations
3. Environmental Performance
4. Review of Audits
5. Review of Incidents
6. Review of Emissions and Discharges
7. Review of Chemicals and Other Substances
8. Monitoring and Research
9. Decommissioning and Rehabilitation
10. Revision of the Environment Plan
11. Awareness, Training and Exercises
12. Summary of Consultation

9.2.1 Staged Reporting

There is no proposed disturbance or major activities associated with the proposed Airborne Survey.

9.3 Incident Reporting

9.3.1 Reportable Incidents

The Regulations define a reportable incident as an incident that is classified as reportable under the EP for the activity and has caused or has the potential to cause an adverse environmental impact; and an impact that is categorised as moderate or more serious than moderate.

Table 17 summarises the reporting requirements for Environmental incidents that Petrex will abide by. These reportable incidents are derived from the risk assessment undertaken in Section 4. where inherent risks had a rating of Moderate or above.

Reportable incidents will be reported to the DEMIRS via the Petroleum Environment Shared Duty phone 089222 3727, and under Regulation 29, a written report is to be submitted to DEMIRS (petroleum.environment@DEMIRS.wa.gov.au) as soon as practical, and no later than three days after the initial incident. A summary of reporting requirements is shown in Table 17.

Table –18 - Summary of Reporting Requirements

Reportable Incident	Additional Reporting Requirements	Timeframe
Fauna/aircraft interaction		Within 2 hours – initial report. Within 3 days – full report.
Fire ignition source from aircraft		
Recordable Incident	Refer Section 9.3.2. Even if no incidents occurred during the month, the DEMIRS Recordable Incident Monthly Report will be submitted to petroleum.environment@DEMIRS.wa.gov.au	Within 15 days of end of calendar month in which the Incident occurred (monthly).

The following information will be provided with any incident report:

- Facility name, title, site name or location where the incident occurred.
- Name and business address of the company that manages the activity.
- Time and date of the incident.
- Names and contact details of any witnesses.
- Name, position and telephone number of person(s) submitting the details.
- Incident details and description.
- Activity being undertaken at the time of the incident.
- Estimated quantity, composition and known toxicity of any fluids that escaped.
- Duration of escape (if relevant).
- Details of any environmental impacts.
- Immediate response actions taken to prevent further environmental impact.
- Arrangements for internal root cause analysis investigation (note that regulatory investigation may be required and will be evaluated once the report is received).
- Corrective actions proposed to prevent recurrence of further or similar incidents.

Possible reportable incidents as a result of the proposed activity (Airborne Survey) includes the following:

- Hydrocarbon spills (aviation fuel from aircraft).
- According to the (then) DMP (Resources Safety) *Reporting dangerous goods incidents – Guidelin*[e] *6th Edition,* a loss not contained on site for a C1 combustible liquids (aviation fuel) of 100 litres is required to be reported.

The Site Supervisor must maintain the incident reporting system to minimise environmental harm and to encourage the prevention of more serious incidents. All personnel are encouraged to report all events as a means of alerting environmental risks and maintaining a program of continual improvement.

9.3.2 Recordable Incidents

Recordable incidents are those which breach an environmental performance objective or environmental performance standard defined in the Environment Plan and is not a reportable incident and must be reported to DEMIRS.

Recordable incidents include, but are not limited to:

- Introduction or spread of listed weed species
- Excessive erosion
- Fauna deaths
- Noise disturbances to neighbouring properties
- Disturbance to existing native vegetation
- Unacceptable reinstatement following site inspection activities

Under Regulation 30 of the PGER(E)R, a copy of DEMIRS' Recordable Environmental Incident Report Form listing all recordable incidents each month will be completed by Petrex and submitted to DEMIRS (petroleum.environment@DEMIRS.wa.gov.au) as soon as practicable, and within 15 days after the end of the month to which it relates.

The report will include details of any recordable incidents, including:

- All material facts
- Actions taken to avoid or mitigate any adverse environmental impacts occurring from the incident
- Any action taken, or proposed to be taken, to prevent similar recordable incidents.

9.4 Emissions and Discharges Reports

Regulation 34 of the PGER(E)R requires the monitoring and reporting of all emissions and discharges to any land, air, or surface water/groundwater environment. Petrex will provide a written report detailing all emissions and discharges that occur during the surveying activities. This report must be submitted to DEMIRS within 15 days from when the surveying is completed.
The report will address any emissions or discharges during the survey, including but not limited to:

- aircraft and equipment emissions
- Details of any emission resulting from environmental incidents such as spills.
- Waste; including general, hazardous and recyclable.

The only proposed activity in this EP is the Airborne Survey which involves one aircraft flying over a period of one week. Therefore, combustion of fuel to power the aircraft is the only anticipated reportable item.

Petrex does not anticipate emissions resulting from the Airborne Survey activities will meet the National Greenhouse and Energy Reporting (NGER) Act requirements. Fuel consumption will be recorded as atmospheric emission estimates (CO2e-) from fuel usage (based on the NGER threshold estimator) (Clean Energy Regulator 2019).

Any unplanned emissions (e.g. hydrocarbon spills) will be reported to DEMIRS as an incident report.

10 Stakeholder Engagement (Regulation 17)

A formal Stakeholder Engagement Register and Stakeholder Engagement Plan have been prepared to undertake and maintain a structured format for ongoing consultation associated with the Airborne Surveying tasks.

10.1 Principles of Stakeholder Engagement

Petrex will provide all necessary stakeholders with a fair timeframe to review, consider and respond to the project information. Throughout this strategy, Petrex will consider and apply the Principles of Stakeholder Engagement from the Ministerial Council on Mineral and Petroleum Resources (MCMPR) Principles for Engagement with Communities and Stakeholders (2005). These principles include: Communication, Transparency, Collaboration, Inclusiveness and Integrity.

10.2 Targeted Community and Stakeholder Engagement Strategy

Petrex recognises the low impact level of the Airborne Survey and will tailor the stakeholder engagement strategy to suit. Key potential stakeholders have been identified in the table below (Table 18). Petrex will modify the strategy should any change arise in the activities and or the needs of the interested stakeholders.

10.3 Stakeholder Engagement Report

This section 10.3 is the Stakeholder Engagement Report for the purposes of Regulation 17.1(b) of PGER(E)R.

(a) Introduction

In accordance with Regulation 17.1(b) of PGER(E)R, Petrex consider the stakeholders outlined in Table 16 to be relevant to the activities within this EP and has completed a report on who is classified as a stakeholder and details on the consultations between Petrex and relevant authorities and interested persons.

(b) Objective

The objective of the stakeholder engagement report are as follows:

- Identify and categorise all stakeholders associated with the proposed onshore petroleum exploration petroleum program;
- Develop appropriate methos of informing the various stakeholders of the nature of the project;
- Determine the influence of each stakeholder;

(c) Methods

<u>Identify Stakeholders</u>

- Assess the location of the Project using GIS datasets to identify relevant stakeholders;
- Determine the approvals necessary to facilitate the Project in order to identify the Government associated stakeholders;
- Identify non-government organisation that may have concerns regarding the Project.
- Use the DEMIRS stakeholder identification tool to categorise and rank the interest and influence each stakeholder group has the project.

(d) Identified Stakeholders

Based on the methods detailed in section (c) above, the stakeholders identified for the Project are shown in Table 18. The stakeholders have been ranked based on their interest and influence on the Project.

Table 19 - Stakeholders

Interest and Influence Rank	Stakeholders	Relevance Justification	Relevant to this Plan
1	Birriliburu People	Traditional Owner	Y
2	Martu People	Traditional Owner	Y
3	Ngaanyatjarra Council	Traditional Owner	Y
4	Shire of East Pilbara	Shire in which Newman airport is located and flight lines for STP-SPA-97 are in	Y
5	Shire of Wiluna	Shire in which the flight lines for STP-SPA-96/97 are in	Y
6	Shire of Ngaanatjarrku	Shire in which the flight lines for STP-SPA-96/97 are in	Y
7	CASA	Regulator for Australian airspace	Y
8	Department of Biodiversity, Conservation and Attractions	Manages WA's parks, forests and reserves (noting that there are no reserves in the Project area)	Y

(e) Stakeholder Engagement Register

Petrex has developed a stakeholder engagement register in which details of the notification and other consultation has been recorded. This stakeholder engagement register is detailed in Table 19. Petrex has made contact with each of the stakeholders in Table 18 above, prior to submitting this Environment Plan to notify the potential stakeholders of the Project. This engagement has been recorded in the Stakeholder Engagement Register below. The level of stakeholder engagement has been determined having regard to the very low impact nature of the Project and the level of interest and influence of the stakeholder.

Interest and Influence

The DEMIRS stakeholder engagement tool was used to determine the appropriate communication/engagement style for each stakeholder.

Birriliburu People, Martu, Ngaanyatjarra Council – Consult (Category III)

Petrex's key stakeholders are the three determined native title groups; the Birriliburu People, Martu People and Ngaanyatjarra Council, whose registered determined and exclusive native title interest the Project is occurring upon. Petrex has consulted with each of the groups to provided notice of the Project.

CASA – Notify (Category IV)

CASA will be notified of flight plans on each day of the survey in which the aircraft is flying. CASA was contacted via email to confirm if the minimum flight height was appropriate to avoid bird strikes. CASA responded, "Although possible at any height, the likelihood of a bird strike increases

substantially when close to the airport environment and most bird control measures focus on these areas." CASA noted that they have not published specific guidance on bird strike avoidance. (*per comms - Civil Aviation Authority, Jan 2025)Shire of East Pilbara, Shire of Wiluna, Shire of Ngaanatjarrku, DBCA – Notify (Category IV)*

All other stakeholders have a very low level of interest and influence in the Project. Given the location, nature and extent of the Project, Petrex's engagement with CASA, the Shire of East Pilbara, Shire of Wiluna, Shire of Ngaanatjarrku and Department of Biodiversity, Conversation and Attractions has been to provide a notification of the Project. This notification has included the nature and details of the activity (such as personnel, vehicles, aerial surveying activity to take place and a map showing the location) as well as the proposed timing for completion of the Project.

Table 20 – Stakeholder Engagement Register

	DETAILS OF STAKEHOLDER ENGAGEMENT			
Project	Airborne Survey			
Date	May 2024			
Stakeholder	**Nature of Engagement**	**Information Provided**	**Date**	**Outcome / Response**
Birriliburu	Email	All information in relation to the Project. Confirmation that s29 notification of the Project occurred.	24 May 2023, 9 August 2023, 17 August 2023, 13 May 2024	CDNTS provided an access deed on behalf of the Birriliburu People. Access deed negotiated. Confirmation email sent for final deed to be ratified by Birriliburu People.
Martu	Section 29 notification under NT Act	s29 notification of the Project occurred by DEMIRS.	May 2023 (date DEMIRS sent s29 notification)	No response from Martu on the s29 notification. Martu has not objected to the s29 notification that the expedited procedure applies. Petrex will advise Martu prior to the Project commencing to confirm no interference with traditional owner business occurring on country.
	Phone call with Angie Underwood	Discussed the nature of the Project and the practical approach Petrex is taking to avoid unwanted interaction with traditional owners whilst the survey occurs.	7 February 2025	Angie Underwood accepted their opportunity to object to the s29 had past and was appreciative of the practical approach Petrex is taking to consider Martu interests. Agreed that Petrex would notify Martu ahead of the survey to ensure any avoidance plans were implemented.
	Email from M Hennessy	Requesting flight lines	13 February 2025	Petrex provided flight lines.

	Email from M Hennesy	Response to receival of flight lines	26 February 2025	Marian requesting Petrex amend its flight lines to avoid Kumpupintil (previously Lake Disappointment) which is said to be the most significant place on Martu ngurra. Petrex is in the process of contacting DEMIRS to confirm whether the approved flight lines can be amended per the martu request. Outcome: Outstanding consultation.
Ngaanyatajarra Council	Email	All information in relation to the Project. Confirmation that s29 notification of the Project occurred.	6, 12 April 2023; 26, 27, 28 June 2023; 4, 7 September 2023	Confirmation with Ng Council that no aircraft would be landed on NG Council Determined Lands. NG Council okay for the survey to occur on this basis without the need for an access deed. Agreement to notify the NG Council when flying is commencing.
Shire of East Pilbara	Email	All information in relation to the Project including maps of survey lines.	14 May 2024	No response expected to the notification.
Shire of Wiluna	Email	All information in relation to the Project including maps of survey lines.	14 May 2024	No response expected to the notification.
Shire of Ngaanatjarrku	Email	All information in relation to the Project including maps of survey lines.	14 May 2024	No response expected to the notification.
CASA	Flight plan	Flight plan lodged on the day	On date of flying	TBA
DBCA	Email Follow up email	Overview of Project and maps Request for confirmation that	13 September 2023 11 February 2025	No response received or expected.

		previous email was received by the appropriate department.		Automated email received confirming receipt of the email.
Department of Planning Lands and Heritage	Email	Request for confirmation of compliance with Aboriginal Heritage Act 1972 consultation process for aerial survey	28 January email sent. Response from S Curtis 18 Feburary 2025, 25 February 2025.	Email from Petrex detailing the proposed aerial survey and supplied flight lines and requesting confirmation of the consultation undertaken meets the requirements of the act. Response from DPLH confirmed that the flight lines intersects with seven Aboriginal sites and stating that "legislative requirements under section 5, Regulation 10, of the Aboriginal Heritage Regulations 1974 (AHR) outline that photography or making any recording for the purpose of commercial reproduction or publication does require written permission of the Minister or the Registrar". Petrex has responded to the email of 25 February 2025 confirming that the aerial survey is not taking any photography or making of any recording (in visual format) and that the data acquired is for Petrex's internal use not for commercial reproduction or sale. Outcome: Outstanding consultation.

(f) Ongoing Engagement

Although stakeholder engagement has been undertaken, Petrex commits to ongoing engagement with the identified stakeholders, in order to keep them updated as the dates of the Project are finalised and the Airborne Survey is undertaken.

(g) DPLH Engagement

Contact has been made with DPLH to confirm Petrex's obligations under the *Aboriginal Heritage Act 1972* (WA) have been met in respect of the planned survey. Outcome outstanding.

10.4 Ongoing Engagement (Post Approval)

Due to the nature and low impact scale of the Project, the level of ongoing consultation is planned to be minimal. Petrex commits to providing updates to stakeholders where planned activities differ from those outlined in this EP including changes to proposal and notification of significant aspects of the surveying.

This also provides a platform for ongoing stakeholder communication with Petrex regarding concerns, feedback and queries, and Petrex commits to keeping DEMIRS informed with any significant concerns raised.

10.5 Recording Stakeholder Engagement

All consultation and engagement undertaken for the proposed Airborne Survey activities under this EP will be recorded in the Stakeholder Engagement Register.

ANNEXURE A – Spill Response Procedure

SPILL RESPONSE PROCEDURE

1. UNPLANNED EVENTS AND NON-ROUTINE OPERATIONS
1.1 SPILL CONTINGENCY PLAN

The Project involves the use of hazardous materials such as fuel and lubricants in small quantities for refuelling and maintenance of vehicles. The impact to the environment from spill depends on the nature, amount and location of the spill. Accidental aviation gas spillage could occur during roadside refuelling or following tank rupture due to aircraft crash. Chemical spills also may result from hydraulic equipment failure, inappropriate storage and handling of chemicals, leaks and spills from equipment. All hydrocarbons and chemicals used during the survey will involve relatively small volumes that can be readily cleaned up using on-site spill clean-up procedures and resources at the local airport.

Refuelling will be sourced from local Newman airport. Contractors will ensure strict refuelling and transfer procedures are developed under respective third-party Oil Spill Contingency Plans and applied during the survey to minimise the likelihood of aviation gas spills. The aircraft used in the survey have approximately 250 litres of aviation fuel onboard. Fuelling will occur at Newman airport who have their own spill response procedures if a spill was to occur during refuelling.

There is no need for on-site fuel tanker.

Given the small scale of aircraft operations and proper management controls in place, spills from refuelling, storage and handling are highly unlikely to occur during the survey. In the unlikely event of a spill (the worst-case scenario), the damage to the environment would be at localised scale having only a temporary impact given the limited 250 litres of aviation fuel capacity. Field personnel are trained and on spill prevention and response. Petrex will be responsible to fully remediate any spills resulting from the survey.

The only credible spill scenario (other than refuelling at a designation fuel station) is a level 1 or 2 spill.

1.1.1 SPILL SCENARIOS AND INCIDENT RESPONSE GUIDELINES

LEVEL 1 SPILL - IMMEDIATE RESPONSE PLAN

Level 1 spills are those where:

- small volume of spill
- the response can be managed by survey contractor and on-site personnel and resources
- little or no external assistance for control or remediation is required
- the spill can be remediated prior to Project completion

Most Frequent Liquid Spill

Potential Spill Source	Incident Response Guideline
Source: Vehicle Refuelling Failure Vehicle fuel tank rupture **Potential Spill Volume**: Hydrocarbons: <70L on land <100m^2 ground surface area affected by an uncontrolled escape or ignition of petroleum or other flammable or combustible material **Size:** small spillage **Level 1 Spill** Recordable incident	Small spillage of hydrocarbons to land of an estimated volume less than 70L can readily be controlled or contained and removed or cleaned up by onsite personnel. Ensure own safety, raise alarm and call for assistance Stop spillage (turn off valve, etc). Ensure immediate safety of others Isolate potential ignition sources Contain spill. Apply absorbents (sawdust, sand, mats). If there is no containment consider to dig trenches or build makeshift dams to divert the flow to a contained area Isolate the spill area itself with signage, traffic cones or bund socks Monitor the bund or containment area Remove soiled absorbents and contaminated top soil. Store in prescribed waste disposal bin. Report spill to the Petrex's representative **A Level 1 spillage is to be controlled and cleared by the Contractor's field personnel.**
Internal Reporting – Survey contractor must contact the following:	
• Petrex representative	
External Reporting – Petrex's Representative must contact the following	
• Petrex's Chief Executive Officer / Managing Director • DEMIRS – Monthly Recordable Incident Report and Quarterly Emission and Discharge Report	

• Petrex's Chief Executive Officer • DEMIRS – Monthly Recordable Incident Report and Quarterly Emission and Discharge Report

LEVEL 2 SPILL - IMMEDIATE RESPONSE PLAN

Level 2 spills are those where:

- The spill response may be beyond the control capability of available on-site personnel and resources
- External incident management assistance is potentially required
- If necessary Petrex is required to contact and liaise with external contractors for assistance
- It is necessary to contact external regulatory authorities.

Potential Medium Liquid Spill

Potential Spill Source	Incident Response Guideline
Source: Uncontained Ruptured Fuel Tank **Potential Spill Volume**: Hydrocarbons: > 70L to inland waters > 70L on land > 100m^2 ground surface area affected by an uncontrolled escape or ignition of petroleum or	A medium sized spillage of petroleum product requiring available personnel on-site to provide assistance. Some minor outside assistance might be required. Ensure own safety. Attempt to stop the spillage. Raise alarm report to Petrex Representative. Ensure immediate safety of others. Isolate potential ignition sources and secure the area. Ensure no persons are exposed to the hazard. Install No Smoking signs. Apply absorbents. Sand is the more appropriate in this case. Call licensed Vacuum truck to clean any liquid accumulation if required.

other flammable or combustible material **Size:** Medium spillage **Level 2 Spill** Reportable incident	Remove soiled absorbents and contaminated top soil. Store in prescribed waste disposal bin if enough or a suitable storage area while waiting on disposal. Create a visual obstacle (preferably bright flagging tape) around the contaminated area. Initiate and complete clean-up procedures. Petrex is responsible to co-ordinate contaminated material removal
Internal Reporting – Crew Manager must contact the following:	
• Petrex's Representative • Petrex's Managing Director/Chief Executive Officer	
External Reporting – Petrex's Chief Executive Officer must contact the following	
• DEMIRS within 2 hours via email petroleum.environment@DEMIRS.wa.gov.au or on 0419 960 621 (Duty Officer) • DEMIRS – Written report within 3 days	

Native fauna affected by spill

The spill scenario described above carry the possibility of native fauna being affected by oil spill. If this is found to be the case the animal will be secured and contact with DBCA (Park and Wildlife Services) made on WILDCARE helpline (08) 9474 9055. An experienced fauna consultant may be required to mobilise to the site in some cases to assess the damage to local fauna. This will be undertaken in consultation with the DBCA (Parks and Wildlife Services) and DBCA will advise the nearest experienced wildlife carer to provide professional advice and assistance.

Figure 1: Emergency Response Flowchart

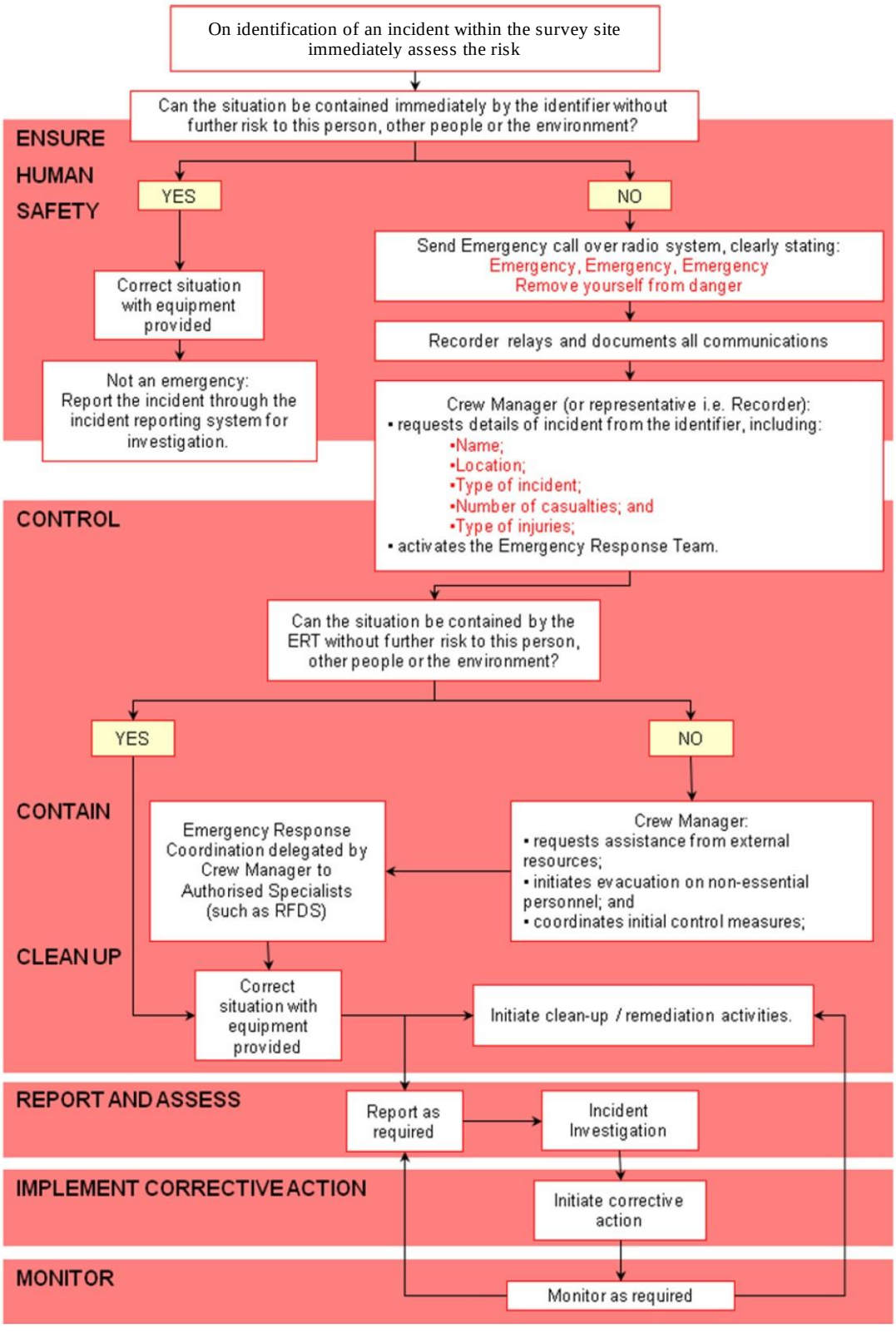
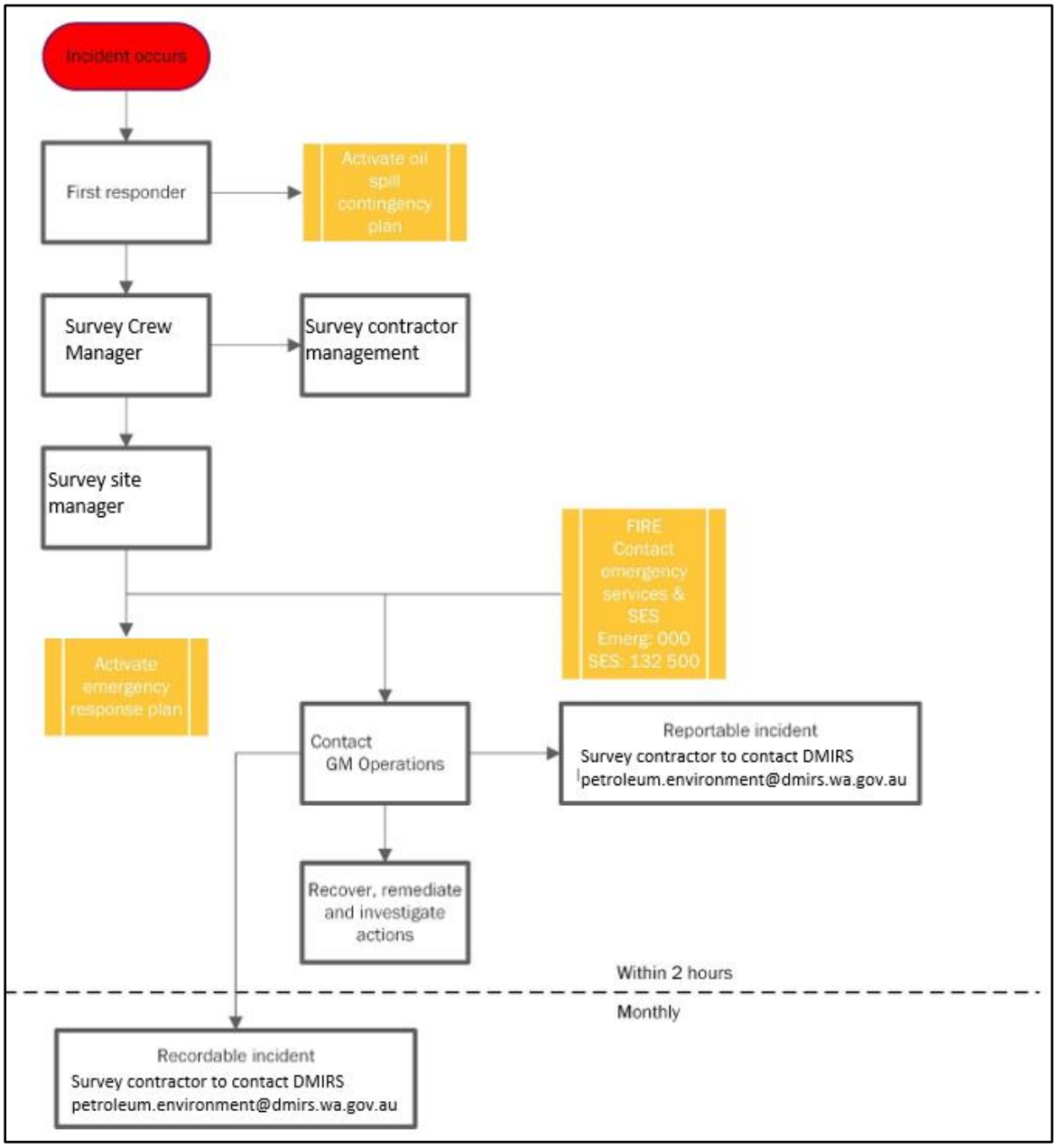


Figure 2: On-Site Communication Plan and Emergency Reporting Flow Chart



1.1.2 SPILL SCENARIOS AND TRAJECTORY MODELLING

The survey is an aerial geo-magnetic survey and there is no potential for fuel or other chemical contamination of the survey lines. The only location in which fuel spillage can occur during the survey is at Newman Airport during refuelling and the following spill potential estimation and management procedures will apply.

This section is prepared in accordance with s. 5.4.4 of the DEMIRS's *Guideline for the Development of an Onshore Oil Spill Contingency Plan*, July 2016. The maximum possible volume of a spill event will be limited to 250L of aviation fuel. (Level 2 spill – reportable incident).

As the activity is an aerial geochemical survey, there is no potential for spills in the lease area. The only area for potential spills is at Newman Airport.

The spill modelling will be for refuelling activities occurring at Newman Airport. The ground surface of the general aviation apron is tarmac or concrete, which is impermeable.

Using assumptions regarding the type of spillage material, spread of the spill across the flat surface and soil saturation conditions for an accident with rupture of a fuel tank and instantaneous release of 250L of aviation fuel onto the ground at Newman Airport during refuelling:

We can calculate the estimated surface area of a spill

$$Area\ (m^2) = \frac{Volume\ of\ spill\ (m^3)}{Depth\ of\ spill(m)}$$

It is extremely unlikely that the entire tank of fuel will spill at one time. The tarmac is likely to retain a large majority of the spill so it can be captured by the spill kit before it flows from the impact site. Following the spill response procedure should prevent any fuels from leaving the tarmac and impacting any soil.
Assuming a spill depth of 0.25cm on the tarmac, 250L of fuel spilt will cover a maximum area of 100m². The following table considers different spill depths.

Volume (L)	Depth (cm)	Area (m²)
250	1	25
250	0.75	33.3
250	0.5	50
250	0.25	100

As the aircraft will be refuelled at Newman Airport on the apron, it is unlikely that any soil will be impacted from any fuel spills during refuelling.

Standard spill control and cleanup will apply: Control leak, stop spread, use spill kit contents to clean up, report as required to authorities.

(a) ABOVE AND BELOWGROUND INFRASTRUCTURE

There is no infrastructure present in any permit controlled by Petrex.

(b) OIL SPILL RESPONSE

Activities	Refuelling of vehicles on-site Vehicle/ equipment accident or component failure.		
Duration	Short-term (days for a very small spill where rapid recovery is possible) to medium-term (months for a large spill)	**Spatial extent**	Limited to the Project footprint.

Potential Environmental Impact	**Consequence**	**Likelihood**	**Inherent Risk**
Escape of Hazchem and liquid hydrocarbons <70L resulting in localized contamination of soil contamination and land degradation.	Minor	Possible	Medium
>70L but limited to 250L spill of hydrocarbons from rupture of the vehicle fuel tank resulting in soil, water	Moderate	Unlikely	Medium

contamination and land degradation contained to the refuelling site area. Increase risk of fire			

Performance Objectives	*Prevent spills and minimise impacts from spillage, leakage and other escape of hazardous substances.*

Performance Standards	**Measurement criteria**
Avoidance and preparedness	
Environmental sensitives that may be impacted should a spill occur are identified and mapped.	Figure 4 (Attachment 1) is current and identifies all environmental sensitives that may be impacted should any incident or emergency occur.
All field personnel to check daily all vehicles and equipment focusing on oil/fuel leaks	Daily Reports demonstrate that vehicles and equipment are checked daily on presence of leaks. Recordable Incident Register demonstrates no oil/fuel leaks recorded during the survey.
All refuelling activities outside petrol stations will be undertaken with suitable controls in place to prevent or contain any spills in accordance with minimum requirements for refuelling: - Any refuelling undertaken in the field to be within existing gazetted road easements or cleared land. No refuelling within 1km of any designated watercourse; - No smoking near the fuel tanker while refuelling - Fire extinguisher present at refuelling point; - Spill kit present at refuelling point; - Someone to be present at all times while refuelling; - Vehicle to be refuelled from an on-site tanker which is fitted with quick shut off valves, non-blow back nozzles; - Draining and cleaning of nozzle with rag after refuelling; - Rag or absorbent material over the nozzle while carrying it; - Drip trays or bund under refuelling point; - Never refill running engines as fire hazard exists.	Site Induction Register demonstrates that personnel who performs refuelling are100% inducted and trained. Refuelling checklists are completed in accordance with Job Safety Analysis (JSA) and provide the refuelling location, volume and type of fuel used.
All chemicals shall be stored and handled in accordance with Australian Standards *AS 1940:2017,* and *AS 3780:2008:* - on transportable non-reactive rubber or plastic bunding pallets at a nominated laydown area, in individual containers, - hazardous materials or chemicals to be stored in small quantities (no more than 20L) on-site in covered skips or - deployed to the field on a properly equipped, purpose-built service truck (no more than 2500L mobile fuel tank), - where there is more than one minor storage on the premises, such storages shall be separated by a distance at least 15m,	Pre-start check list demonstrates that all chemicals are stored in accordance with *AS 1940:2004 and AS 3780:2008*. Daily Reports include inspection notes verifying that fuels and chemicals are appropriate stored and handled. Hazardous Material Register lists all chemicals and provides relevant MSDSs for each material.

- the ground around the storage area shall be kept clear of combustible vegetation or refuse for a distance of at least 3m, - All chemicals to be labelled in accordance with the manufacturer's specifications, - MSDSs are available on-site (corrosive substances are identified by label and the Class 8 designation in MSDS), - Personnel who handle the liquids shall be fully aware of the hazards involved, - Storage area should be secured against access by unauthorised person, - Liquids should be transferred and moved in a manner that reduces the likelihood of spillage, vapour escape or fire. - All spills and leaks shall be cleaned up immediately, any waste shall be disposed of safely and in accordance with the local regulations; - Liquids shall not be allowed to reach ignition sources or enter any creek, pond or waterway. - At least one portable fire extinguisher shall be readily accessible on-site where liquids are transferred within 5m of the storage area. - In areas where flammable liquids are decanted, a sign bearing the following words shall be displayed: DANGER – FLAMMABLE LIQUIDS – NO SMOKING-KEEP FIRE AWAY.	
All field personnel are inducted prior to the commencement of work on-site on spill prevention and response. Relevant personnel are trained and competent in refuelling procedures.	Site Induction Register demonstrates that 100% personnel have completed site specific induction which includes spill prevention and response procedures. Site Induction Register demonstrates that relevant personnel trained and inducted in refuelling. Site Induction Register shows records of induction.
All personnel must review on an annual basis. On-site training is required by all field personnel.	Training and Induction Register provides details of training on the contents of oil spill response.
Survey Crew Manager to ensure that spill drill is conducted as part of the Emergency Response drill. Due to the short nature of the Project, only one drill will be conducted when all personnel and equipment are onsite but prior to commencement of any ground works. The drill will be conducted, in situ, in real site conditions and with the actual workforce involved.	Pre-start check list demonstrates that spill drill has been conducted prior to commencement of any ground works. Annual Environment Report provide records of spill response training and spill drill.
Equipment requirements and locations	
Make available a spill kit at the site of refuelling. The spill kit will be the Newman airport spill kit. - All emergency procedures are in accordance with Project Specific ERP and SMS.	Pre-start check list verify the presence of a spill kit at the Newman Airport.

- VHF/UHF radios and satellite phone are available in each vehicle and hand-held UHF radios will be available to field personnel.			
Response			
Undertake spill response in accordance with section this document. Oil Spill Scenarios and Incident Response Guidelines of this OSCP -	Reportable Incident Register, Incident Report and Investigation report verify that response, reporting and investigation have been undertaken in accordance with the OSCP.		
Remediation and disposal of contaminated material			
Remediate contaminated site by removing contaminated soil. If required, outside contractors will be invited to initiate the clean-up process. Dispose contaminated material in the following manner: - Place absorbent products/rags/sand in an empty drum/bin, plastic bags or other suitable container. This will be processed with other controlled waste awaiting disposal. - All soaked absorbents and recovered hydrocarbons to be taken by a licensed contractor and disposed accordingly at an appropriate waste facility. - Dispose of contaminated (oil soaked) soil by using licensed contractor at an appropriate waste facility.	Emissions and Discharges Report provides a summary of waste generation and disposal for the reporting period of 3 months including quantity of contaminated soil and certificates of disposal.		
Residual Environmental Impact	**Consequence**	**Likelihood**	**Residual Risk**
Small spill less than 70L - negligible loss of soil in isolated area	Insignificant	Unlikely	Low
Large spill more than 70L but maximum 250L - soil contamination	Moderate	Rare	Medium
Demonstration of ALARP			
Following implementation of the controls described in this OSCP, the residual likelihood is considered to be Rare, however consequence of environmental impacts from spills resulting from rupture of the fuel mobile service tank is considered to be Moderate resulting in impact, able to be rectified in the short-term without causing significant pollution or contamination. The overall residual risk is Medium for the worst-case scenario. Fuel will be sourced from a local petrol station eliminating risks associated with fuel transportation to the project area and GHG emissions. Only small volume of fuel will be involved to handle at any time. Field personnel will be trained with spill drill conducted prior to the commencement of the project activities to ensure proposed management control in place and implemented. Additional controls will not result in a significant reduction in the residual risk; as such it was considered the risk has been reduced and managed to ALARP. Due to remoteness of the project, no feasible alternatives that resulted in the elimination of fuel or on-site refuelling were identified. As such, the risk is considered to be reduced to ALARP.			
Demonstration of Acceptability			
The residual level of risk is considered acceptable provided that: - Proposed management strategy is a common practice used by the industry enabling to prevent spill incidents and, in unlikely event of spill, halt the spill and remediate an area in short-term period. - A project-specific OSCP is prepared in accordance with DEMIRS's Guideline for the Development of an onshore Oil Spill Contingency Plan - Mitigation measures and spill response will be in accordance with this OSCP			

-	
Monitoring and Reporting	- Petrex's Site Representative to monitor compliance with the OSCP. - Visual monitoring for vehicles and machinery for oil/fuel spills or leaks. In case of large spill, notify Emergency Services including the nearest fire brigade and police in accordance with the ERP. In accordance with Regulation 28 of the PGER(E) Regulations 2012, report to the DEMIRS on any releases greater than: - 70L of hydrocarbons or hazardous materials to the inland waters; 70L of hydrocarbons or hazardous materials in other areas; 100m^2 ground surface area affected by spills of hydrocarbons or hazardous materials; Report to DEMIRS duty officer on 0419960621 within two (2) hours after the first occurrence of a spill or within two (2) hours of the spill being known. Provide an update to DEMIRS on 24-hour basis throughout any spill response. Submit a written report to the DEMIRS within three (3) days of the initial notification, to the email address petroleum.environment@DEMIRS.wa.gov.au.
Training and qualifications	All field personnel will undertake site induction prior to mobilisation which will include training on the contents of this OSCP. All training and inductions, including details of qualifications and competencies will be recorded in the Site Induction Register. Personnel will have valid certifications at all times whilst on-site and provide copies as and when requested. A copy of the Site Induction Register and records will be maintained on-site throughout the duration of the project.
Records	- Reportable/ Recordable Incident Register. - Records of spill prevention and response inductions and spill drill. - Hazardous Material Register and MSDSs. - Records of all refuelling including the refuelling location, volume and type of fuel used.

ANNEXURE B – Environment Policy Statement

PETREX AUSTRALIA PTY LTD

ENVIRONMENTAL SUSTAINABILITY POLICY

Intent

This Environmental Sustainability Policy formalises our commitment to supporting the principles of environmental sustainability and recognises that a sustainable environment is central to our lives and our work.

The aim of our Environmental Sustainability Policy is to:

- assist the company to comply with all environmental laws
- implement environmental actions within the company
- monitor the environmental actions and improvements internally
- communicate environmental initiatives internally and externally.

Scope

This policy and associated procedures apply to all directors, staff and contractors working for the company.

Policy

Petrex Australia Pty Ltd respects our relationship with the natural environment and its ecosystems. We acknowledge the adverse impacts that human activity can impose and take actions to prevent degradation of those natural systems.

Petrex Australia Pty Ltd commits to the following principles and practices:

- Monitoring and managing our environmental performance and working towards targets set to reduce adverse impacts.

- Complying with relevant Australian Commonwealth, State and Local environmental policy, practices, regulations and legislation, and industry-specific legislation.

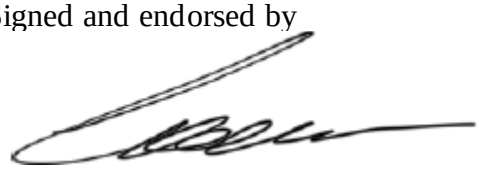
- Reducing the consumption of natural resources in daily operations, including water, paper and energy.

- Maximising the recycling of resources.
- Disposing of waste appropriately, including e-waste at designated e-waste centres.
- Committing to the principles of preventing pollution to the environment and continual improvement.
- Minimising pollution by taking steps to limit carbon emissions resulting from vehicle and air travel.
- Where possible, encouraging suppliers to meet high standards of environmental performance.
- Communicating this policy to all employees, contractors and other stakeholders.
- Reporting on the company's environmental performance in both internal and external communications, where required.
- Reviewing this policy annually and measuring targets and performance as part of that review.

Responsibility and Review

This Environmental Sustainability Policy is the responsibility of the Management of Petrex Australia Pty Ltd. This policy was lasted updated August 2023 and will be reviewed annually.

Signed and endorsed by



Toby Chandler
Managing Director

ANNEXURE C – ACHIS Search

STP-SPA-0096

Department of Planning, Lands and Heritage

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

Search Criteria

5 Aboriginal Cultural Heritage (ACH) Register in Shapefile - Petroleum SPAAO

Disclaimer

Aboriginal heritage holds significant value to Aboriginal people for their social, spiritual, historical, scientific, or aesthetic importance within Aboriginal traditions, and provides an essential link for Aboriginal people to their past, present and future. In Western Australia Aboriginal heritage is protected under the *Aboriginal Heritage Act 1972*.

All Aboriginal cultural heritage in Western Australia is protected, whether or not the ACH has been reported or exists on the Register.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you provide the details to the Department via https://achknowledge.dplh.wa.gov.au/ach-enquiry-form and we will make every effort to rectify it as soon as possible.

Copyright

Department of Planning, Lands and Heritage

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

Terminology

ID: ACH on the Register is assigned a unique ID by the Department of Planning, Lands and Heritage using the format: ACH-00000001. For ACH on the former Register the ID numbers remain unchanged and use the new format. For example the ACH ID of the place Swan River was previously '3536' and is now 'ACH-00003536'.

Access and Restrictions:

- **Boundary Reliable (Yes/No):** Indicates whether to the best knowledge of the Department, the location and extent of the ACH boundary is considered reliable.
- **Boundary Restricted = No:** Represents the actual location of the ACH as understood by the Department..
- **Boundary Restricted = Yes:** To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the ACH is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- **Culturally Sensitive = No:** Availability of information that the Department of Planning, Lands and Heritage holds in relation to the ACH is not restricted in any way.
- **Culturally Sensitive = Yes:** Some of the information that the Department of Planning, Lands and Heritage holds in relation to the ACH is restricted if it is considered culturally sensitive information. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the people who provided the information. To request access please contact via https://achknowledge.dplh.wa.gov.au/ach-enquiry-form.
- **Culturally Sensitive Nature:**
  - **No Gender / Initiation Restrictions:** *Anyone* can view the information.
  - **Men only:** Only *males* can view restricted information.
  - **Women only:** Only *females* can view restricted information.

Status:

- **Register:** Aboriginal cultural heritage places that are assessed as meeting Section 5 of the *Aboriginal Heritage Act 1972*.
- **Lodged:** Information which has been received in relation to an Aboriginal cultural heritage place, but is yet to be assessed under Section 5 of the *Aboriginal Heritage Act 1972*.
- **Historic:** Aboriginal heritage places assessed as not meeting the criteria of Section 5 of the *Aboriginal Heritage Act 1972*. Includes places that no longer exist as a result of land use activities with existing approvals.

Place Type: The type of Aboriginal cultural heritage place. For example an artefact scatter place or engravings place.
Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place.

Coordinates

Map coordinates are based on the GDA 94 Datum.

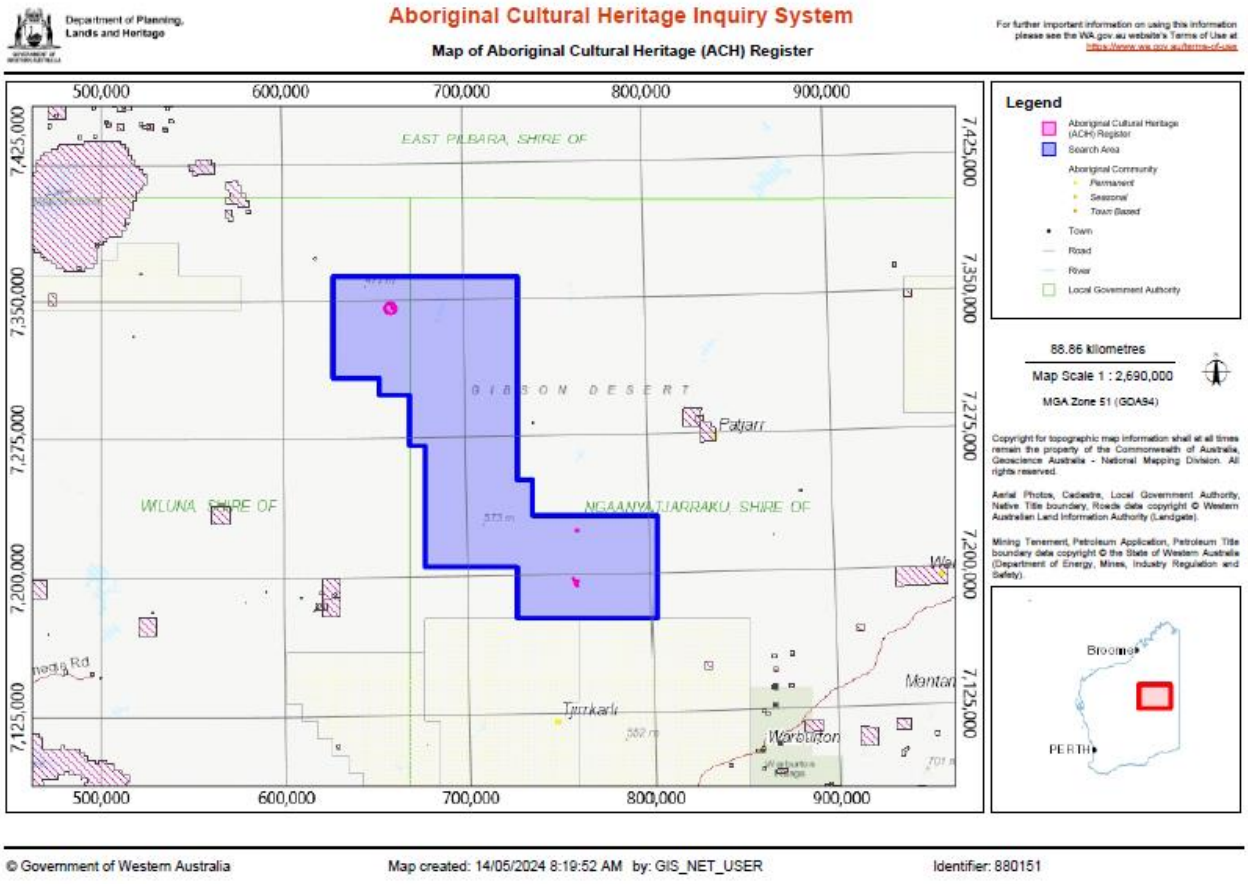
Basemap Copyright

Department of Planning, Lands and Heritage

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
2114	WOOLNOUGH HILLS.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Grinding areas / Grooves; Traditional Structure; Painting; Shell	*Registered Knowledge Holder names available from DPLH	W00005
2134	TSAKALOS RANGE	No	No	No	No Gender / Initiation Restrictions	Register	Painting	*Registered Knowledge Holder names available from DPLH	W00025
2148	LAKE GRUSZKA	No	Yes	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Modified Tree	*Registered Knowledge Holder names available from DPLH	W01076
8144	WOOLNOUGH HILLS SHELTER	No	No	No	No Gender / Initiation Restrictions	Register	Painting	*Registered Knowledge Holder names available from DPLH	P04529
12057	WOOLNOUGH HILLS	No	No	No	No Gender / Initiation Restrictions	Register	Painting	*Registered Knowledge Holder names available from DPLH	P00076


Department of Planning, Lands and Heritage
Aboriginal Cultural Heritage Inquiry System
Map of Aboriginal Cultural Heritage (ACH) Register
For further important information on using this information please see the WA.gov.au website's Terms of Use at https://www.wa.gov.au/terms-of-use
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600,000
700,000
800,000
900,000
7,425,000
7,350,000
7,275,000
7,200,000
7,125,000
EAST PILBARA, SHIRE OF
GIBSON DESERT
Patjarr
WILUNA, SHIRE OF
NGAANYATJARRAKU, SHIRE OF
Tjukarla
Warburton
Legend
Aboriginal Cultural Heritage (ACH) Register
Search Area
Aboriginal Community
Permanent
Seasonal
Town Based
Town
Road
River
Local Government Authority
88.86 kilometres
Map Scale 1 : 2,690,000
MGA Zone 51 (GDA94)
Broome
PERTH
© Government of Western Australia
Map created: 14/05/2024 8:19:52 AM by: GIS_NET_USER
Identifier: 880151

STP-SPA-0097

Department of Planning, Lands and Heritage

Aboriginal Cultural Heritage Inquiry System

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- **Boundary Restricted = Yes:** To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the ACH is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- **Culturally Sensitive = No:** Availability of information that the Department of Planning, Lands and Heritage holds in relation to the ACH is not restricted in any way.
- **Culturally Sensitive = Yes:** Some of the information that the Department of Planning, Lands and Heritage holds in relation to the ACH is restricted if it is considered culturally sensitive information. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the people who provided the information. To request access please contact via https://achknowledge.dplh.wa.gov.au/ach-enquiry-form.
- **Culturally Sensitive Nature:**
  - **No Gender / Initiation Restrictions:** *Anyone* can view the information.
  - **Men only:** Only *males* can view restricted information.
  - **Women only:** Only *females* can view restricted information.

Status:

- **Register:** Aboriginal cultural heritage places that are assessed as meeting Section 5 of the *Aboriginal Heritage Act 1972*.
- **Lodged:** Information which has been received in relation to an Aboriginal cultural heritage place, but is yet to be assessed under Section 5 of the *Aboriginal Heritage Act 1972*.
- **Historic:** Aboriginal heritage places assessed as not meeting the criteria of Section 5 of the *Aboriginal Heritage Act 1972*. Includes places that no longer exist as a result of land use activities with existing approvals.

Place Type: The type of Aboriginal cultural heritage place. For example an artefact scatter place or engravings place.
Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place.

Coordinates

Map coordinates are based on the GDA 94 Datum.

Basemap Copyright

Department of Planning, Lands and Heritage

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

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ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
7098	NYAKUNGAIAWARNA CAMP.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Camp	*Registered Knowledge Holder names available from DPLH	P05816
7101	PUNGARLI 7	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	P05819
7102	MIRIWIRI ROCKHOLE.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Camp; Water Source	*Registered Knowledge Holder names available from DPLH	P05820
7103	MIRIWIRI CREEK.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Camp; Water Source	*Registered Knowledge Holder names available from DPLH	P05821
7104	JILPURU.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Camp; Plant Resource; Water Source	*Registered Knowledge Holder names available from DPLH	P05822
7105	KUNANYA.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Camp; Water Source	*Registered Knowledge Holder names available from DPLH	P05823
10398	PUNGKULYI.	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative; Water Source	*Registered Knowledge Holder names available from DPLH	P01763
10401	LADY VICTORIA HILLS	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P01766
10402	CORKORRNYINA.	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative; Water Source	*Registered Knowledge Holder names available from DPLH	P01767
10403	SIR FOWELL HEADLAND	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P01768
10404	MATALIRRI	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P01769
10409	TIMPIRR	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P01774
10410	NGAPA	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P01775
10411	WARNTURR	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P01776
10412	PAJANYJANYA.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative; Water Source	*Registered Knowledge Holder names available from DPLH	P01777
10444	McFADDEN RANGE	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P01758
11856	BEJAH HILLS	No	No	No	No Gender / Initiation Restrictions	Register	Painting	*Registered Knowledge Holder names available from DPLH	P00293

Department of Planning, Lands and Heritage

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
12018	DJILA CLAYPAN, DURBA HILLS	No	No	No	No Gender / Initiation Restrictions	Register	Ritual / Ceremonial; Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P00138
12019	CLOUD COMPLEX, DURBA HILLS	No	No	No	No Gender / Initiation Restrictions	Register	Ritual / Ceremonial; Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P00139
12020	NANGARBA, DURBA HILLS	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Ritual / Ceremonial; Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P00140
12091	DIEBIL SPRING	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Ritual / Ceremonial; Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P00059
12093	DURBA HILLS.	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative; Engraving; Painting; Water Source	*Registered Knowledge Holder names available from DPLH	P00061
12094	BIELLA SPRING.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Creation / Dreaming Narrative; Painting; Water Source	*Registered Knowledge Holder names available from DPLH	P00062
12095	KILLAGURRA SPRINGS.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Ritual / Ceremonial; Creation / Dreaming Narrative; Engraving; Other; Painting; Water Source	*Registered Knowledge Holder names available from DPLH	P00063
12096	DURBA SPRING UPPER GORGE.	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative; Grinding areas / Grooves; Painting; Plant Resource	*Registered Knowledge Holder names available from DPLH	P00064
12097	OUTLIER CLAYPAN	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P00065
12098	KILLAGURRA/WELL 17.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Ritual / Ceremonial; Creation / Dreaming Narrative; Painting; Water Source	*Registered Knowledge Holder names available from DPLH	P00066
12099	DURBA SPRING ENTRANCE.	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Camp; Creation / Dreaming Narrative; Painting	*Registered Knowledge Holder names available from DPLH	P00067
12100	DURBA SPRING SOUTH COMPLEX.	Yes	No	Yes	No Gender / Initiation Restrictions	Register	Creation / Dreaming Narrative; Engraving; Painting; Water Source	*Registered Knowledge Holder names available from DPLH	P00068
12102	ONEGUNYA ROCKHOLE/WANGUDJU	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Camp; Engraving; Water Source	*Registered Knowledge Holder names available from DPLH	P00070
12103	Kumpupintil Lake (Gumbubindil//Lake Disappointment)	Yes	Yes	Yes	No Gender / Initiation Restrictions	Register	Ritual / Ceremonial; Creation / Dreaming Narrative	*Registered Knowledge Holder names available from DPLH	P00071
12105	RUNTON RANGE.	No	No	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Painting; Water Source	*Registered Knowledge Holder names available from DPLH	P00073

Department of Planning, Lands and Heritage

Aboriginal Cultural Heritage Inquiry System

Map of Aboriginal Cultural Heritage (ACH) Register

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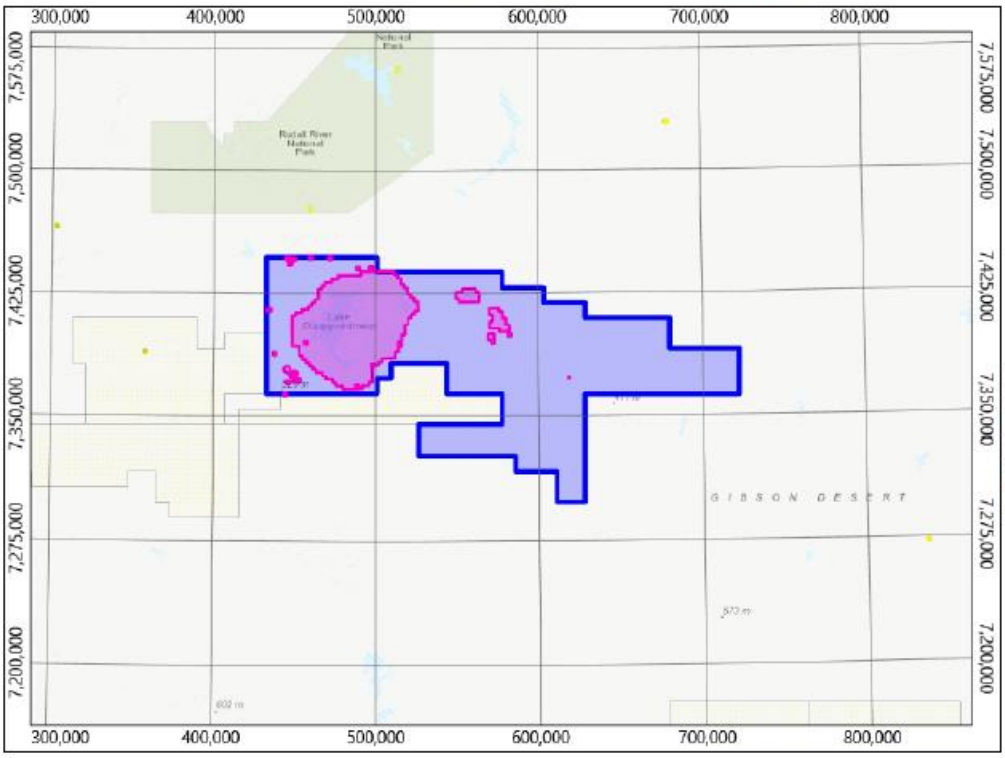

Legend

- Aboriginal Cultural Heritage (ACH) Register
- Search Area
- Aboriginal Community
  - Permanent
  - Seasonal
  - Town Based
- Town
- Road
- River
- Local Government Authority

100.68 kilometres

Map Scale 1 : 3,050,000

MGA Zone 51 (GDA94)

Map created: 14/05/2024 8:20:53 AM by: GIS_NET_USER

Identifier: 880152

ANNEXURE D – Fauna and Fauna Desktop Survey (*Low Ecological Services)*

STP-SPA-0096 and STP-SPA-0097

Flora and Fauna Desktop Survey

Prepared by Low Ecological Services P/L
On behalf of Petrex Australia Pty Ltd

Low Ecological Services
PO Box 3130, Alice Springs, NT
0871.
Ph (08)89 555 222
Email: lowecol@lowecol.com.au
Web: www.lowecol.com.au

Low Ecological Services

Executive Summary

Petrex Australia Pty Ltd (Petrex) has commissioned Low Ecological Services P/L (LES) to assist in updating their Environmental Plan (EP) for their planned airborne geochemical surveys over their STP-SPA-0096 and STP-SPA-0097 tenements (Project Area)

The project area lies within the Great Victoria Desert, specifically in the Little Sandy Desert and parts of the Gascoyne region. The Project area is in the shires of East Pilbara, Wiluna, and Ngaanyatjarraku and the western border of the area is about 150km east of Newman, WA. The environmental assessment focused on identifying, mapping and assessing the potential impact of the aerial survey on key ecological features in the area, with a particular emphasis on flora and fauna.

Dominant vegetation in the area includes tree steppes with species including *Eucalyptus gongylorcarpa*, *Acacia aneura* (Mulga), and *Eucalyptus youngia*, along with hummock grasslands primarily dominated by *Triodia basedowii* (spinifex). The area also contains low open woodlands, scrub, ephemeral streams and lakes, and small pockets of mallee woodlands. Fifteen Flora species of conservation significance were identified to occur in the Project area with no Threatened Ecological Communities (TEC) identified within the project area. The closest TEC, the Ethel Gorge aquifer stygobiont community, is located 247 km away.

The project area includes significant hydrological features particularly Lake Disappointment and Savory Creek systems, The Pools of the Durba Hills and Gruszka Lake, which are classified as Nationally Important Wetlands. The Pools of the Derba Hills consist of freshwater springs and waterholes, while Lakes Disappointment and Gruszka are ephemeral and require significant rainfall to contain water, which will be saline. Lake Gruszka is 110km away from the closest flightline and won't be impacted by the survey.

The survey identified 11 Mammal, 23 Bird, and four Reptile species of conservation significance, including nine migratory bird species and 11 marine species.

The proposed aerial geochemical survey is unlikely to have an impact on the species and environmental features of the project area due to the aerial nature of the survey and the aviation controls in place to reduce risk of impact with airborne fauna. Several outstations in the potential flightpath will be diverted around to maintain CASA clearance requirements.

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DOCUMENT CONTROL TABLE

Document #	**Sequential Revision #**	**Date of Revision**	**Author**
1st Draft	V1	5/02/2025	James Ross
Revision	V1	6/2/25	Bill Low
Final version	V2	7/02/2025	James Ross

1. Introduction

1.1 Overview

Petrex Australia Pty Ltd (**Petrex**) is a private company focused on exploring and developing energy resources in Western Australia's Officer Basin. Petrex is the owner of STP-SPA-0096 and STP-SPA-0097. In late 2018 and early 2019 Petrex acquired an AEM-PTP survey called the Pinemont Officer Basin Aerial Survey over the Officer Basin, Western Australia. More recently in 2021 Petrex reprocessed over 1,000kms of historical 2D seismic in the northwest of the Officer Basin over granted permits EP500 and EP502 and has recently had an environment plan approved for a geochemical survey over EP500 and EP502, located in close proximity to STP-SPA-0096 and STP-SPA-0097. Petrex is preparing an Environmental Plan (EP) for a proposed aerial exploration over STP-SPA-0096 and STP-SPA-0097. This desktop survey is to support the environmental impact assessment for the Environment Plan.

1.2 Scope of Work

Low Ecological Servies P/L (LES) has been commissioned by Petrex to undertake a level 1 desktop assessment of the natural environment in the area of project area and to assist with applying the data to the required EP. This environmental desktop assessment was carried out in accordance with the principal components of the WA EPA Environmental Assessment Guidelines (EAG) for a Level 1 flora and fauna assessment and involved the following key tasks:

- Review of available databases relating to the study area, including:
  - Commonwealth EPBC Act Protected Matters Search Tool, Department of Environment (DoE).
  - Atlas of Living Australia (ALA) database
  - Department of Park and Wildlife (DPaW) NatureMap Species database and interactive map.
  - DPaW Flora Database NatureMap.
  - Department of Water and Environmental Regulation (DWER) Environment Online interactive map.
  - WA Department of Parks and Wildlife (DPAW) Flora, Fauna and Communities database.
  - National Vegetation Information System (NVIS) Mapping Tool V. 4.1.

1.3 Database Searches

The following data sources were searched to assess the fauna and flora likely to occur in the project area

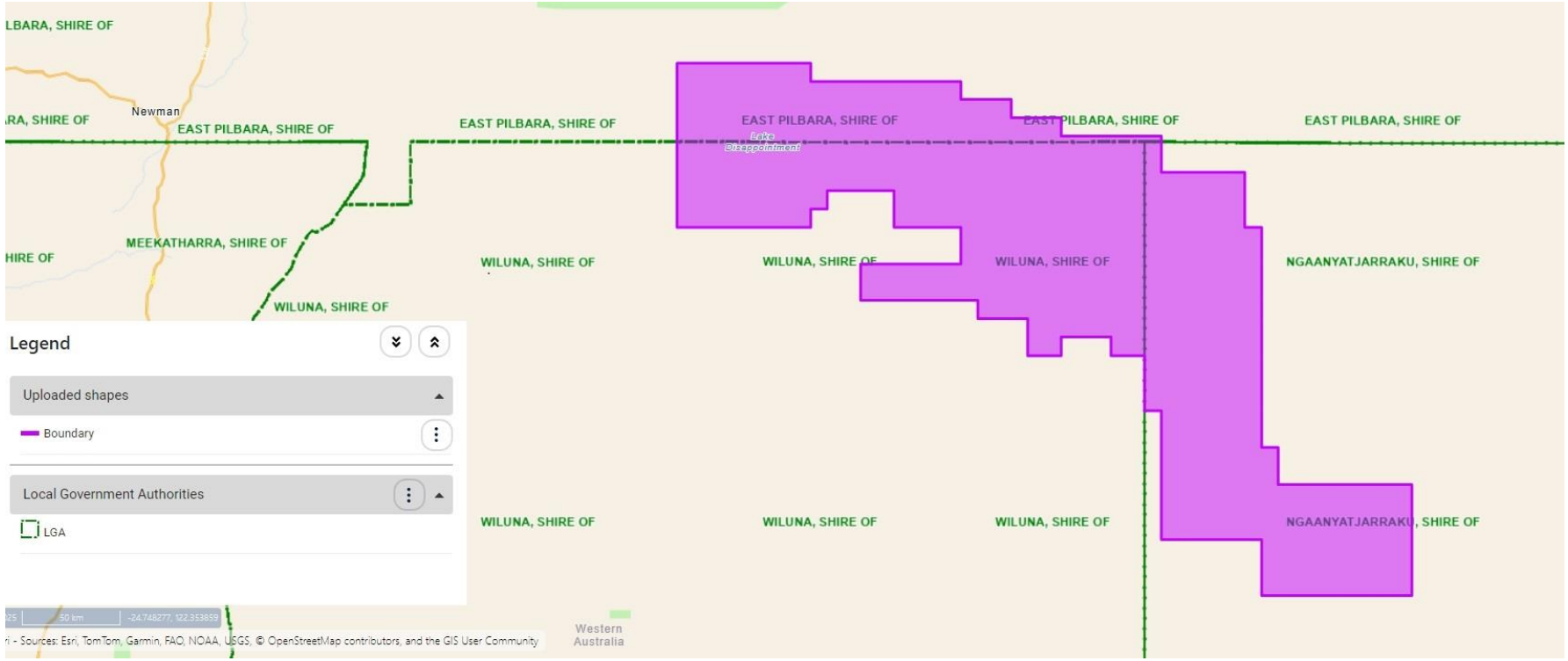
Table 3 Database Searches

Data Source	Custodian	Details of search effort
Commonwealth Protected Matters Search Tool	Department of Climate change, Energy, the Environment and Water (DCCEEW)	Date 7/01/25 Buffer 50km Search Area: STP-SPA-0096 & STP-SPA-0097
NatureMap	Department of Biodiversity Conservation and Attractions	Date: 8/01/25 Buffer 50km Search Area: STP-SPA-0096 & STP-SPA-0097 Reference: 05-0125NM
Atlas of Living Australia	CSIRO	Date: 8/01/25 Buffer 50km Search Area: STP-SPA-0096 & STP-SPA-0097

1.4 Location

STP-SPA-0096 and STP-SPA-0097 are located in the shires of East Pilbara, Wiluna, and Ngaanyatjarraku, with the western border of the area about 150km east of Newman, WA.

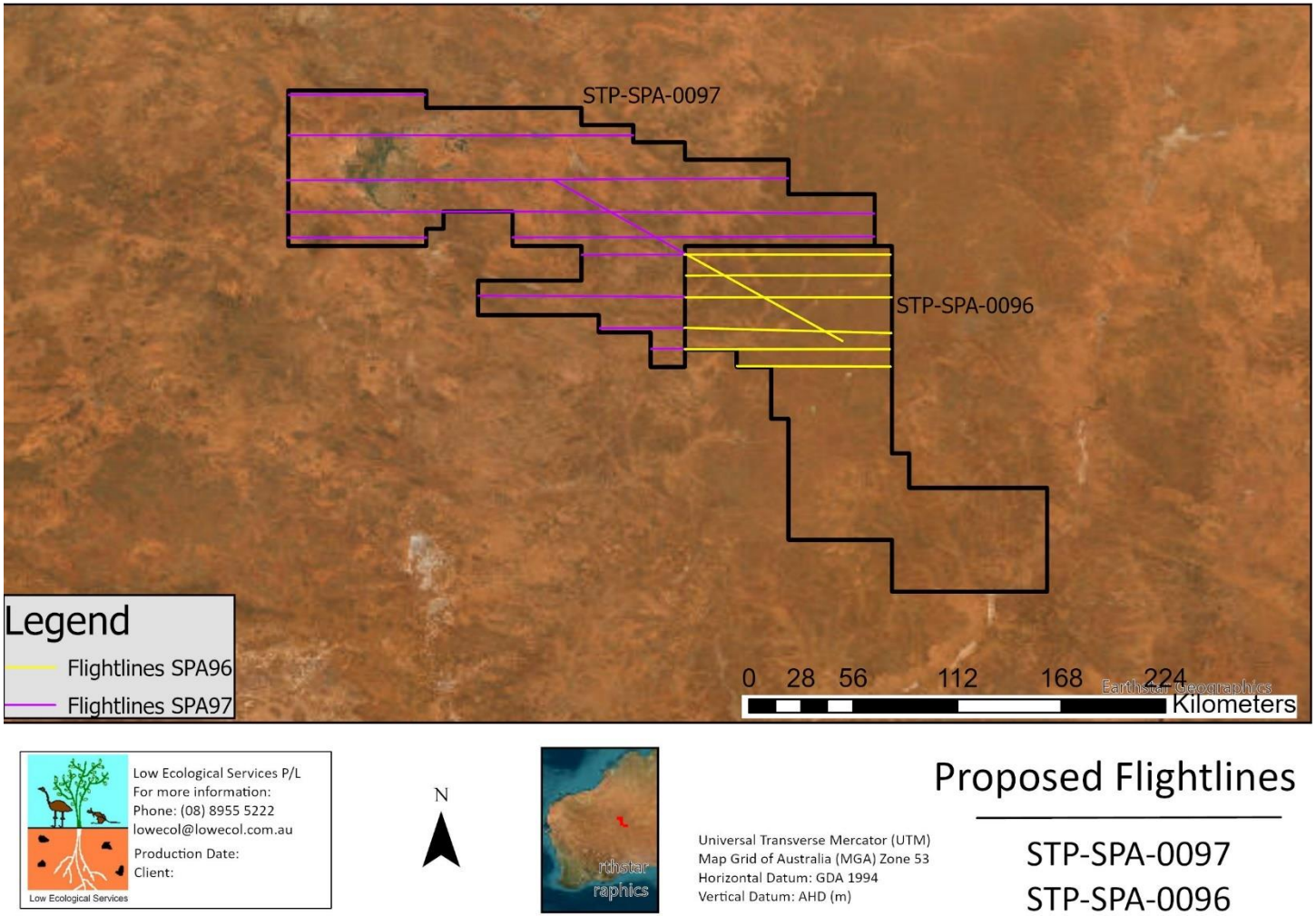
Figure 2 Location of project area - environmentonline.dwer.wa.gov.au Jan 2025



1.5 Geophysical Survey Area

The Airborne Survey is a passive airborne geophysical acquisition survey over STP-SPA-0096 and STP-SPA-0097 located in the Officer Basin, Western Australia. The Project is for airborne geophysical measurements only and does not include any drilling, hydraulic fracturing or extraction activities. The aircraft will perform the flight at a minimum altitude of 150m, with each line spaced roughly 20km apart.

Figure 3 Proposed Geophysical Survey Flightlines

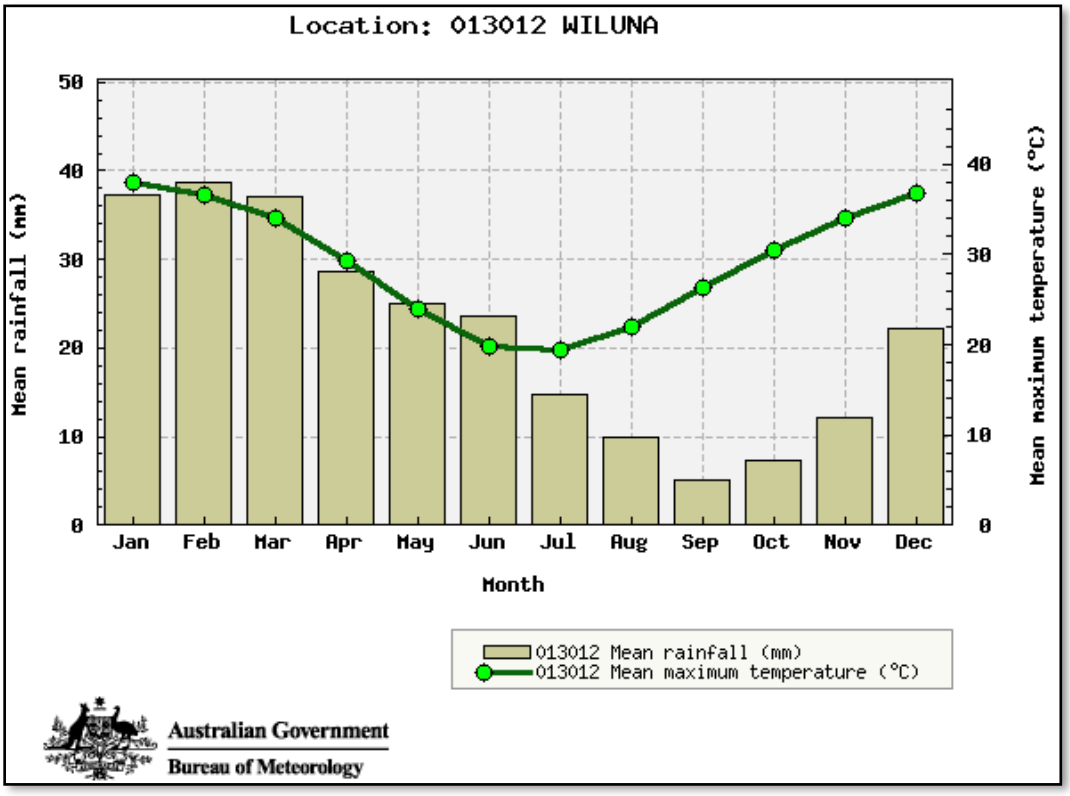


2. Existing Environment

2.1 Climate

The Project is in the Shire of Wiluna and Shire of East Pilbara within the desert region of Western Australia. The area has a mediterranean climate with cool, dry winters and warm, wet summers. The long term (1898-2024) average annual rainfall is about 260 millimetres (Bureau of Meterology, 2025), but rainfall is highly variable between years. Most of the rain falls during the late summer months between January and June. Figure 3 shows the monthly temperature and rainfall averages in the vicinity of the project area.

Figure 4 Wiluna mean rainfall and temperature - *BOM 2025*



2.2 Bioregion

The Interim Biogeographic Regionalisation for Australia (IBRA) divides Australia into 89 bioregions based on major biological and geographical/ geological attributes ((Cresswell, 1995)). These bioregions are subdivided into 419 subregions, as part of a refinement of the IBRA framework.

The Petrex acreage is located across the Great Victoria Desert and the eastern portion of the Gascoyne region.

The Great Victoria Desert land surface is dominated by sand plains, dune fields and alluvial wash. It is a region of arid stable sand-ridge desert of Quaternary aeolian sands and drainages overlying Permian / Mesozoic sediments and Proterozoic Officer Basin sediments.

The Project area is located in the Little Sandy Desert, Trainor subregion (LSD02) of the Little Sandy Desert (LSD) bioregion.

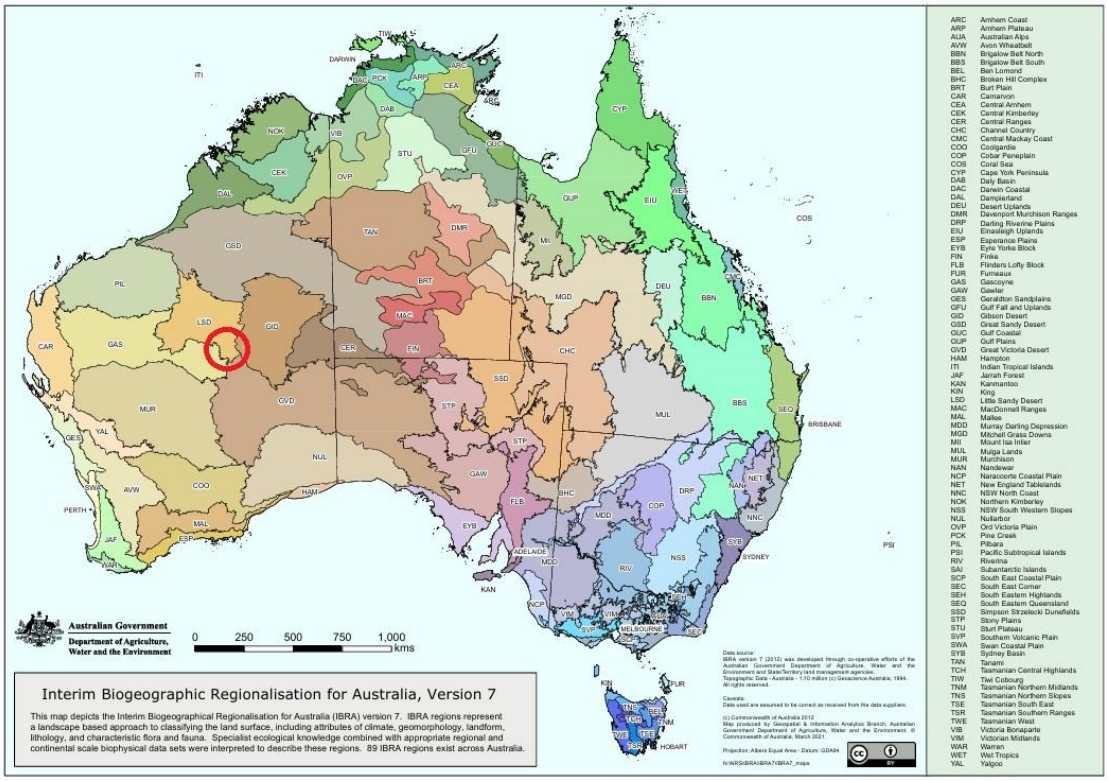


Figure 5 - Interim Biogeographic Regionalisation for Australia, ver 7 - *environmentonline.dwer.wa.gov.au*

2.3 Matters of National Environmental Significance

The EPBC Act protected Matters search tool was interrogated on 7 Jan 2025. MNES search data provided in annexure B

The MNES that occur in the search area are as follows.

- Nine (9) Migratory Species
- Twelve (12) Listed Threatened Species
- Eleven (11) Listed Marine Species
- Three (3) Nationally Important wetlands (Lake Disappointment, the Pools of the Durba Hills and Lake Gruszka

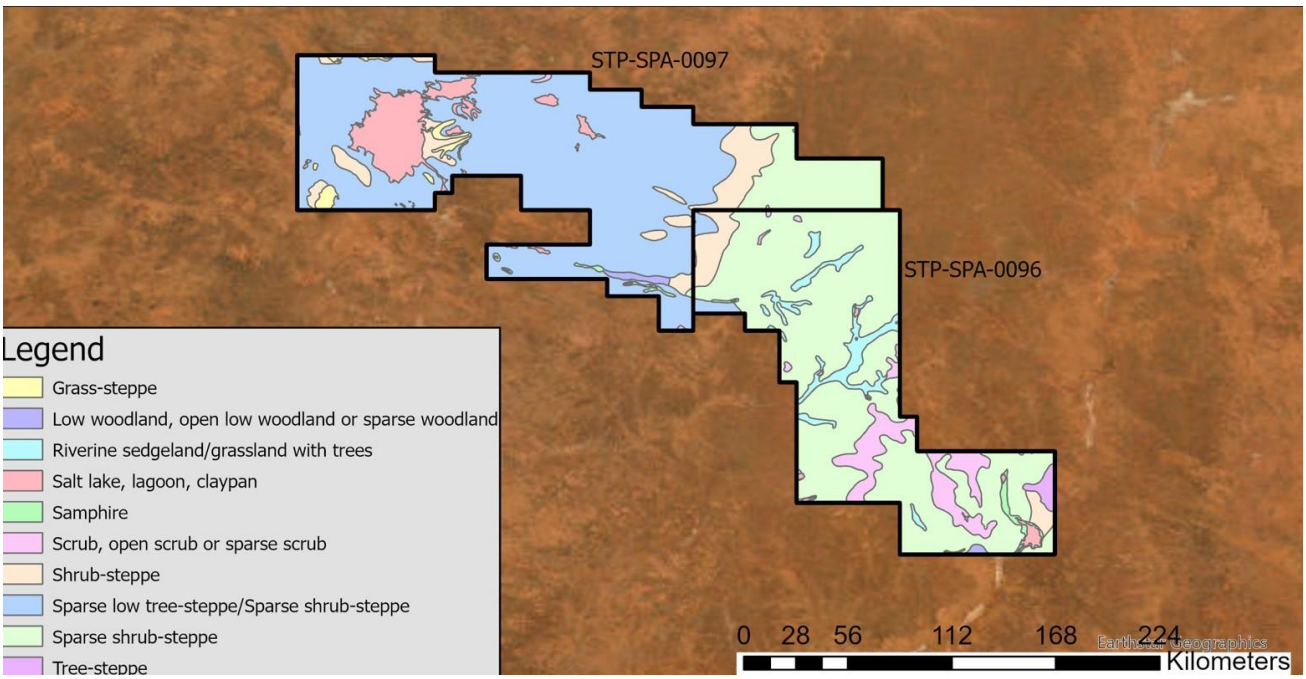
2.4 Vegetation

Mapping of the vegetation in Western Australia was completed on a broad scale by (Beard, 1981)). These vegetation units were re-assessed by (Shepard, 2002)to account for clearing in the intensive land use zone, dividing some larger vegetation units into smaller units.

The project area is located within the Great Victoria Desert bioregion within the Eastern region. Vegetation is characterised by a Tree steppe of *Eucalyptus gongylorcarpa*, Mulga (*Acacia Aneura*) and *E. youngia* over hummock grassland dominated by *Triodia basedowii* (spinifex) on aeolian sands.

This ecosystem can be further divided into vegetation community types. The vegetation systems associated with the Petrex acreage are many varieties of open or sparce scrub, low open woodland, hummock grass-steppes and ephemeral streams, salt lakes and claypans. There are also small pockets of Mallee Woodlands interspersed with Acacia Open Woodland and Tree-steppes across the survey area.

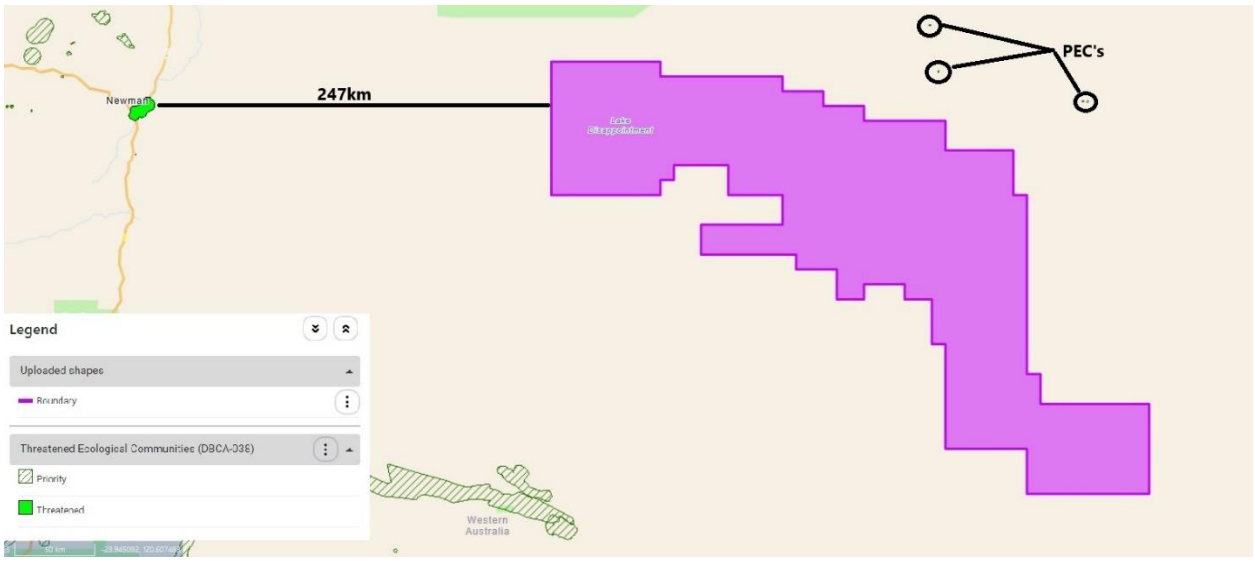
Figure 6 - Vegetation Map of Project Area



2.4.1 Threatened Ecological Communities

Using the environmentonline.dwer.wa.gov.au interactive map, Threatened Ecological Communities (TEC) were mapped. No TEC's are listed within the project area. The closest TEC found is the Ethel Gorge aquifer stygobiont community, 247km to the west (figure 6) The airborne survey activities will not impact TECs.

Figure 7 - Threatened Ecological Communities



2.5 Hydrogeology

2.5.1 Nationally Important Wetlands

Three (3) Nationally Important Wetlands (NIW) were identified in the MNES search of the project area (Figures 6 and 7)

- Lake Disappointment.
- Pools of the Durba Hills
- Lake Gruszka

2.5.2 Surface Water

The survey site lies within the Goldfields-Murchison drainage division covering an area of approximately seven hundred and fifty thousand (750,000) km^2. Surface water is generally insignificant as a water supply. Sources of drainage within the project Area tend to be ephemeral (prone to cyclonic activity) and once accumulated into depressions become saline. Figures 7&8 illustrates the hydrological features in the area surrounding the project area.

The major hydrological feature is Lake Disappointment and its primary inflow, Savory Creek in the west of the project area. The pools of the Durba Hills are a series of small freshwater springs and waterholes to the southwest of SPA-0097 and Lake Gruszka to the south of SPA-0096. Other smaller lakes and rivers do occur in the project area, and like Lake Disappointment and Savory Creek, are ephemeral and would only flow and hold water during floods following a cyclonic rain event. The airborne survey activities will not impact surface water or NIW and it is unlikely that aquatic and migratory birds would be at the altitude of the survey aircraft.

Figure 8 SPA-97 Lakes and Rivers with Pools of Durba Hills circled and flightlines - (Department of Primary Industries and Regional Development, 2025)

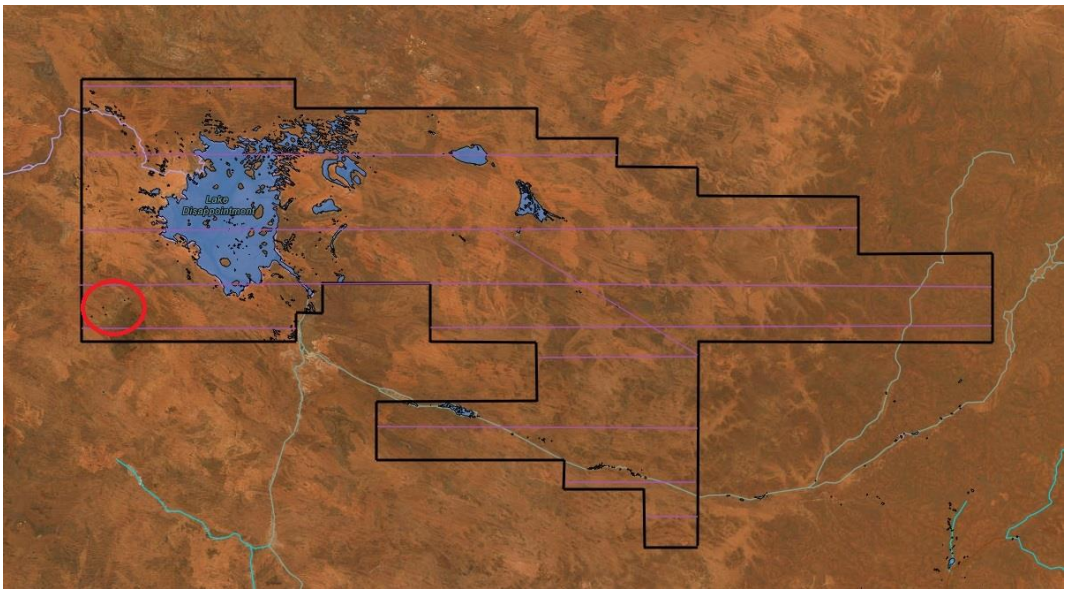
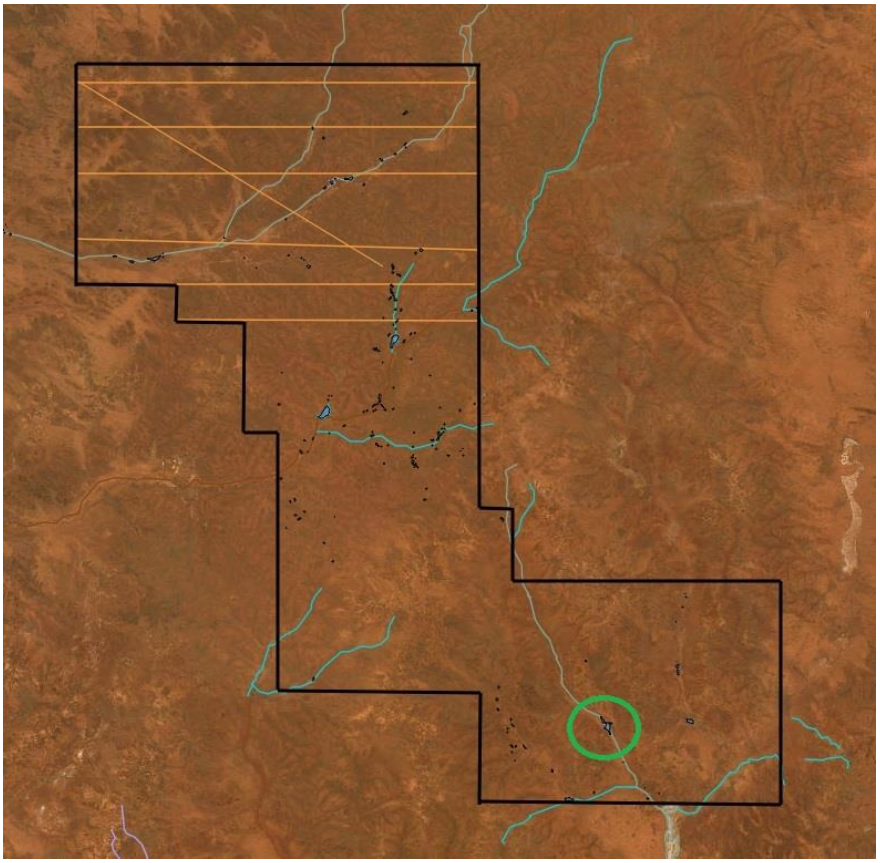


Figure 9 SPA-96 Lakes and Rivers with Lake Gruszka circled and flightlines - (Department of Primary Industries and Regional Development, 2025)



2.5.3 Flooding of Lake Disappointment

Previous surveys of Lake Disappointment notes that there is evidence to suggest there has been water present in Lake Disappointment for short periods in six of the past 50 years (as of 2016) There years are 1971, six months in 1992, 1995, several months after a cyclone in 1999, 2004, 2013, 2015 and 2016. (Bennelongia Pty Ltd, 2016)
Google Earth satellite imagery suggests water was also present in 2018.

3. Flora and Fauna

3.1 Flora

A DotE Protected Matters Search and a DBCA NatureMap search was undertaken over the Project area with a 50km buffer. The Atlas of Living Australia search was utilised for occurrence records.

The MNES search returned zero flora species, the DBCA Nature Maps search identified 15 species of conservation significance. The species are listed in table 2 and mapped in figure 9.

Flora will not be impacted by the airborne survey as there is no ground work involved apart from landing and taking off from Newman airport.

ALA search report located in annexure C and NatureMap search details found in annexure A

3.1.1 Weeds

According to the Department of Climate Change, Energy, the Environment and Water factsheet for the Gibson Desert, no known weeds are known to exist (or have been previously mapped) in the bioregion. Fact sheet provided in Annexure D

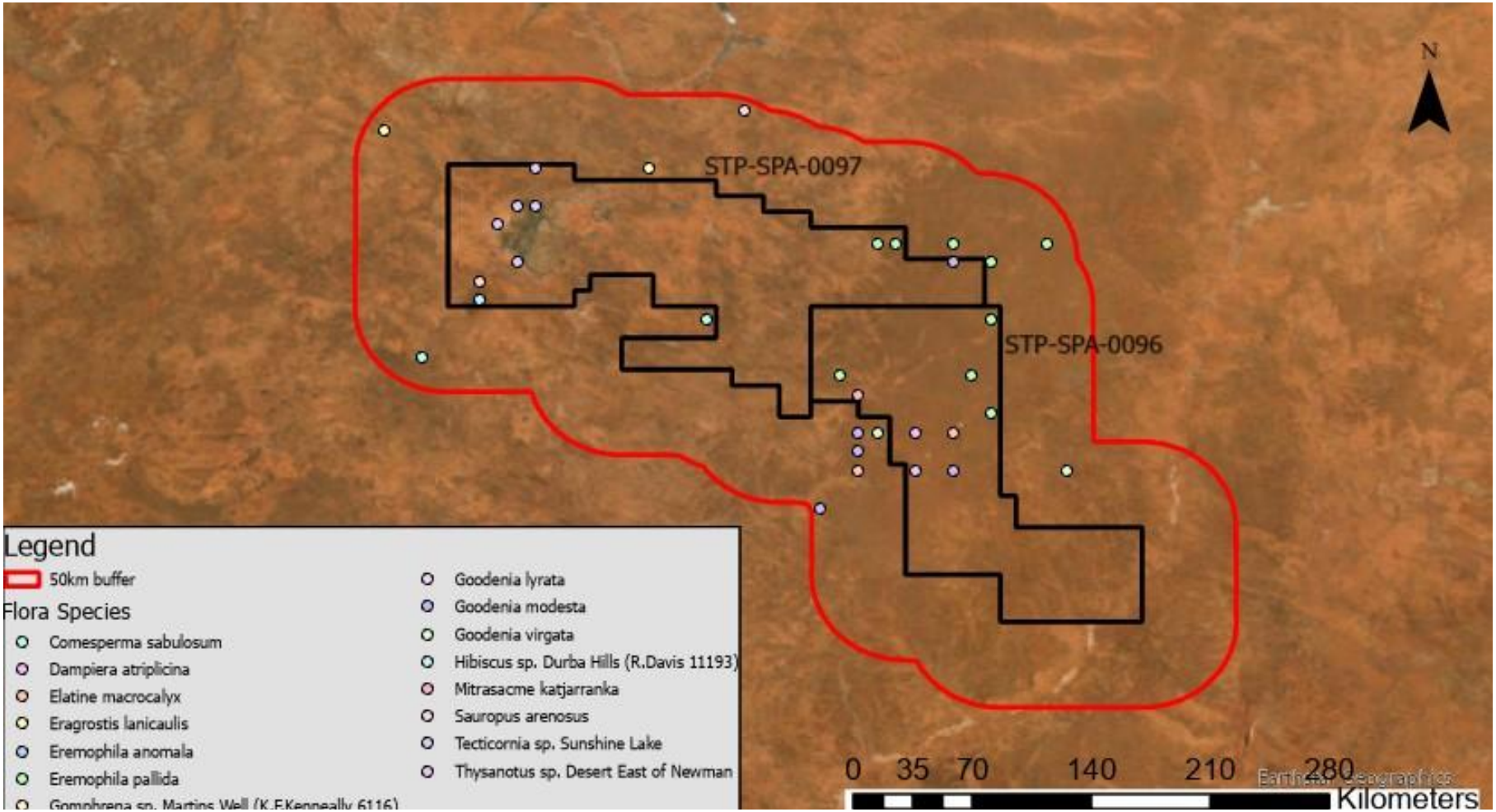
Table 4 Threatened Flora Species

DATABASE								
MNES	WA NatureMap	ALA	Common name	Scientific name	WA Status	EPBC Status	IUCN Status	Likelihood of Occurance
	x			Dampiera atriplicina	P3		none	Likely - Species has been recorded in project area previously^
	x			Elatine macrocalyx	P3		none	Likely - Species has been recorded in project area previously^
	x	x		Eremophila pallida	P2		none	Likely - Species has been recorded in project area previously^

	x			Goodenia lyrata	P3		none	Likely - Species has been recorded in project area previously^
	x			Comesperma sabulosum	P3		none	Likely - Species has been recorded throughout the area surrounding the project area^
	x			Eragrostis lanicaulis	P3		none	Likely - Species has been recorded throughout the area surrounding the project area^
	x			Eremophila anomala	P1		none	Likely - Species has been recorded throughout the area surrounding the project area^
	x			Gomphrena axillaris	P1		none	Likely - Species has been recorded in project area previously, specifically at Martins Well^
	x			Goodenia modesta	P3		none	Likely - Species has been recorded in project area previously^
	x			Goodenia virgata	P2		none	Likely - Species has been recorded in project area previously^
	x			Hibiscus sp. Durba Hills	P1		none	Likely - Species has been recorded in project area previously, specifically in the Durba Hills^

	x			Mitrasacme katjarranka	P1		none	Likely - Species has been recorded in project area previously^
	x			Synostemon arenosus	P3		none	Likely - Species has been recorded in project area previously^
	x			Tecticornia enodis	P1		none	Likely - Species has been recorded in project area previously^
	x			Thysanotus sp. Desert East of Newman	P2		none	Likely - Species has been recorded in project area previously^

Figure 10 Threatened Flora Occurrence Map



3.2 Fauna

A DotE Protected Matters Search and a DBCA NatureMap search was undertaken over the Project area with a 50km buffer. The Atlas of Living Australia search was utilised for occurrence records

The Atlas of Living Australia was utilised for Search Report is detailed in Annexure C, the Protected Matters Search Report is in annexure D and the DBCA NatureMap search details is in annexure A

The major habitat for fauna in the area is the savannah woodland with dominant trees including and Acacia and spinifex.

There are several wetland ecotypes or floodplain communities present in the immediate vicinity of the project area, in particular the Lake Disappointment and Savory Creek system, and the Pools of Durba Hills.

Likelihood of occurrence of fauna species has been determined from Atlas of Living Australia occurrence records and provided in MNES search results

3.2.1 Amphibians and Invertebrates

No amphibians or Invertebrates of conservation significance have been identified in the project area

3.2.2 Terrestrial Reptiles

Four (4) reptiles of conservation significance have the potential to occur within the Petrex acreage. They is listed in Table 3. Known occurrences are mapped in figure 10. Reptile species are unlikely to be impacted by the airborne survey as there is no ground work involved apart from landing and taking off from Newman airport.

Table 5 Threatened Reptile Species

DATABASE			Common name	Scientific name	WA Status	EPBC Status	IUCN Status	Likelihood of Occurance
MNES	WA NatureMap	ALA						
x	x		Great Desert Skink, Tjakura, Warrarna, Mulyamiji, Tjalapa, Nampu	*Liopholis kintorei*	VU	VU	VU	Likely -Species or species habitat known to occur within area
	x	x	Lake Disappointment dragon	Ctenophorus nguyarna	P1		VU	Likely - Species has previously been recorded in project area^
	x	x	Lake Disappointment ground gecko	Diplodactylus fulleri	P1		VU	Likely - Species endemic to the region^ Species has previously been recorded in project area^

	x		Unpatterned Robust Slider (Robertson Range)	Lerista macropisthopus remota	P2		LC	Possible - Nearest species occurance record 135km west^

*likelihood of occurrence provided in MNES search report

^Atlas of living Australia Occurrence Records

OSPF: Other Specially Protected Fauna species hosted under the *Wildlife Conservation Act 1950:*

P1: Priority One species listed under the *Wildlife Conservation Act 1950.*

P2: Priority Two species listed under the *Wildlife Conservation Act 1950.*

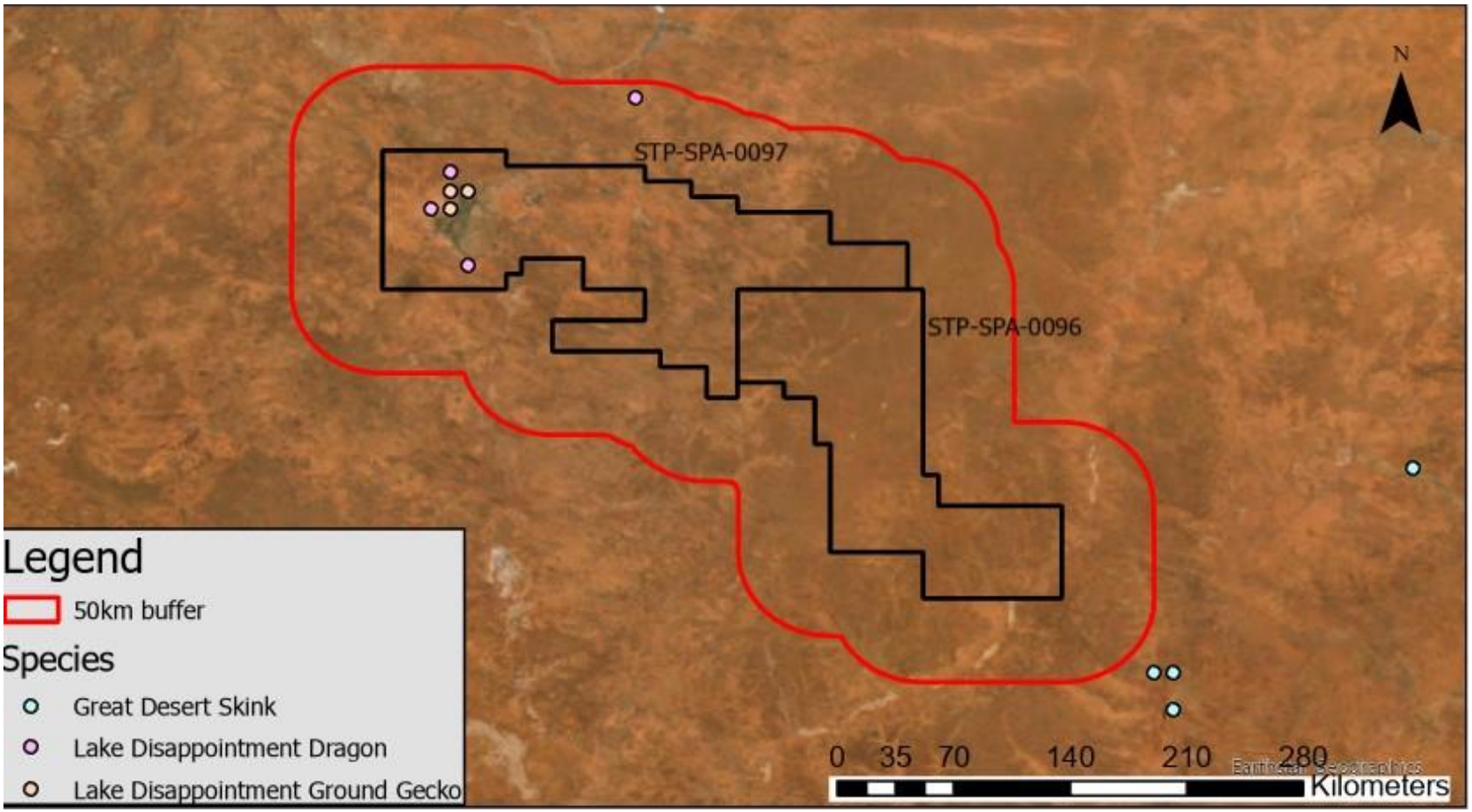
P3: Priority Three species listed under the *Wildlife Conservation Act 1950.*

P4: Priority Four species listed under the *Wildlife Conservation Act 1950.*

VU: Vulnerable

LC: Least Concern

Figure 11 Threatened Reptiles Occurrence Map



3.2.3 Birds

A DotE Protected Matters Search and a DBCA NatureMap search was undertaken over the Project area with a 50km buffer. The Atlas of Living Australia search was utilised for occurrence records.

The MNES search tool, the DBCA NatureMap search and the Atlas of Living Australia (ALA) search showed 23 bird species of conservation significance have been recorded in the region and have the potential to occur in the project area. The MNES search tool identified 16 and the DBCA NatureMap search identified 13 species, six (6) species were found in both searches.

The 23 species of conservation significance are listed in table 4 and mapped in figure 11. Only the 13 species that have been recorded previously (*Atlas of Living Australia, 2025)* within the buffer or the project area are mapped. NatureMap search details found in annexure A, ALA search report in annexure C and the MNES report found in annexure B

Bird species are unlikely to be impacted by the airborne survey due to the aircraft height controls set in place, which include a minimum flight altitude of 150m agl and altitude changes when approaching and flying over water and bird congregations.

.

Table 6 Threatened Bird Species List

MNES	DATABASE WA NatureMap	ALA	Common name	Scientific name	WA Status	EPBC Status	IUCN Status	Likelihood of Occurance
x	x		Pectoral Sandpiper	*Calidris melanotos*	Migratory	Migratory	LC	Species or species habitat likely to occur within area*
x			Yellow Wagtail	*Motacilla flava*		Migratory	LC	Species or species habitat likely to occur within area*
x			Grey Wagtail	*Motacilla cinerea*		Migratory	LC	Species or species habitat likely to occur within area*
x			Fork-tailed Swift	*Apus pacificus*		Migratory	LC	Species or species habitat likely to occur within area*
x			Australian Painted Snipe	*Rostratula australis*		Endangered	EN	Species or species habitat may occur within area
x			Barn Swallow	*Hirundo rustica*		Migratory	LC	Species or species habitat likely to occur within area*

x	x		Oriental Plover, Oriental Dotterel	*Charadrius veredus*	Migratory	Migratory	LC	Species or species habitat likely to occur within area* Species has previously been recorded in project area^
x	x	x	Common Greenshank, Greenshank	*Tringa nebularia*	Migratory	Migratory/Endangered	LC	Species or species habitat likely to occur within area* Species has previously been recorded in project area^
x	x		Sharp-tailed Sandpiper	*Calidris acuminata*	Migratory	Migratory/Vulnerable	VU	Species or species habitat likely to occur within area*
x		x	Common Sandpiper	*Actitis hypoleucos*		Migratory	LC	Species or species habitat likely to occur within area*
x			Red Goshawk	*Erythrotriorchis radiatus*		Endangered	EN	Species or species habitat likely to occur within area*
x	x	x	Night Parrot	*Pezoporus occidentalis*	CR	Endangered	CR	Species or species habitat likely to occur within area* Species has previously been recorded

								in project area^
x		x	Southern Whiteface	*Aphelocephala leucopsis*		Vulnerable	VU	Species or species habitat likely to occur within area*. Species has been previously been recorded in project area^
x			Grey Falcon	*Falco hypoleucos*		Vulnerable	VU	Species or species habitat likely to occur within area*
x	x	x	Princess Parrot, Alexandra's Parrot	*Polytelis alexandrae*	P4	Vulnerable	NT	Species or species habitat likely to occur within area*. Species has previously been recorded in project area^
x			Malleefowl	*Leipoa ocellata*		Vulnerable	VU	Species or species habitat likely to occur within area*

	x	x	Glossy Ibis	*Plegadis falcinellus*	Migratory		LC	Likely – species has previously been recorded in project area^
	x		Gull-billed Tern	*Gelochelidon nilotica*	Migratory		LC	Likely – species has previously been recorded in project area^
	x		Marsh Sandpiper	*Tringa stagnatilis*	Migratory		LC	Probable- species nearest record 151km north of project area^
	x	x	Masked Owl (southwest)	*Tyto novaehollandiae novaehollandiae*	P3		LC	Likely – species has previously been recorded in project area^
	x	x	Peregrine Falcon	*Falco peregrinus*	OSPF		LC	Likely – species has previously been recorded in project area^
	x		Red-necked Stint	*Calidris ruficollis*	P4		NT	Likely – species has previously been recorded in project area^

	x	x	Striated Grasswren (sandplain)	*Amytornis striatus striatus*	P4		LC	Likely – species has previously been recorded in project area^

*likelihood of occurrence provided in MNES search report. ^Atlas of living Australia Occurrence Records

CR: Critical species listed under EPBC Act.

M: Migratory species listed under the EPBC Act.

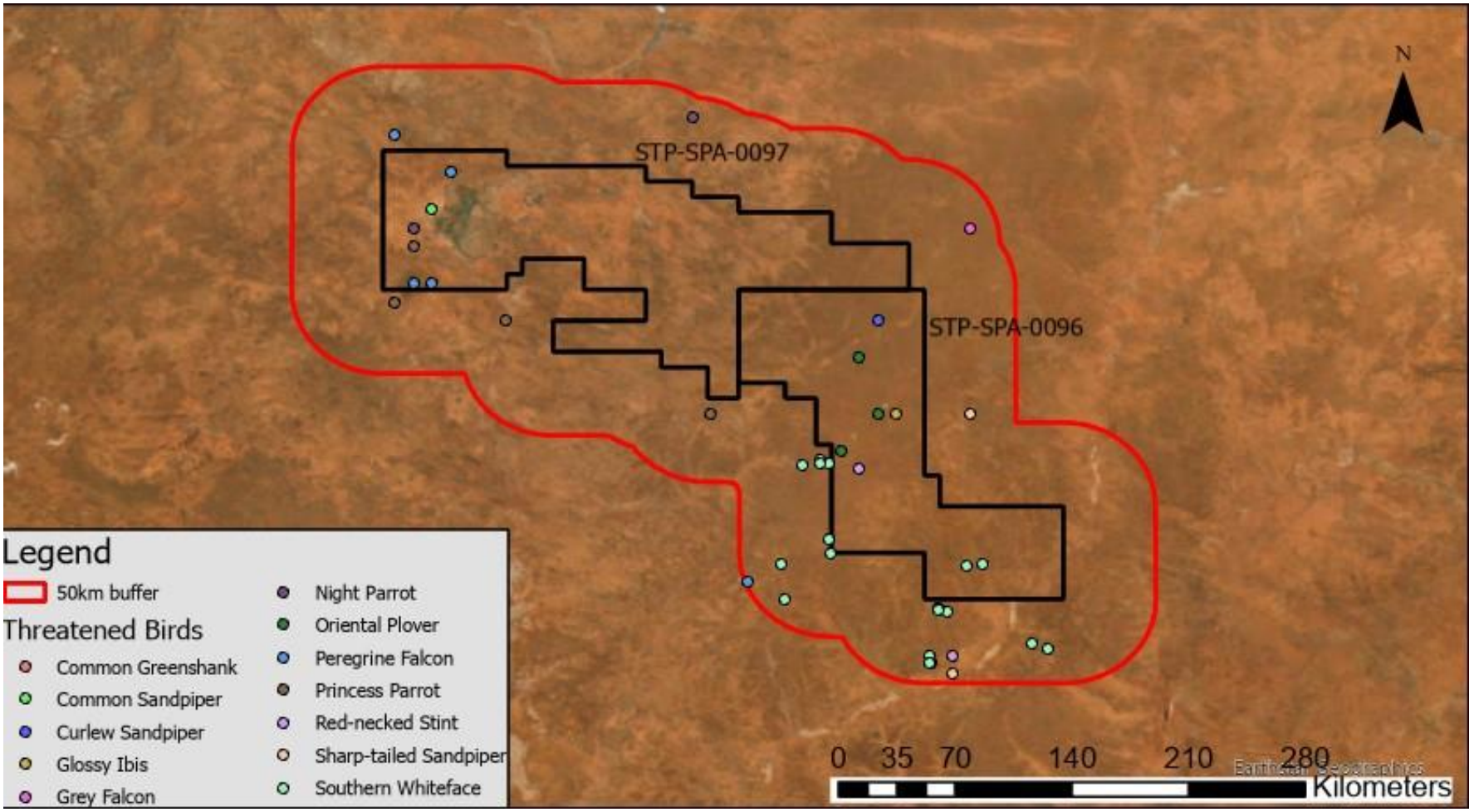
VU: Vulnerable species listed under the EPBC Act.

OSPF: Other Specially Protected Fauna species listed under the Wildlife Conservation Act 1950.

P3: Priority Three species listed under the Wildlife Conservation Act 1950.

P4: Priority Four species listed under the Wildlife Conservation Act 1950.

Figure 12 Threatened birds Occurrence Map



2.4.4 Terrestrial Mammals

A DotE Protected Matters Search and a DBCA NatureMap search was undertaken over the Project area with a 50km buffer. The Atlas of Living Australia search was utilised for occurrence records.

11 terrestrial mammal species of conservation significance were identified that have the potential to occur in the project area. Species are listed in table 5 below and mapped in figure 11. ALA report found in annexure C, MNES report (annexure B), NatureMap search details found in annexure A.

Table 7 Threatened Mammal List

DATABASE								
MNES	WA NatureMap	ALA	Common name	Scientific name	WA Status	EPBC Status	IUCN Status	Likelihood of Occurance
x	x		Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby	*Petrogale lateralis lateralis*	EN	EN	VU	Species or species habitat likely to occur within area* Species recorded 7km from project area^
x	x	x	Greater Bilby	*Macrotis lagotis*	VU	VU	VU	Species or species habitat likely to occur within area* Species has previously been recorded in area^
x	x		Ghost Bat	*Macroderma gigas*	VU	VU	VU	Species or species habitat likely to occur within area*
x	x		Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]	*Dasyurus hallucatus*	EN	EN	EN	Unlikely - Species or species habitat likely to occur within area* Nearest recorded occurrence 300km north^

	x		Brush-tailed Mulgara	Dasycercus blythi	P4		LC	Possible - Nearest recorded occurance 27km north of project area^
	x		Central Rock-Rat, Antina	Zyzomys pedunculatus	CR	CR	CR	Unlikely - Nearest recorded occurrence 500km west of project area^
	x		Crest-tailed Mulgara, minyiminyi	Dasycercus cristicauda	P4		NT	Possible - Nearest recorded occurance 82 km north of project area^
	x		Long-tailed dunnart	Antechinomys longicaudata	P4		LC	Possible - project area within species range, nearest record 350km away^
	x	x	Marsupial Mole, kakarratul	Notoryctes caurinus	P4		LC	Possible – Evidence of species has previously been recorded in project area^ is a poorly known species
	x		Pilbara leaf-nosed bat	Rhinonicteris aurantia (Pilbara form)	VU	VU	LC	Possible - Nearest recorded occurance 245km north-west of project area^
	x		Western pebble-mound Mouse, ngadji	Pseudomys chapmani	P4		LC	Possible - Nearest recorded occurance 9km north of project area^

*Likelihood of occurrence provided in MNES search report

^Atlas of living Australia Occurrence Records

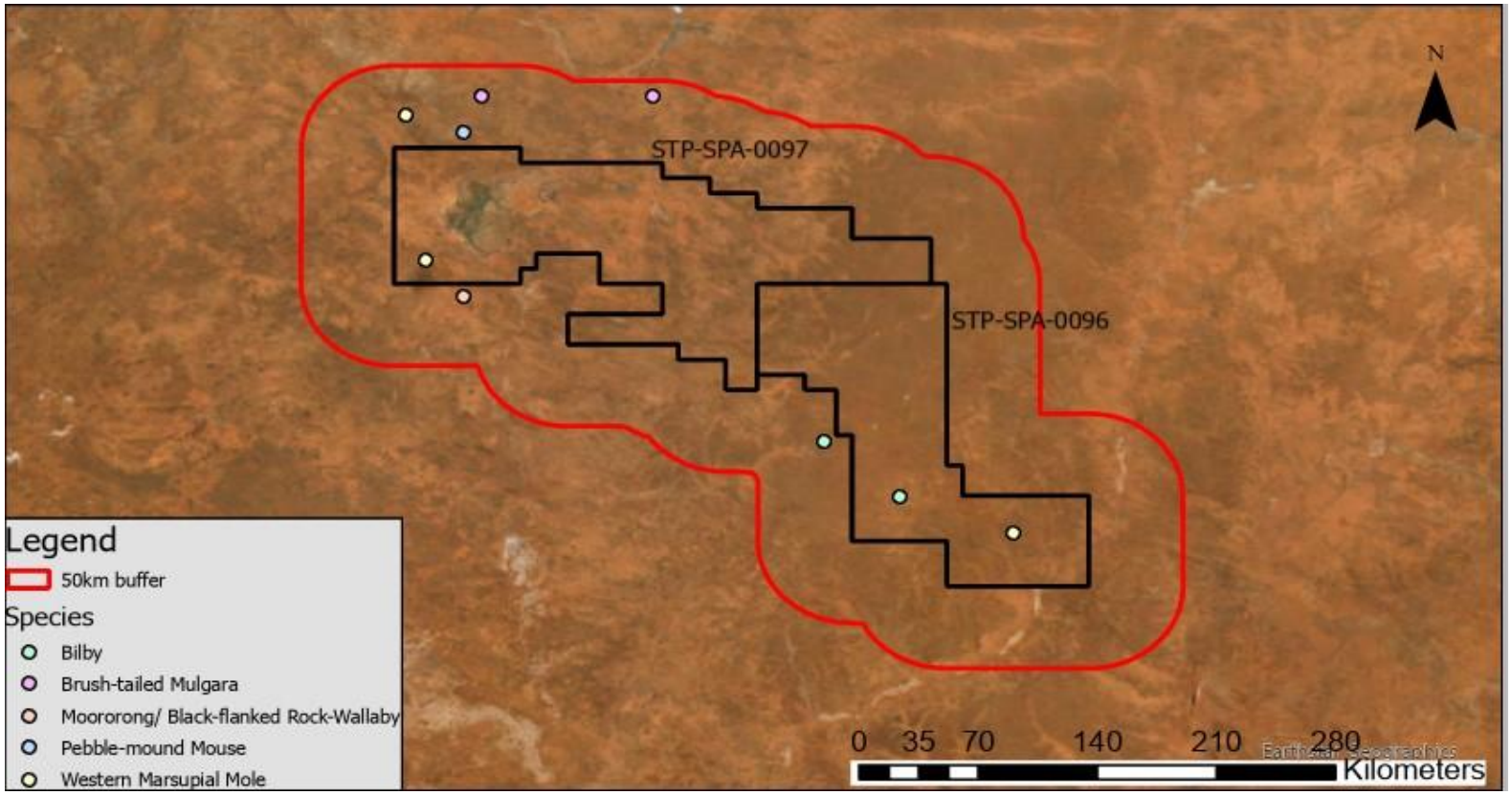
EN: Endangered species listed under the Wildlife Conservation Act 1950. VU: Vulnerable species listed under the Wildlife Conservation Act 1950. NT: Near Threatened under the Wildlife Conservation Act 1950: LC: Least Concern: Wildlife Conservation Act 1950 P1-P4: Priority species listed under the Wildlife Conservation Act 1950.

A number of the species listed in the Table 5 are under pressure from feral animals, either directly through predation, from foxes and cats or indirectly through habitat destruction or alteration such as occurs with rabbits and goats.

Feral animals that are likely to be present in the area include:

- Goats (Capra hircus).
- Horses (Equus caballus).
- Rabbits (Oryctolagus cuniculus).
- House Mouse (Mus musculus).
- Rats (Rattus rattus).
- Red Foxes (Vulpes vulpes).
- Cats (Felis catus); and
- Camels (Camelus).
- Dogs (Canis familiaris)

Figure 13 Threatened Mammal Occurrence Map



4. Conclusions

The proposed airborne geochemical survey is unlikely to have an impact on the project area and surrounds. There is no ground element to the survey, except for take off and landing at Newman airport, and the aircraft will adjust flight when approaching and flying over sensitive areas.
In the event that ground work results from this aerial survey geophysics program, the information on flora and fauna will provide advance information of use in planning the ground works to minimise impact on landscape, flora and fauna.

5.References

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Annexure A – DBCA NatureMap Search Details 8/01/2025

OFFICIAL

Hello James,

Claire has advised that you would like to receive a NatureMap search.

This is a NatureMap interim data search service result. Please find attached the species list/s results from the Species and Communities Interim NatureMap search service and the Conditions of Supply, including Disclaimers.

The species list/s provided should be treated as an indicative list of species that have been observed to occur in the area of interest, and should be treated as a desktop search only. On ground surveys should be undertaken when required. Please note that many of the data sources NatureMap extracts its data from are static and therefore there may be discrepancies between current and non-current species name.

The search criteria used were:

Search Reference Number: 05-0125NM
Conservation listed species included: Yes
Non-listed species included: Yes
Search Area Method: Polygon buffer
Search Area Value: Shapefile provided (split)
Buffer: 50km

Buffer minimum is 10km around a single point or a minimum polygon area of 300km2.

The search area is within the medium/high priority survey are for night parrots. Refer to the threatened and priority fauna resources web page for further information.

The Department of Biodiversity Conservation and Attractions (DBCA) is pleased to advise that Dandjoo now includes the functionality to create a species list in csv format for a search area of interest. The species list will include results for conservation listed species within a search area, sourced from datasets DBCA holds.

Please refer to Dandjoo's website with regards to this new feature for information about how the specific locations for conservation listed species have been obfuscated for the purpose of being included in the species list search results. Further improvements are being made, and we encourage you to explore the data and provide feedback on your experience. It is intended that this functionality will eventually enable Dandjoo to replace DBCA's manual NatureMap search provision.

Kind regards,
Yasmyn Skinner
Technical Officer | Species and Communities Program
Biodiversity and Conservation Science | Department of Biodiversity, Conservation and Attractions
E: flora.data@dbca.wa.gov.au | W: http://www.dbca.wa.gov.au

Department of Biodiversity, Conservation and Attractions
Biodiversity and Conservation Science
We're working for Western Australia.

Annexure B – EPBC Act Protected Matters Report

Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 07-Jan-2025

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	12
Listed Migratory Species:	7

Other Matters Protected by the EPBC Act

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

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

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

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

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	2
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species [Resource Information]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat likely to occur within area	In feature area
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petrogale lateralis lateralis Black-flanked Rock-wallaby, Mororong, Black-footed Rock Wallaby [66647]	Endangered	Species or species habitat likely to occur within area	In buffer area only
REPTILE			
Liopholis kintorei Great Desert Skink, Tjakura, Warrama, Mulyamiji, Tjalapa, Nampu [83160]	Vulnerable	Species or species habitat known to occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Terrestrial Species			
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In buffer area only
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat may occur within area overfly marine area	In feature area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Lake Disappointment (Savory Creek) System	WA	In feature area
Pools of the Durba Hills	WA	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Lake Disappointment Potash Project, WA	2016/7727	Controlled Action	Post-Approval	In feature area
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact us page.

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

Annexure C – Atlas of Living Australia Search Report

Report Reference: https://doi.ala.org.au/doi/6c36d8db-54e3-4c50-b012-a33e68beba6a

AREA REPORT

ATLAS OF LIVING AUSTRALIA
sharing biodiversity knowledge
www.ala.org.au

Area: 36,458.43 sq km	Species: 1199	Occurrences: 6356
Endemic species: 5	All threatened species: 150	Migratory species: 0
All invasive species: 2	Iconic species: 13	JournalMap Articles: 1
Animals: 509	Plants: 651	Birds: 174

Table of Contents

MergedSHPmnes.zip

Area: 36,458.43 sq km

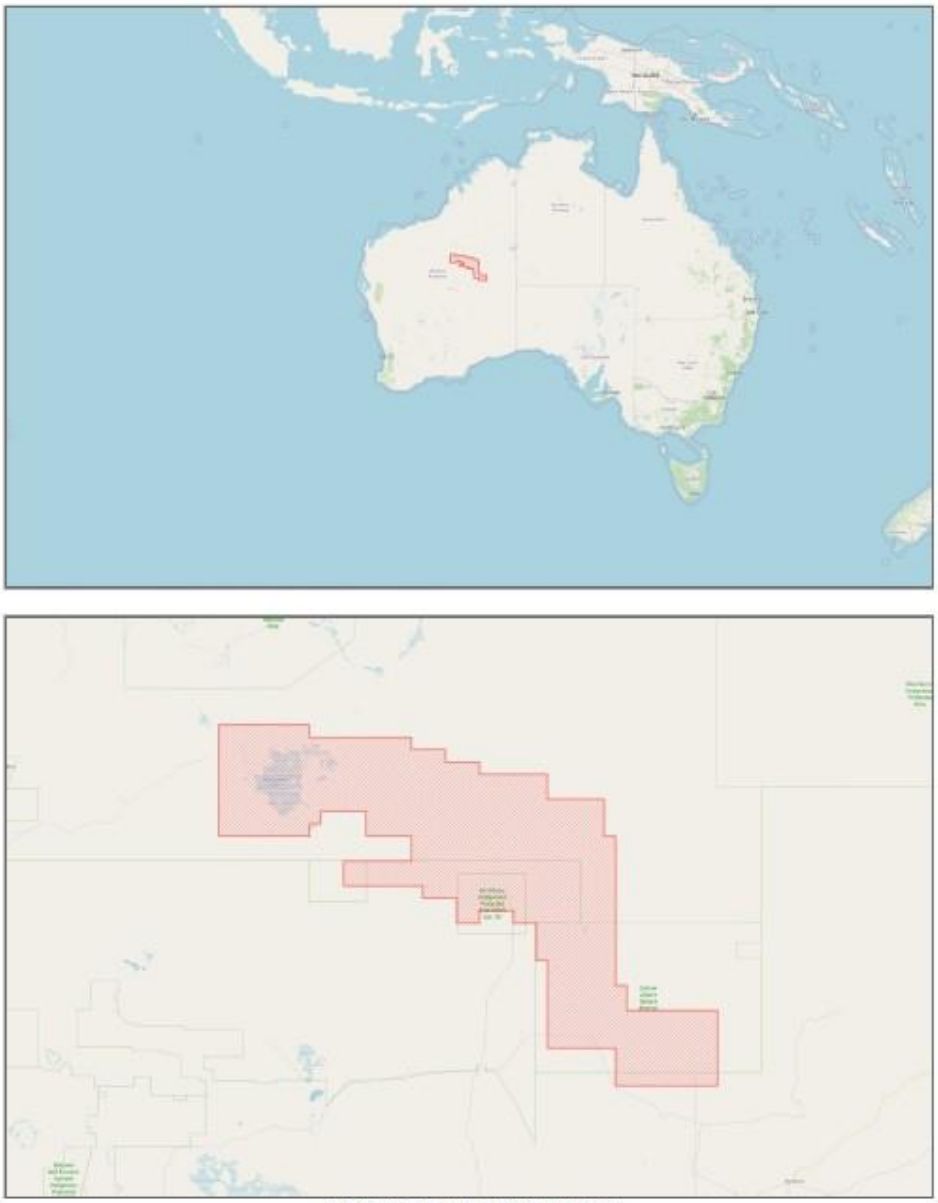

Figure 1 : Map of MergedSHPmnes.zip

Occurrences

Occurrences: **6356**

Spatially valid records are considered those that do not have any type of flag questioning their location, for example a terrestrial species being recorded in the ocean. [Ref6]

Number of occurrences (spatially valid only): **6348**

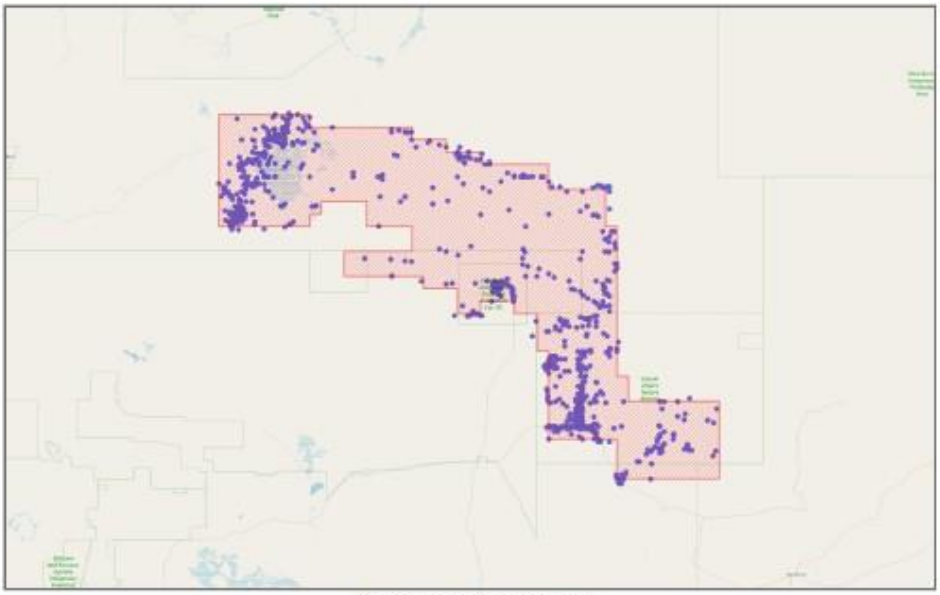

Figure 2 : Map of Occurrences

Endemic Species

Endemic Species: 5

Spatially valid records are considered those that do not have any type of flag questioning their location, for example a terrestrial species being recorded in the ocean. [Ref6]

Number of endemic species (spatially valid only): 5

Table 1: Endemic Species

Family	*Scientific Name*	Common Name	No. Occurrences
Carabidae	Clivina (Clivina) houstoni		9
Diplodactylidae	Diplodactylus fulleri	Lake Disappointment Ground Gecko	16
Malvaceae	Hibiscus sp. Durba Hills (R.Davis 11193)		1
Stemonitidaceae	Stemonitopsis aequalis		1

All threatened species

Number of threatened species: **150**

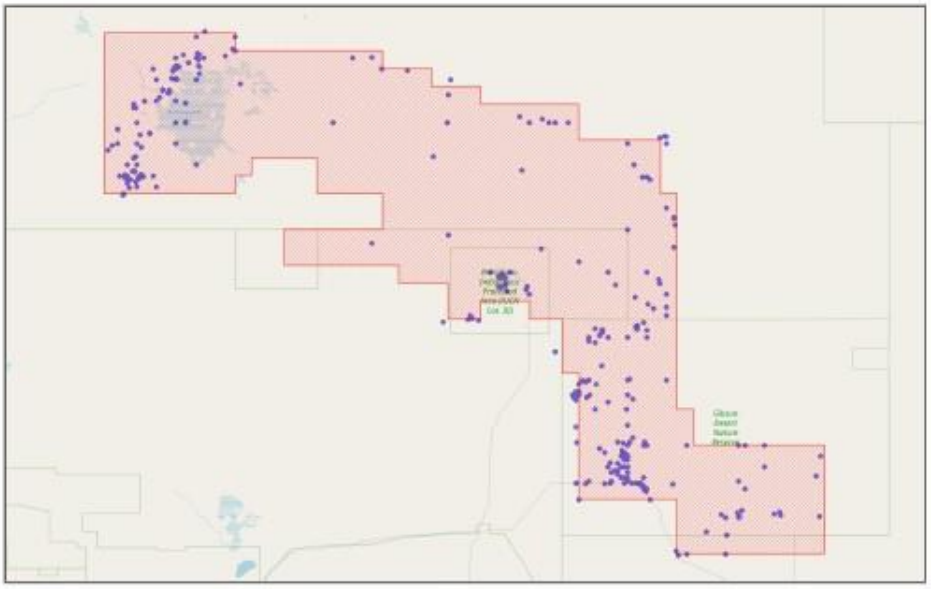

Figure 3 : Map of All threatened species

Table 2: All threatened species (Link to full list)

Family	*Scientific Name*	Common Name	No. Occurrences
Oreoicidae	Oreoica gutturalis	Crested Bellbird	53
Meliphagidae	Certhionyx (Certhionyx) variegatus	Pied Honeyeater	41
Columbidae	Geopelia cuneata	Diamond Dove	36
Accipitridae	Circus assimilis	Spotted Harrier	34
Muridae	Pseudomys hermannsburgensis	Sandy Inland Mouse	27
Otididae	Ardeotis australis	Australian Bustard	26
Amaranthaceae	Ptilotus obovatus	Silver Tails	20
Petroicidae	Melanodryas (Melanodryas) cucullata	Hooded Robin	18
Scrophulariaceae	Eremophila pallida		17
Diplodactylidae	Diplodactylus fulleri	Lake Disappointment Ground Gecko	16
Estrildidae	Emblema pictum	Painted Finch	15
Fabaceae	Acacia rhodophloia	Dagger-leaved Wattle	14
Agamidae	Ctenophorus nguyarna	Lake Disappointment Dragon	14
Amaranthaceae	Ptilotus polystachyus	Long Tails	14
Goodeniaceae	Brunonia australis	Blue Pincushion	13
Acanthizidae	Pyrrholaemus brunneus	Redthroat	13
Diplodactylidae	Strophurus elderi	Jewelled Gecko	13
Poaceae	Aristida holathera var. holathera	Tall Kerosene Grass	10
Scrophulariaceae	Eremophila jamesiorum		9
Diplodactylidae	Lucasium stenodactylus	Crowned Gecko	9
Diplodactylidae	Rhynchoedura ornata	Western Beaked Gecko	9
Malvaceae	Seringia exastia	Fringed Fire-bush	9
Maluridae	Stipiturus ruficeps	Rufous-crowned Emu-wren	9
Maluridae	Amytornis (Magnamytis) striatus	Striated Grasswren	8
Myrtaceae	Eucalyptus	Studley Park Gum	8

Chenopodiaceae	Tecticornia sp. Sunshine Lake (K.A.Shepherd et al. KS 867)		8
Fabaceae	Acacia	Wattle	7
Acanthizidae	Gerygone fusca	Western Gerygone	7
Chenopodiaceae	Maireana georgei	Satiny Bluebush	7
Acanthizidae	Aphelocephala leucopsis	Southern Whiteface	6
Accipitridae	Hieraaetus (Hieraaetus) morphnoides	Little Eagle	6
Asteraceae	Rhodanthe floribunda	Large White Sunray	6
Stylidiaceae	Stylidium desertorum	Desert Triggerplant	6
Scolopacidae	Tringa (Glottis) nebularia	Common Greenshank	6
Campanulaceae	Wahlenbergia tumidifructa	Swollen-fruit Bluebell	6
Falconidae	Falco (Hierofalco) peregrinus	Peregrine Falcon	5
Proteaceae	Grevillea wickhamii	Holly-leaved Grevillea	5
Locustellidae	Poodytes carteri	Spinifexbird	5
Pythonidae	Antaresia childreni	Children's Python	4
Charadriidae	Charadrius (Eupoda) veredus	Oriental Plover	4
Cyperaceae	Cyperus vaginatus	Stiff Flat-sedge	4
Haloragaceae	Haloragis odontocarpa f. rugosa	Mulga Nettle	4
Accipitridae	Hamirostra melanosternon	Black-breasted Buzzard	4
Elapidae	Pseudonaja modesta	Ringed Brown Snake	4
Amaranthaceae	Ptilotus schwartzii	Horse Mulla Mulla	4
Emballonuridae	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	4
Goodeniaceae	Scaevola collaris	Scaevola	4
Dasyuridae	Sminthopsis youngsoni	Lesser Hairy-footed Dunnart	4
Poaceae	Triodia pungens	Gummy Spinifex	4
Poaceae	Triraphis mollis	Needle Grass	4
Varanidae	Varanus brevicauda	Short-tailed Pygmy Monitor	4
Fabaceae	Acacia symonii	Symon's Wattle	3
Fabaceae	Acacia victoriae subsp. victoriae	Bramble Wattle	3
Typhlopidae	Anilios endoterus	Interior Blind Snake	3
Acanthizidae	Calamanthus campestris	Rufous Fieldwren	3
Canidae	Canis familiaris	Common Dog	3
Cyperaceae	Cyperus squarrosus	Bearded Flat-sedge	3
Neosittidae	Daphoenositta (Neositta) chrysoptera	Varied Sittella	3
Droseraceae	Drosera finlaysoniana	Flycatcher	3
Scrophulariaceae	Eremophila	Emubushes	3
Euphorbiaceae	Euphorbia tannensis subsp. eremophila	Bottle Tree Caustic	3
Phrymaceae	Glossostigma diandrum	Glossostigma	3
Brassicaceae	Lepidium phlebopetalum	Veined Peppercress	3
Threskiornithidae	Plegadis falcinellus	Glossy Ibis	3
Muridae	Pseudomys desertor	Desert Mouse	3
Santalaceae	Santalum lanceolatum	Northern Sandalwood	3
Santalaceae	Santalum spicatum	Sandalwood	3
Malvaceae	Sida fibulifera	Pin Sida	3
Solanaceae	Solanum coactiliferum	Western Nightshade	3
Malvaceae	Abutilon otocarpum	Desert Lantern	2
Portulacaceae	Calandrinia stagnensis	Calandrinia	2
Cinclosomatidae	Cinclosoma (Malleeavis) castanotum	Chestnut Quail-thrush	2
Fabaceae	Crotalaria cunninghamii	Green Bird Flower	2
Fabaceae	Cullen cinereum	Annual Scurf-pea	2
Elatinaceae	Elatine macrocalyx	Claypan Waterwort	2
Poaceae	Eragrostis setifolia	Lovegrass	2
Falconidae	Falco (Hierofalco) subniger	Black Falcon	2
Frankeniaceae	Frankenia cinerea		2
Goodeniaceae	Goodenia havilandii	Hill Goodenia	2
Goodeniaceae	Goodenia lyrata		2
Goodeniaceae	Goodenia modesta	Goodenia	2

Laridae	Hydroprogne caspia	Caspian Tern	2
Macropodidae	Lagorchestes hirsutus hirsutus	Rufous Hare-wallaby (south-western)	2
Campephagidae	Lalage (Lalage) tricolor	White-winged Triller	2
Scincidae	Lerista timida	Timid Slider	2
Cacatuidae	Lophochroa leadbeateri	Major Mitchell's Cockatoo	2
Notoryctidae	Notoryctes caurinus	Western Marsupial Mole	2
Psittacidae	Polytelis alexandrae	Princess Parrot	2
Zygophyllaceae	Roepera compressa	Rabbit-ears Twinleaf	2
Chenopodiaceae	Salsola australis	Coast Saltwort	2
Cyperaceae	Schoenoplectiella dissachantha	Inland Club-rush	2
Camaenidae	Semotrachia esau	Krichauff Ranges Squat Snail	2
Anatidae	Spatula rhynchotis	Australasian Shoveler	2
Fabaceae	Swainsona kingii		2
Emballonuridae	Taphozous hilli	Hill's Sheathtail-bat	2
Asparagaceae	Thysanotus sp. Desert East of Newman (R.P.Hart 964)		2
Poaceae	Triodia	Spinifex	2
Fabaceae	Acacia helmsiana	Helm's Wattle	1
Fabaceae	Acacia lanuginophylla	Woolly Wattle	1
Scolopacidae	Actitis hypoleucos	Common Sandpiper	1
Ardeidae	Ardea alba modesta	Great Egret	1
Proteaceae	Banksia integrifolia subsp. integrifolia	Coast Coastal Banksia	1
Cyperaceae	Bulbostylis turbinata	Bulbostylis	1
Scolopacidae	Calidris (Ereunetes) ruficollis	Red-necked Stint	1
Scolopacidae	Calidris (Erolia) ferruginea	Curlew Sandpiper	1
Recurvirostridae	Cladorhynchus leucocephalus	Banded Stilt	1
Climacteridae	Climacteris (Climacterobates) affinis	White-browed Treecreeper	1
Campephagidae	Coracina (Pteropodocys) maxima	Ground Cuckoo-shrike	1
Scincidae	Ctenotus greeri	Spotted-necked Ctenotus	1
Scincidae	Ctenotus piankai	Pianka's Ctenotus	1
Pelodryadidae	Cyclorana cultripes	Knife-footed Frog	1
Cyperaceae	Cyperus leptocarpus	Button Rush	1
Goodeniaceae	Dampiera atriplicina		1
Chenopodiaceae	Dysphania simulans	Spiked Pigweed	1
Poaceae	Eragrostis australasica	Lovegrass	1
Scrophulariaceae	Eremophila anomala	Paroo Poverty Bush	1
Cyperaceae	Fimbristylis dichotoma	Fringe-rush	1
Amaranthaceae	Gomphrena sp. Martins Well (K.F.Kenneally 6116)		1
Goodeniaceae	Goodenia occidentalis	Goodenia	1
Goodeniaceae	Goodenia virgata	Goodenia	1
Gruidae	Grus rubicunda	Brolga	1
Lamiaceae	Hemigenia sp. Nillup (R.D.Royce 98)		1
Malvaceae	Hibiscus sp. Durba Hills (R.Davis 11193)		1
Scincidae	Lerista xanthura	Yellow-tailed Plain Slider	1
Meliphagidae	Lichmera (Lichmera) indistincta indistincta	Western Brown Honeyeater	1
Accipitridae	Lophoictinia isura	Square-tailed Kite	1
Thylacomyidae	Macrotis lagotis	Bilby	1
Loganiaceae	Mitrasacme katjarranka	Desert Mitrewort	1
Limnodynastidae	Neobatrachus sutor	Shoemaker Frog	1
Psittacidae	Neophema (Neophema) splendida	Scarlet-chested Parrot	1
Molossidae	Ozimops lumsdenae	Northern Free-tailed Bat	1
Psittacidae	Pezoporus occidentalis	Night Parrot	1
Pomatostomidae	Pomatostomus (Pomatostomus) temporalis	Grey-crowned Babbler	1
Muridae	Pseudomys gouldii	Shark Bay Mouse (djoongari)	1
Meliphagidae	Ptilotula plumula	Grey-fronted Honeyeater	1
Santalaceae	Santalum acuminatum	Sweet Quandong	1
Phyllanthaceae	Sauropus arenosus	Sauropus	1

Gentianaceae	Schenkia australis	Spike Centaury	1
Chenopodiaceae	Sclerolaena lanicuspis	Woolly Copper Burr	1
Malvaceae	Sida sp. Wakaya Desert (P.K.Latz 11894)	Sida	1
Dasyuridae	Sminthopsis macroura	Stripe-faced Dunnart	1
Estrildidae	Stagonopleura (Stagonopleura) guttata	Diamond Firetail	1
Anatidae	Stictonetta naevosa	Freckled Duck	1
Amaranthaceae	Surreya diandra	Mallee Hemichroa	1
Fabaceae	Swainsona leeana	Lee's Swainson-pea	1
Fabaceae	Swainsona microphylla	Small-leaf Poison-pea	1
Scincidae	Tiliqua multifasciata	Centralian Blue-tongue	1
Poaceae	Triodia nana		1
Tytonidae	Tyto novaehollandiae	Masked Owl	1
Apocynaceae	Vincetoxicum lineare	Purple Pentatrope	1

Migratory species

Number of migratory species: **0**

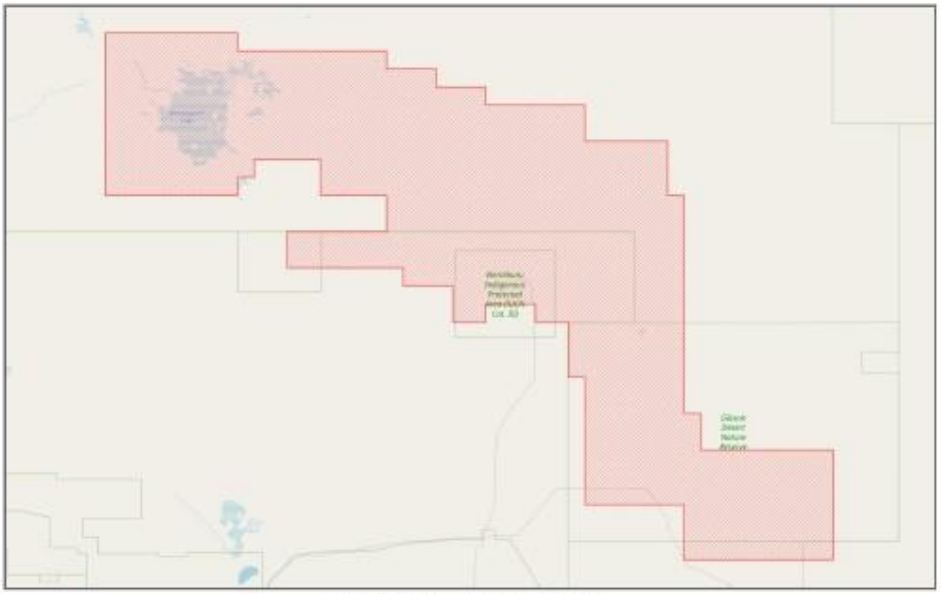

Figure 4 : Map of Migratory species

Table 3: Migratory species (Link to full list)

Family	*Scientific Name*	Common Name	No. Occurrences

Lifeform - Birds

Number of Birds **174**

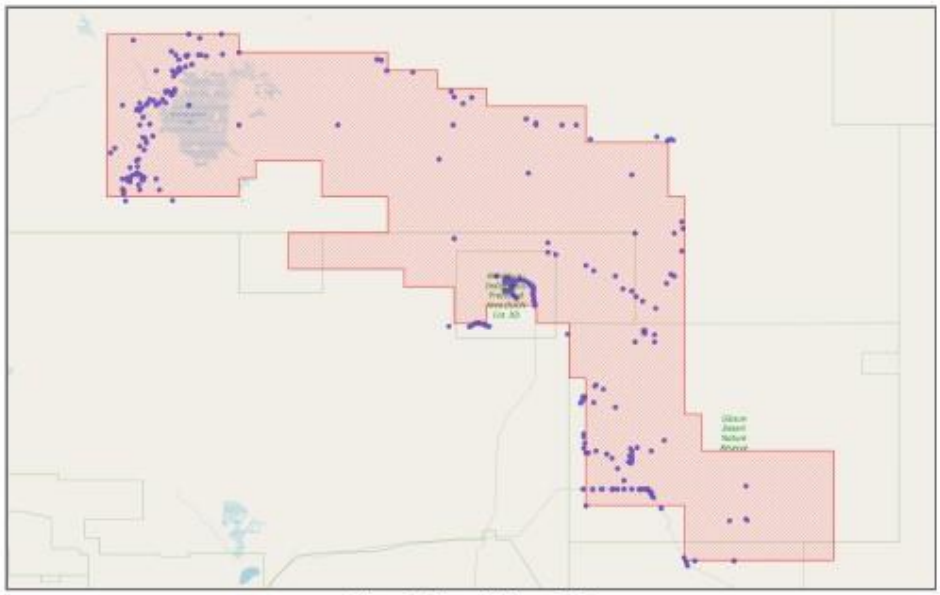

Figure 5 : Map of Lifeform - Birds

Table 4: Lifeform - Birds (Link to full list)

Family	*Scientific Name*	Common Name	No. Occurrences
Meliphagidae	Gavicalis virescens	Singing Honeyeater	187
Estrildidae	Taeniopygia guttata	Zebra Finch	123
Rhipiduridae	Rhipidura (Sauloprocta) leucophrys	Willie Wagtail	118
Psittacidae	Melopsittacus undulatus	Budgerigar	107
Artamidae	Artamus (Angroyan) cinereus	Black-faced Woodswallow	97
Meliphagidae	Acanthagenys rufogularis	Spiny-cheeked Honeyeater	96
Meliphagidae	Purnella albifrons	White-fronted Honeyeater	85
Meliphagidae	Epthianura (Parepthianura) tricolor	Crimson Chat	78
Falconidae	Falco (Tinnunculus) cenchroides	Nankeen Kestrel	70
Meliphagidae	Sugomel niger	Black Honeyeater	64
Pachycephalidae	Pachycephala (Alisterornis) rufiventris	Rufous Whistler	61
Meliphagidae	Ptilotula penicillata	White-plumed Honeyeater	59
Campephagidae	Coracina (Coracina) novaehollandiae	Black-faced Cuckoo-shrike	57
Oreoicidae	Oreoica gutturalis	Crested Bellbird	53
Artamidae	Cracticus nigrogularis	Pied Butcherbird	51
Artamidae	Artamus (Campbellornis) personatus	Masked Woodswallow	50
Psittacidae	Barnardius zonarius	Australian Ringneck	46
Pachycephalidae	Colluricincla (Colluricincla) harmonica	Grey Shrike-thrush	45
Petroicidae	Petroica (Petroica) goodenovii	Red-capped Robin	44
Falconidae	Falco (Ieracidea) berigora	Brown Falcon	43
Meliphagidae	Certhionyx (Certhionyx) variegatus	Pied Honeyeater	41
Turnicidae	Turnix (Alphaturnia) velox	Little Button-quail	41
Motacillidae	Anthus (Anthus) novaeseelandiae	Australian Pipit	39
Meliphagidae	Manorina (Myzantha) flavigula	Yellow-throated Miner	38
Columbidae	Geopelia cuneata	Diamond Dove	36

Maluridae	Malurus (Musciparus) leucopterus	White-winged Fairy-wren	36
Alcedinidae	Todiramphus (Cyanalcyon) pyrrhopygius	Red-backed Kingfisher	36
Artamidae	Artamus (Angroyan) minor	Little Woodswallow	35
Maluridae	Malurus (Leggeornis) lamberti	Variegated Fairy-wren	35
Accipitridae	Circus assimilis	Spotted Harrier	34
Monarchidae	Grallina cyanoleuca	Magpie-lark	32
Meliphagidae	Lichmera (Lichmera) indistincta	Brown Honeyeater	31
Meliphagidae	Ptilotula keartlandi	Grey-headed Honeyeater	31
Acanthizidae	Acanthiza (Geobasileus) uropygialis	Chestnut-rumped Thornbill	30
Falconidae	Falco (Falco) longipennis	Australian Hobby	29
Otididae	Ardeotis australis	Australian Bustard	26
Cacatuidae	Eolophus roseicapilla	Galah	26
Locustellidae	Cincloramphus (Cincloramphus) cruralis	Brown Songlark	25
Corvidae	Corvus bennetti	Little Crow	24
Campephagidae	Lalage		24
Columbidae	Ocyphaps lophotes	Crested Pigeon	24
Pomatostomidae	Pomatostomus (Morganornis) superciliosus	White-browed Babbler	24
Psophodidae	Psophodes (Sphenostoma) occidentalis	Chiming Wedgebill	21
Cuculidae	Heteroscenes pallidus	Pallid Cuckoo	20
Acanthizidae	Acanthiza (Milligania) robustirostris	Slaty-backed Thornbill	19
Corvidae	Corvus orru	Torresian Crow	19
Artamidae	Cracticus torquatus	Grey Butcherbird	18
Dicaeidae	Dicaeum (Dicaeum) hirundinaceum	Mistletoebird	18
Artamidae	Gymnorhina tibicen	Australian Magpie	18
Petroicidae	Melanodryas (Melanodryas) cucullata	Hooded Robin	18
Strigidae	Ninox (Ninox) novaeseelandiae	Southern Boobook	17
Acanthizidae	Aphelocephala nigricincta	Banded Whiteface	15
Hirundinidae	Cheramoeca leucosterna	White-backed Swallow	15
Estrildidae	Emblema pictum	Painted Finch	15
Pardalotidae	Pardalotus (Pardalotinus) rubricatus	Red-browed Pardalote	15
Charadriidae	Charadrius (Charadrius) ruficapillus	Red-capped Plover	14
Ardeidae	Ardea pacifica	White-necked Heron	13
Cuculidae	Chalcites basalis	Horsfield's Bronze-cuckoo	13
Locustellidae	Cincloramphus (Maclennania) mathewsi	Rufous Songlark	13
Acanthizidae	Pyrrholaemus brunneus	Redthroat	13
Hirundinidae	Petrochelidon (Hylochelidon) nigricans	Tree Martin	12
Cinclosomatidae	Cinclosoma (Samuela) castaneothorax	Chestnut-breasted Quail-thrush	11
Casuariidae	Dromaius novaehollandiae	Emu	11
Accipitridae	Elanus axillaris	Black-shouldered Kite	11
Anatidae	Anas gracilis	Grey Teal	10
Cinclosomatidae	Cinclosoma (Samuela) marginatum	Western Quail-thrush	10
Meliphagidae	Epthianura (Aurepthianura) aurifrons	Orange Chat	10
Charadriidae	Elseyornis melanops	Black-fronted Dotterel	9
Accipitridae	Haliastur sphenurus	Whistling Kite	9
Columbidae	Phaps (Phaps) chalcoptera	Common Bronzewing	9
Maluridae	Stipiturus ruficeps	Rufous-crowned Emu-wren	9
Accipitridae	Accipiter (Paraspizias) cirrocephalus	Collared Sparrowhawk	8
Maluridae	Amytornis (Magnamytis) striatus	Striated Grasswren	8
Ardeidae	Egretta novaehollandiae	White-faced Heron	8
Charadriidae	Erythrogonys cinctus	Red-kneed Dotterel	8
Anatidae	Malacorhynchus membranaceus	Pink-eared Duck	8
Maluridae	Malurus (Malurus) splendens	Splendid Fairy-wren	8
Cacatuidae	Nymphicus hollandicus	Cockatiel	8
Hirundinidae	Petrochelidon (Petrochelidon) ariel	Fairy Martin	8
Accipitridae	Accipiter (Leucospiza) fasciatus	Brown Goshawk	7
Acanthizidae	Gerygone fusca	Western Gerygone	7

Acanthizidae	Acanthiza (Acanthiza) apicalis	Red-rumped Tit	6
Acanthizidae	Aphelocephala leucopsis	Southern Whiteface	6
Laridae	Chlidonias (Pelodes) hybrida	Whiskered Tern	6
Caprimulgidae	Eurostopodus (Eurostopodus) argus	Spotted Nightjar	6
Accipitridae	Hieraaetus (Hieraaetus) morphnoides	Little Eagle	6
Podicipedidae	Tachybaptus novaehollandiae	Australasian Grebe	6
Scolopacidae	Tringa (Glottis) nebularia	Common Greenshank	6
Tytonidae	Tyto javanica	Eastern Barn Owl	6
Falconidae	Falco (Hierofalco) peregrinus	Peregrine Falcon	5
Meropidae	Merops (Merops) ornatus	Rainbow Bee-eater	5
Psittacidae	Neopsephotus bourkii	Bourke's Parrot	5
Podargidae	Podargus strigoides	Tawny Frogmouth	5
Podicipedidae	Poliocephalus poliocephalus	Hoary-headed Grebe	5
Locustellidae	Poodytes carteri	Spinifexbird	5
Charadriidae	Vanellus (Lobivanellus) tricolor	Banded Lapwing	5
Aegothelidae	Aegotheles (Aegotheles) cristatus	Australian Owlet-nightjar	4
Motacillidae	Anthus (Anthus) novaeseelandiae novaeseelandiae		4
Anatidae	Aythya (Nyroca) australis	Hardhead	4
Charadriidae	Charadrius (Eupoda) veredus	Oriental Plover	4
Pachycephalidae	Colluricincla (Colluricincla) harmonica rufiventris	Western Grey Shrike-thrush	4
Anatidae	Cygnus atratus	Black Swan	4
Accipitridae	Hamirostra melanosternon	Black-breasted Buzzard	4
Recurvirostridae	Himantopus himantopus leucocephalus	Pied Stilt	4
Recurvirostridae	Himantopus himantopus	Black-winged Stilt	4
Hirundinidae	Hirundo (Hirundo) neoxena	Welcome Swallow	4
Maluridae	Malurus (Leggeornis) assimilis	Purple-backed Fairy-wren	4
	PASSERIFORMES	Yellowhammer	4
Pardalotidae	Pardalotus (Pardalotinus) striatus	Striated Pardalote	4
Psittacidae	Psephotellus varius	Mulga Parrot	4
Recurvirostridae	Recurvirostra novaehollandiae	Red-necked Avocet	4
Acanthizidae	Calamanthus campestris	Rufous Fieldwren	3
Ptilonorhynchidae	Chlamydera guttata	Western Bowerbird	3
Neosittidae	Daphoenositta (Neositta) chrysoptera	Varied Sittella	3
Accipitridae	Milvus migrans	Black Kite	3
Strigidae	Ninox (Ninox) boobook	Southern Boobook	3
Threskiornithidae	Plegadis falcinellus	Glossy Ibis	3
Rhipiduridae	Rhipidura (Rhipidura) albiscapa	Grey Fantail	3
Threskiornithidae	Threskiornis spinicollis	Straw-necked Ibis	3
Rallidae	Tribonyx ventralis	Black-tailed Native-hen	3
Accipitridae	Aquila (Uroaetus) audax	Wedge-tailed Eagle	2
Psittacidae	Barnardius zonarius zonarius	Port Lincoln Parrot	2
Cuculidae	Chalcites		2
Charadriidae	Charadrius		2
Cinclosomatidae	Cinclosoma (Malleeavis) castanotum	Chestnut Quail-thrush	2
Accipitridae	Circus approximans	Swamp Harrier	2
Falconidae	Falco (Hierofalco) subniger	Black Falcon	2
Rallidae	Fulica atra	Eurasian Coot	2
Laridae	Hydroprogne caspia	Caspian Tern	2
Campephagidae	Lalage (Lalage) tricolor	White-winged Triller	2
Cacatuidae	Lophochroa leadbeateri	Major Mitchell's Cockatoo	2
Maluridae	Malurus (Musciparus) leucopterus leuconotus	Mainland White-winged Fairy-wren	2
Meliphagidae	Melithreptus (Eidopsarus) gularis	Black-chinned Honeyeater	2
Psittacidae	Polytelis alexandrae	Princess Parrot	2
Locustellidae	Poodytes gramineus	Little Grassbird	2
Acanthizidae	Smicrornis brevirostris	Weebill	2
Anatidae	Spatula rhynchotis	Australasian Shoveler	2

Glareolidae	Stiltia isabella	Australian Pratincole	2
Scolopacidae	Actitis hypoleucos	Common Sandpiper	1
Anatidae	Anas (Anas) superciliosa	Pacific Black Duck	1
Ardeidae	Ardea alba modesta	Great Egret	1
Artamidae	Artamus (Angroyan) minor minor	Western Little Woodswallow	1
Artamidae	Artamus (Campbellornis) superciliosus	White-browed Woodswallow	1
Scolopacidae	Calidris (Ereunetes) ruficollis	Red-necked Stint	1
Scolopacidae	Calidris (Erolia) ferruginea	Curlew Sandpiper	1
Cuculidae	Chalcites osculans	Black-eared Cuckoo	1
Laridae	Chroicocephalus novaehollandiae	Silver Gull	1
Recurvirostridae	Cladorhynchus leucocephalus	Banded Stilt	1
Climacteridae	Climacteris (Climacterobates) affinis superciliosus	Eastern White-browed Treecreeper	1
Climacteridae	Climacteris (Climacterobates) affinis	White-browed Treecreeper	1
Campephagidae	Coracina (Pteropodocys) maxima	Ground Cuckoo-shrike	1
Phasianidae	Coturnix (Coturnix) pectoralis	Stubble Quail	1
Alcedinidae	Dacelo (Dacelo) leachii	Blue-winged Kookaburra	1
Neosittidae	Daphoenositta (Neositta) chrysoptera pileata	Black-capped Sittella	1
Laridae	Gelochelidon macrotarsa	Australian Gull-billed Tern	1
Gruidae	Grus rubicunda	Brolga	1
Meliphagidae	Lichmera (Lichmera) indistincta indistincta	Western Brown Honeyeater	1
Accipitridae	Lophoictinia isura	Square-tailed Kite	1
Maluridae	Malurus (Leggeornis) assimilis assimilis	Inland Purple-backed Fairy-wren	1
Phalacrocoracidae	Microcarbo melanoleucos	Little Pied Cormorant	1
Petroicidae	Microeca (Microeca) fascinans	Jacky Winter	1
Psittacidae	Neophema (Neophema) splendida	Scarlet-chested Parrot	1
Psittacidae	Pezoporus occidentalis	Night Parrot	1
Phalacrocoracidae	Phalacrocorax (Phalacrocorax) carbo	Great Cormorant	1
Phalacrocoracidae	Phalacrocorax (Phalacrocorax) varius	Pied Cormorant	1
Pomatostomidae	Pomatostomus (Pomatostomus) temporalis	Grey-crowned Babbler	1
Rallidae	Porzana (Porzana) fluminea	Australian Spotted Crake	1
Meliphagidae	Ptilotula plumula	Grey-fronted Honeyeater	1
Estrildidae	Stagonopleura (Stagonopleura) guttata	Diamond Firetail	1
Anatidae	Stictonetta naevosa	Freckled Duck	1
Threskiornithidae	Threskiornis moluccus	Australian White Ibis	1
Alcedinidae	Todiramphus (Todiramphus) sanctus	Sacred Kingfisher	1
Tytonidae	Tyto novaehollandiae	Masked Owl	1
Tytonidae	Tyto	Barn Owl	1

Further Links

Geoscience Australia: http://www.ga.gov.au/
Global Biodiversity Information Facility: https://www.gbif.org/
Threatened Species & Ecological Communities: https://www.environment.gov.au/topics/threatened-species-ecological-communities
WWF Ecoregions: https://worldwildlife.org/biomes
Environmental Resources Information Network (ERIN): https://www.environment.gov.au/topics/science-and-research/databases-and-maps/erin
Australian National Fish Expert Distributions: https://collections.ala.org.au/public/show/dr803
Lists of Australian endemic species: http://lntreasures.com/australia.html

Federal
Department of the Environment: https://www.environment.gov.au/

State/Territory
Australian Capital Territory
Environment and Sustainable Development Directorate: https://www.environment.act.gov.au/
New South Wales
Office of Environment and Heritage: http://www.environment.nsw.gov.au/
Northern Territory
Department of Land Resource Management: 'https://www.lrm.nt.gov.au/
Queensland
Department of Environment and Heritage Protection: https://www.ehp.qld.gov.au/
South Australia
Department of Environment, Water and Natural Resources: 'https://www.environment.sa.gov.au/Home
Tasmania
Department of Primary Industries, Parks, Water and Environment: http://www.dpiw.tas.gov.au/
Western Australia
Department of Parks and Wildlife: https://www.dpaw.wa.gov.au/
Victoria
Department of Environment and Primary Industries: http://www.depi.vic.gov.au/

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Annexure D – Gibson Desert Fact Sheet

Gibson Desert bioregion

Description

Area: 156 290 km²

The Gibson Desert bioregion has vast, undulating sand plains, dunefields and lateritic gibber plains. The vegetation is mainly mulga and other mixed shrubs over spinifex. The bioregion includes Aboriginal land, unallocated crown land and conservation reserves. Conservation and Aboriginal land are the main land uses. The bioregion has a very low population, with the major centres being the Kanpa, Patjarr and Tjirrkarli Aboriginal communities.

Location

The Gibson Desert bioregion is located in the central east rangelands of Western Australia (see Figure 1).

Figure 1 Location of the Gibson Desert bioregion

Data sources available

There are no site-based monitoring data.

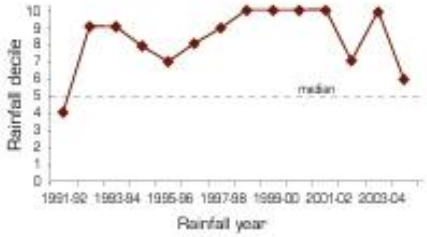
Other data sources include:

- fire extent, intensity and frequency, which provides high reliability for reporting change
- dust
- distribution and relative abundance of invasive animals and weeds
- land use
- conservation estate.

Climate

The Gibson Desert bioregion has an arid climate with variable and unpredictable rainfall. Spatially averaged median (1890–2005) rainfall is 163 mm (April to March rainfall year; see Figure 2).

Figure 2 Decile rainfall for the period 1991–1992 to 2004–2005



Annual rainfall is for the 12-month period 1 April to 31 March.

Decile rainfall was generally well above average for the 1992–2005 period after improving from a drier year in 1991–1992. Only one year was below median and five years were in the highest decile. This would be the best sequence of years on record.

Note that regional averaging of rainfall conceals spatial variability. Some parts of the bioregion may have experienced slightly better **seasonal quality** and others worse during the 1992–2005 period.

Landscape function

There are no suitable data for reporting change in landscape function.

Sustainable management

Critical stock forage

There are no suitable data for reporting change in critical stock forage.

Plant species richness

There are no suitable data for reporting change in plant species richness.

Change in woody cover

There are no suitable data for reporting change in woody cover.

Distance from stock water

There are no sources of stock water for commercial grazing in the Gibson Desert bioregion, and most of the area is remote from water.

Weeds

There are no known records of weeds in the Gibson Desert bioregion.

Components of total grazing pressure

Domestic stocking density

There is no known commercial grazing of domestic stock in this bioregion.

Kangaroos

There are no suitable data for reporting change in kangaroo populations.

Invasive animals

Invasive animal species known to occur in the Gibson Desert bioregion include:

Common name	Scientific name
Feral pig	*Sus scrofa*
Fox	*Vulpes vulpes*
Rabbit	*Oryctolagus cuniculus*
Wild dog	*Canis* spp.
Feral cat	*Felis cattus*
Camel	*Camelus dromedaries*

See www.anra.gov.au for distribution maps

Products that support reporting of landscape function and sustainable management

Fire

For the period 1997–2005, fire was generally insignificant in the bioregion apart from 1999 and 2000.

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005
% area burnt	0.7	0.1	11.4	30.8	4.6	6.7	0.8	0.9	0.6

The greatest area burnt for most years was during the cooler months (April to November) when fires were likely to be less intense.

The frequency of fire during the reporting period was very low compared with all rangeland bioregions, with a mean frequency (log_{10} transformed) of 0.05.

Dust

The mean Dust Storm Index value (1992–2005) was 1.40 — a low value compared with all rangeland bioregions. Dust levels were negligible in the far east of the bioregion and low in the central and western parts.

Biodiversity

Almost 12% of the bioregion is protected in reserves (Biodiversity Working Group indicator: Protected areas; see **Section 7 of Chapter 3** of *Rangelands 2008 — Taking the Pulse*).

Four mammal species and 1 species of reptile are listed as threatened (Biodiversity Working Group indicator: Threatened species).

Socioeconomic characteristics

Land use and value

None of the Gibson Desert bioregion is used for commercial livestock grazing.

Key management issues and features

Key features and issues of the Gibson Desert bioregion include the following:

- Feral camel numbers have increased in recent years.
- About 11.8% of the bioregion is within the conservation estate.
- There is very little information on change in the rangelands of this bioregion.