

# Wildflower Camp - Flora, Vegetation and Fauna Habitat Assessment

Native Vegetation Clearing Permit

13-May-2026

# Wildflower Camp - Flora, Vegetation and Fauna Habitat Assessment

## Native Vegetation Clearing Permit

Client: Rio Tinto Group

ABN: 96 004 458 404

### Prepared by

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ABN 20 093 846 925

13-May-2026

Job No.: 60742977

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## Quality Information

Document Wildflower Camp - Flora, Vegetation and Fauna Habitat Assessment  
 Ref 60742977  
 Date 13-May-2026  
 Originator Celia Mitchell, Sophie Moss, Jas Swoboda  
 Checker/s  
 Verifier/s Floora de Wit

## Revision History

| Rev | Revision Date | Details                    | Approved                                                   |                                                                                       |
|-----|---------------|----------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------|
|     |               |                            | Name/Position                                              | Signature                                                                             |
| C   | 12-Nov-2025   | Draft for internal review  | Floora de Wit<br>Associate Director -<br>Natural Resources |                                                                                       |
| D   | 14-Nov-2025   | Draft for client review    | Floora de Wit<br>Associate Director -<br>Natural Resources |                                                                                       |
| E   | 28-Jan-2025   | Draft for internal review  | Floora de Wit<br>Associate Director -<br>Natural Resources |                                                                                       |
| F   | 30-Jan-2026   | Draft for client review    | Floora de Wit<br>Associate Director -<br>Natural Resources |                                                                                       |
| G   | 19-Feb-2026   | Draft for internal review  | Floora de Wit<br>Associate Director -<br>Natural Resources |                                                                                       |
| 0   | 26-Feb-2026   | Final                      | Floora de Wit<br>Associate Director -<br>Natural Resources |                                                                                       |
| 1   | 26-Mar-2026   | Final with minor revisions | Floora de Wit<br>Associate Director -<br>Natural Resources |                                                                                       |
| 2   | 13-May-2026   | Final with minor revisions | Floora de Wit<br>Associate Director -<br>Natural Resources |  |

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## Abbreviations

| Abbreviation | Description                                                                       |
|--------------|-----------------------------------------------------------------------------------|
| AECOM        | AECOM Australia Pty Ltd                                                           |
| BC Act       | <i>Biodiversity Conservation Act 2016</i>                                         |
| BOM          | Bureau of Meteorology                                                             |
| DBCA         | Department of Biodiversity, Conservation and Attractions                          |
| DCCEEW       | Department of Climate Change, Energy, the Environment and Water                   |
| DEC          | Department of Environment and Conservation                                        |
| DoEE         | Department of the Environment and Energy                                          |
| DEWHA        | Department of the Environment, Water, Heritage and the Arts                       |
| DPLH         | Department of Planning, Lands and Heritage                                        |
| DPIRD        | Department of Primary Industries and Regional Development                         |
| EPA          | Environmental Protection Authority                                                |
| EP Act       | <i>State Environmental Protection Act 1986</i>                                    |
| EPBC Act     | <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> |
| ESA          | Environmentally Sensitive Area                                                    |
| GPS          | Global Positioning System                                                         |
| ha           | Hectares                                                                          |
| IBRA         | Interim Biogeographic Regionalisation for Australia                               |
| km           | Kilometre                                                                         |
| m            | Metre                                                                             |
| MCNP         | Millstream Chichester National Park                                               |
| NVCP         | Native Vegetation Clearing Permit                                                 |
| P            | Priority                                                                          |
| PEC          | Priority Ecological Community                                                     |
| PMST         | Protected Matters Search Tool                                                     |
| Rio Tinto    | Rio Tinto Iron Ore                                                                |
| TEC          | Threatened Ecological Community                                                   |
| TPFL         | Threatened and Priority Flora Listing                                             |
| WA           | Western Australia                                                                 |
| WAH          | Western Australian Herbarium                                                      |
| WoNS         | Weed of National Significance                                                     |

## Executive Summary

Rio Tinto Iron Ore (Rio Tinto) engaged AECOM Australia Pty Ltd (AECOM) to undertake a detailed flora, vegetation and fauna habitat assessment for a defined survey area in the Pilbara region. The survey area comprises 169.61 ha and is situated at Rio Tinto's decommissioned Rail Wildflower Camp site. The survey area is located east of Karijini National Park, approximately 85 km east of Tom Price in Western Australia, within the Shire of Ashburton.

This report is intended as a supporting document to Rio Tinto's application for a Native Vegetation Clearing Permit (NVCP) to inform the proposed reconstruction of Wildflower Camp. The survey area was traversed on foot to undertake systematic targeted flora searches, vegetation mapping, fauna habitat assessments and opportunistic fauna sightings. Floristic data was recorded from six 50 m x 50 m quadrats.

A summary of the results is presented below:

- Two native vegetation communities were defined and mapped across 144.63 ha. The remaining 24.98 ha was heavily modified (cleared) or areas of rehabilitation.
- Condition varied from Completely Degraded to Excellent. Degradation was evident from signs of human settlement, including camp infrastructure, historical clearing and rehabilitation, altered drainage, grazing and associated weed invasion.
- No Threatened Ecological Communities or Priority Ecological Communities were considered likely to occur, and none were recorded.
- One Priority 3 flora species was recorded, *Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684). A total of 91 individuals were recorded at 27 locations.
- Four fauna habitats were mapped, including a Clay Plain, Stony Plain, Rehab and Disturbed.
- The Stony Plain is suitable habitat for:
  - Western Pebble-mound Mouse (*Pseudomys chapmani*) Priority 4.
- The Clay Plain includes Mulga Woodland microhabitat and is suitable habitat for:
  - Northern Short-Tailed Mouse (*Leggadina lakedownensis*) Priority 4
  - Unpatterned Robust Slider (*Lerista macropisthopus remota*) Priority 2.
- The habitats in the survey area provide supporting habitat for the following conservation significant species, the Northern Quoll (*Dasyurus hallucatus*), Pilbara Olive Python (*Liasis olivaceus barroni*), Grey Falcon (*Falco hypoleucos*), Pilbara Leaf Nosed Bat (*Rhinonictes aurantia* Pilbara form) and Ghost Bat (*Macroderma gigas*).

The field survey was conducted during the optimal season for detecting and identifying flora species in the Pilbara. The majority of specimens were confidently identified in situ, with any uncertain identifications verified through specimen collection and taxonomy by the Rio Tinto sponsored taxonomist at the Western Australian Herbarium (WAH). The field survey was successfully undertaken with no significant limitations identified.

## 1.0 Introduction

### 1.1 Background and location

Rio Tinto Iron Ore (Rio Tinto) engaged AECOM Australia Pty Ltd (AECOM) to complete a detailed flora, vegetation and a basic fauna assessment of Rio Tinto's decommissioned Rail Wildflower Camp site (the survey area). The survey results will support a Native Vegetation Clearing Permit (NVCP) application. One survey event was undertaken between the 8<sup>th</sup> and 13<sup>th</sup> of April 2025.

The survey area has an area of 169.61 and is situated east of Karijini National Park, approximately 85 km east of Tom Price in Western Australia. It lies within the Shire of Ashburton, approximately 10 km west of the boundary with the Shire of East Pilbara (Figure 1).

### 1.2 Objective and scope

The objective of the Project was to assess the environmental values of the survey area pertaining to flora, vegetation, and fauna habitats to support an NVCP application for the proposed reconstruction of Rio Tinto's Rail Wildflower Camp.

The scope of work included:

- A desktop assessment to identify potential significant flora, fauna and ecological communities within the survey area.
- A detailed flora and vegetation survey and targeted flora survey in accordance with the Environmental Protection Authority (EPA) *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016a).
- A basic fauna assessment in accordance with the EPA *Technical Guidance - Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA, 2020).



## 2.0 Existing environment

### 2.1 Climate

The survey area is located in the Pilbara region which experiences a semi-arid climate characterised by very hot summers between October to April with heavy rainfall from cyclones followed by mild, dry winters between May to September (BOM, 2025).

Based on long-term climatic data from the Bureau of Meteorology (BoM) weather station at Paraburdoo Aero (Station 007185), approximately 95 km south-west of the survey area, the mean annual rainfall since 1974 is 313 mm (Figure 2). Mean maximum temperatures since 1996 range between 25°C and 40.9°C and exceed 30°C for much of the year (BOM, 2025).

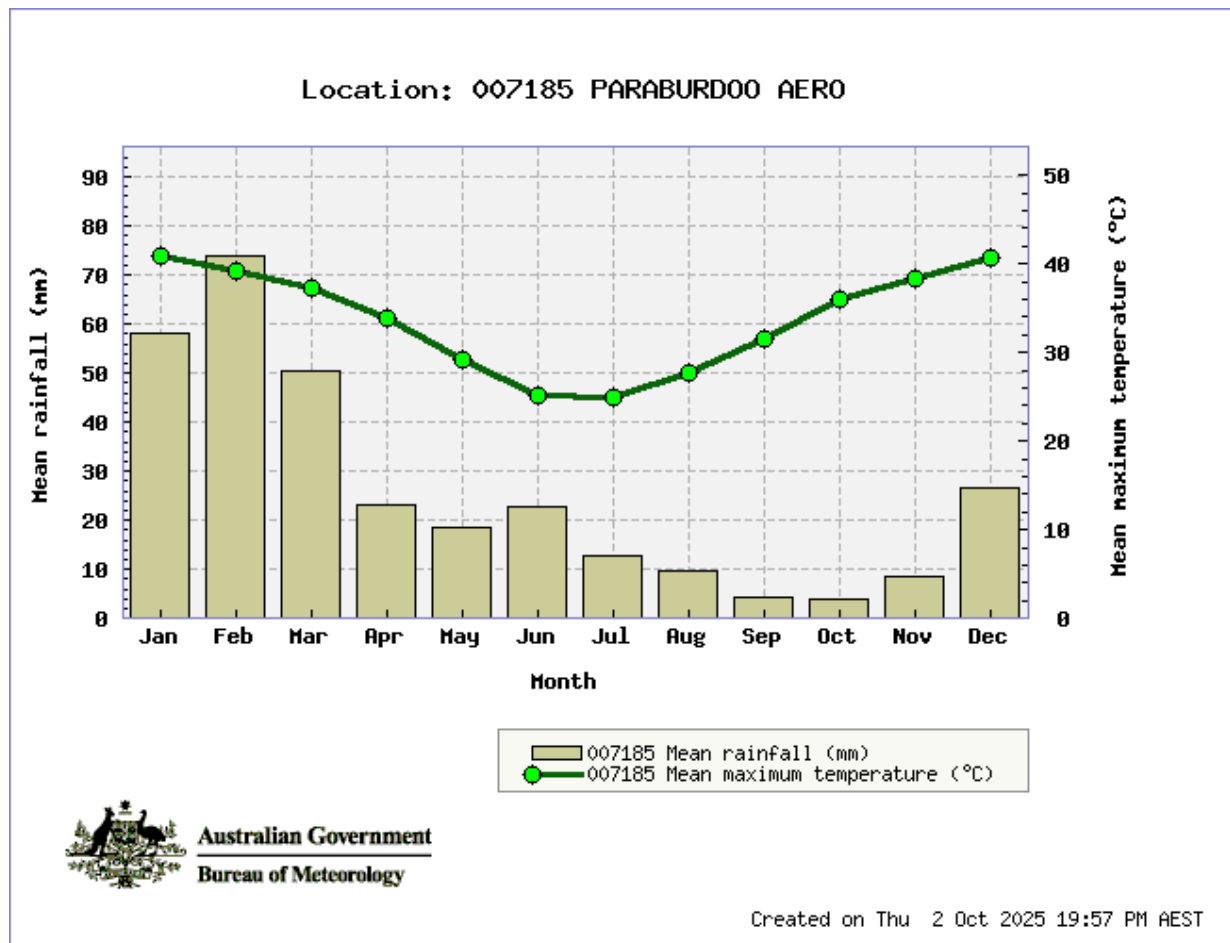


**Figure 2** Climate data for Paraburdoo Aero Station (Station 007185). Mean annual rainfall has been calculated from 1974 and mean maximum temperature has been calculated from 1996 (BOM, 2025).

### 2.2 Interim Biogeographic Region of Australia

The Interim Biogeographic Regionalisation for Australia (Version 7) (IBRA) divides the Australian continent into 89 bioregions and 419 subregions based on climate, geology, landforms and characteristic vegetation and fauna (DoEE, 2012)). The survey area occurs in the Pilbara bioregion within the Hamersley subregion. The Hamersley subregion, described by Kendrick (2001), is the southern section of the Pilbara Craton and consists of:

“A mountainous area of Proterozoic sedimentary ranges and plateaux dissected by gorges. The vegetation consists of Mulga low woodland over bunch grasses on valley floors with *Eucalyptus leucophloia* over *Triodia* on skeletal soils of ranges. Rare features of the subregion include the Gorges of the Hamersley Range (particularly in Karijini National Park), Palm Spring and Duck Creek, Themeda grasslands of the Pilbara, and Red Hill Station Mulga stands in the extreme west of the subregion. Dominant land use includes grazing, Unallocated Crown Land and Crown Reserve, native pastures, Conservation and mining.”

## 2.3 Land systems

Land systems of the Western Australian rangelands have been mapped and described by the Department of Agriculture and Food (now the Agriculture and Food Sector of the Department of Primary Industries and Regional Development Western Australia) outlining the distributions and providing comprehensive descriptions of biophysical resources, including soil and vegetation condition (Van Vreeswyk, Payne, Leighton, & Hennig, 2004). A total of 102 land systems occur in the Pilbara bioregion, of which two occur in the survey area. These are described in Table 1 and mapped on Figure 3.

**Table 1** Distribution of land systems within the survey area and Pilbara bioregion

| Land system                                                                                                                                            | Total area within Pilbara bioregion (ha) | Total area within survey area (ha) | Proportion of land system within survey area (%) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------|--------------------------------------------------|
| <b>Boolgeeda System</b><br>Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.          | 961,843.91                               | 102.98<br>(61%)                    | <1.0                                             |
| <b>Wannamunna System</b><br>Hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands and occasionally eucalypt woodlands. | 63,004.11                                | 66.62<br>(39%)                     | <1.0                                             |

## 2.4 Geology

Two geological units intersect with the survey area (Figure 4). Much of the survey area is on the Colluvium 38491 formation (169.15 ha) (Stewart et al., 2008). It is described as colluvium, sheetwash, talus; gravel piedmonts and aprons over and around bedrock; clay-silt-sand with sheet and nodular kankar; alluvial and aeolian sand-silt-gravel in depressions and broad valleys in Canning Basin; local calcrete, reworked laterite.

Approximately 0.46 ha of the northwest corner of the survey area is on Brockman Iron Formation, part of the Mount Bruce Supergroup. This is described as banded iron-formation, chert, mudstone and siltstone.

## 2.5 Pre-European Vegetation

Pre-European vegetation was mapped across the Pilbara region at a scale of 1:1,000,000 (Beard, 1975). The survey area lies within the Fortescue Botanical District of the Eremaean Botanical Province (Beard, 1990). The vegetation of this province is typically open, and frequently dominated by *Triodia* spp. (spinifex), *Acacia* spp. (wattles) and occasional eucalypts. Of the four major physiographic units within the Fortescue District identified by Beard, the survey area is within the Hamersley Plateau sub-region (generally equivalent to the Hamersley (PIL3) IBRA subregion) which is described by van Vreeswyk, et al. (2004) as:

“Rounded hills and ranges, mainly of jaspilite and dolomite with some shale, siltstone and volcanics. and dominated by tree steppe with *Eucalyptus leucophloia* (snappy gum), *Acacia aneura* (Mulga) low woodland in valleys, ...and sparse shrub steppe with *Acacia xiphophylla* (snakewood) on drainage lines”

Beard further delineated these broad units into vegetation associations. The survey area is within vegetation association Hamersley 18 (a1Li) - Low woodland; Mulga (*Acacia aneura*).

The pre-European and current extent of native vegetation associations in Western Australia has been interpreted by Shepherd *et al.* (2002) using data from Beard's (1975) regional vegetation mapping and other vegetation mapping, as well as satellite imagery and orthophoto interpretation. Shepherd *et al.* (2002) identified the Pilbara bioregion as having largely intact native vegetation owing to the lack of intensive agricultural land use practices. Although the native vegetation remains widespread and largely intact, the floristic composition and structural characteristics have almost certainly changed since European settlement by grazing and altered fire regimes (Shepherd, Beeston, & Hopkins, 2002).

Pre-European vegetation is detailed in Table 2 and mapped in Figure 5.

**Table 2 Pre-European vegetation associations and extent remaining (Government of Western Australia, 2019).**

| Beard's mapping unit<br>(Shepherd vegetation<br>association) | Description                                                                                   | Extent in<br>survey area<br>(ha) (%) | Current extent<br>in Pilbara<br>bioregion (ha) | Pre-European<br>extent (ha) | Percentage<br>remaining<br>(%) |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------------|-----------------------------|--------------------------------|
| Hamersley 18<br>(Mosaic 18)                                  | Low woodland; mulga<br>( <i>Acacia aneura</i> ) and<br>sparse shrubland on red<br>sandy soils | 169.61<br>(100%)                     | 671,843.35                                     | 676,556.72                  | 99.3                           |

## 2.6 Conservation Reserves and Environmentally Sensitive Areas

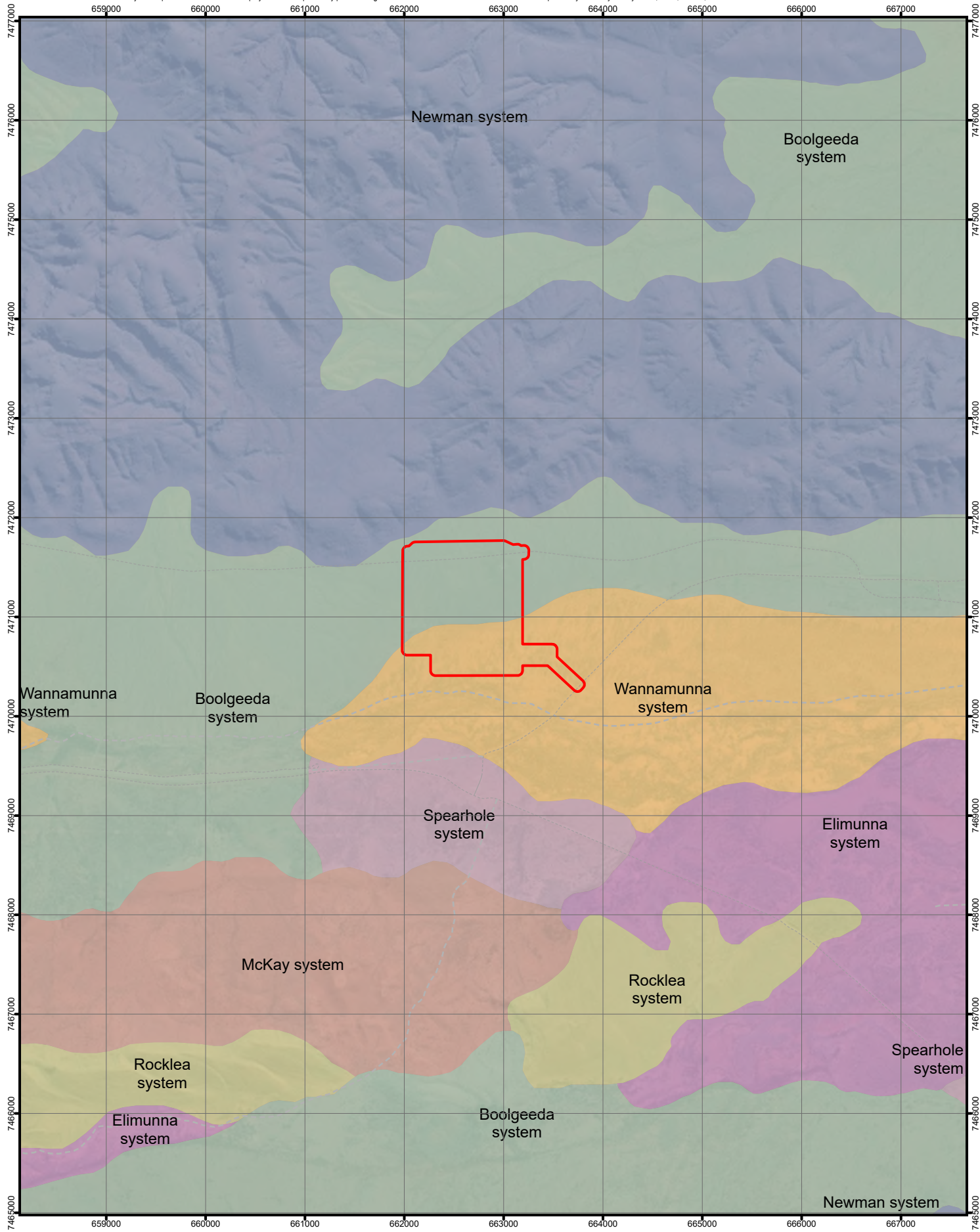
There are no Conservation Reserves, Environmentally Sensitive Areas, or National Heritage Areas that intersect the survey area. There is one Conservation Reserve, Karijini National Park, approximately 0.07 km northwest, 6.96 km south and 9.30 km west from the survey area. DBCA legislated land within the vicinity of the survey area are described in Table 3 and mapped on Figure 6.

**Table 3 Nature reserves within the vicinity of the survey area**

| Name     | Type                    | Purpose                          | Distance from survey<br>area (km) |
|----------|-------------------------|----------------------------------|-----------------------------------|
| Karijini | National Park           | Conservation Commission<br>Of WA | 0.07                              |
| Un-named | Infrastructure Corridor | Conservation Commission<br>Of WA | 7.88                              |
| Un-named | Infrastructure Corridor | Conservation Commission<br>Of WA | 10.04                             |

## 2.7 Hydrology

The survey area lies within the Weeli Wolli Creek catchment and the Roeburn/Ashburton groundwater subarea of the Pilbara (DWER, 2024). No major or minor mapped streams run through the survey area (DWER, 2018). The closest major mapped stream is unnamed and is located approximately 5.3 km to the northwest of the survey area. The survey area does not lie within a Public Drinking Water area or a water reserve.



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DATA SOURCES Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2016)  
Service Layer Credits: Main Roads, World Imagery, Vector, Others: Minor Roads, Freeways & Highways, Soil Landscape Mapping - Best Available (DPIRD-027), WMAE

**LEGEND**

Survey Area

Soil Landscape Mapping - Best Available (DPIRD-027)

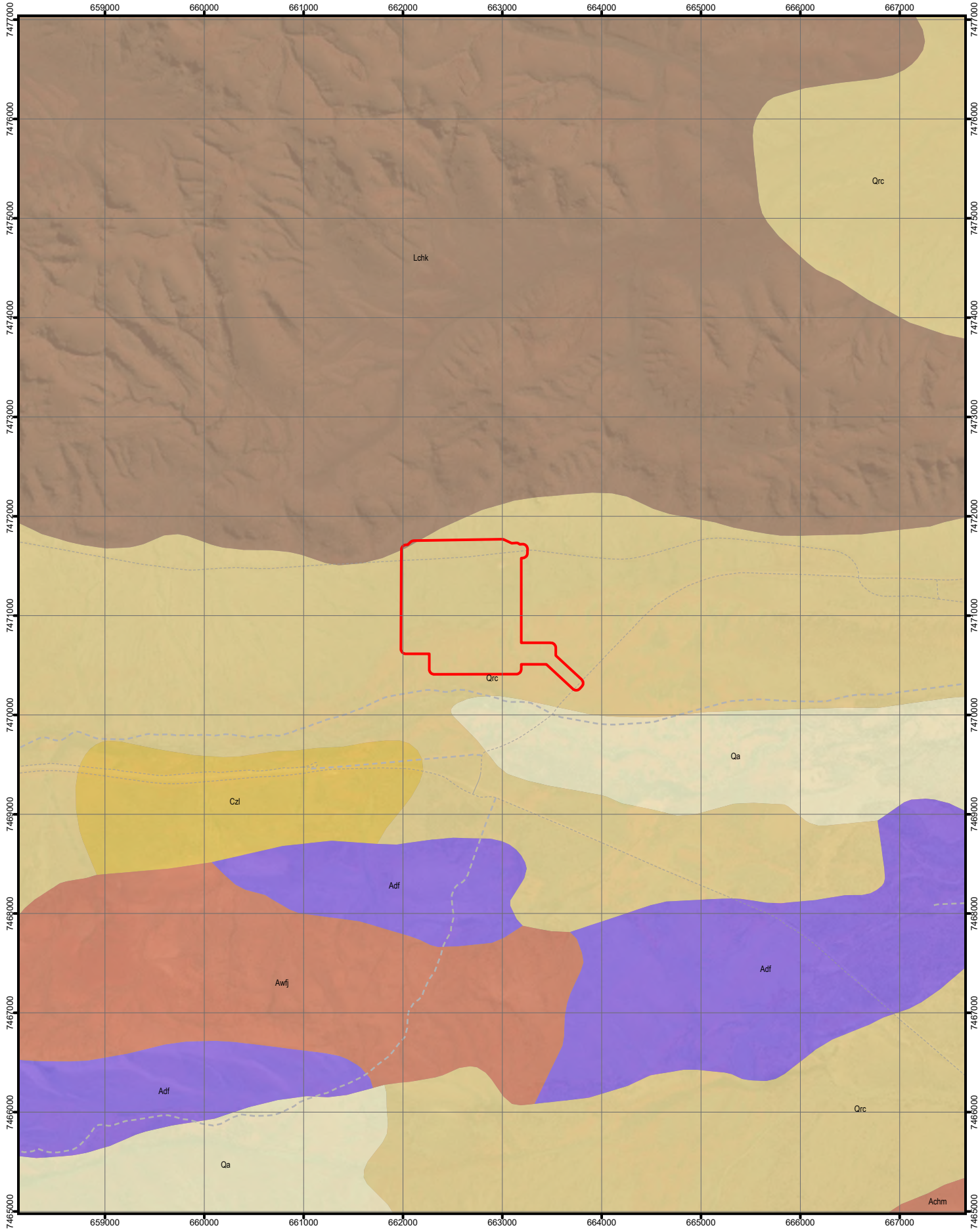
|                  |                   |
|------------------|-------------------|
| Boolgeeda system | McKay system      |
| Elimunna system  | Newman system     |
|                  | Rocklea system    |
|                  | Spearhole system  |
|                  | Wannamunna system |

**Land Systems**

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**WILDFLOWER CAMP FLORA, VEGETATION AND FAUNA HABITAT ASSESSMENT**

**Figure 3**



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LEGEND

Survey Area

Geoscience Australia (2012)  
Surface Geology of Australia,  
1:1 000 000 scale, 2012  
edition

QUATERNARY

Qa

Qrc

CENOZOIC

Czl

PALEOPROTEROZOIC

Lchk

ARCHEAN

Adf

Awfj

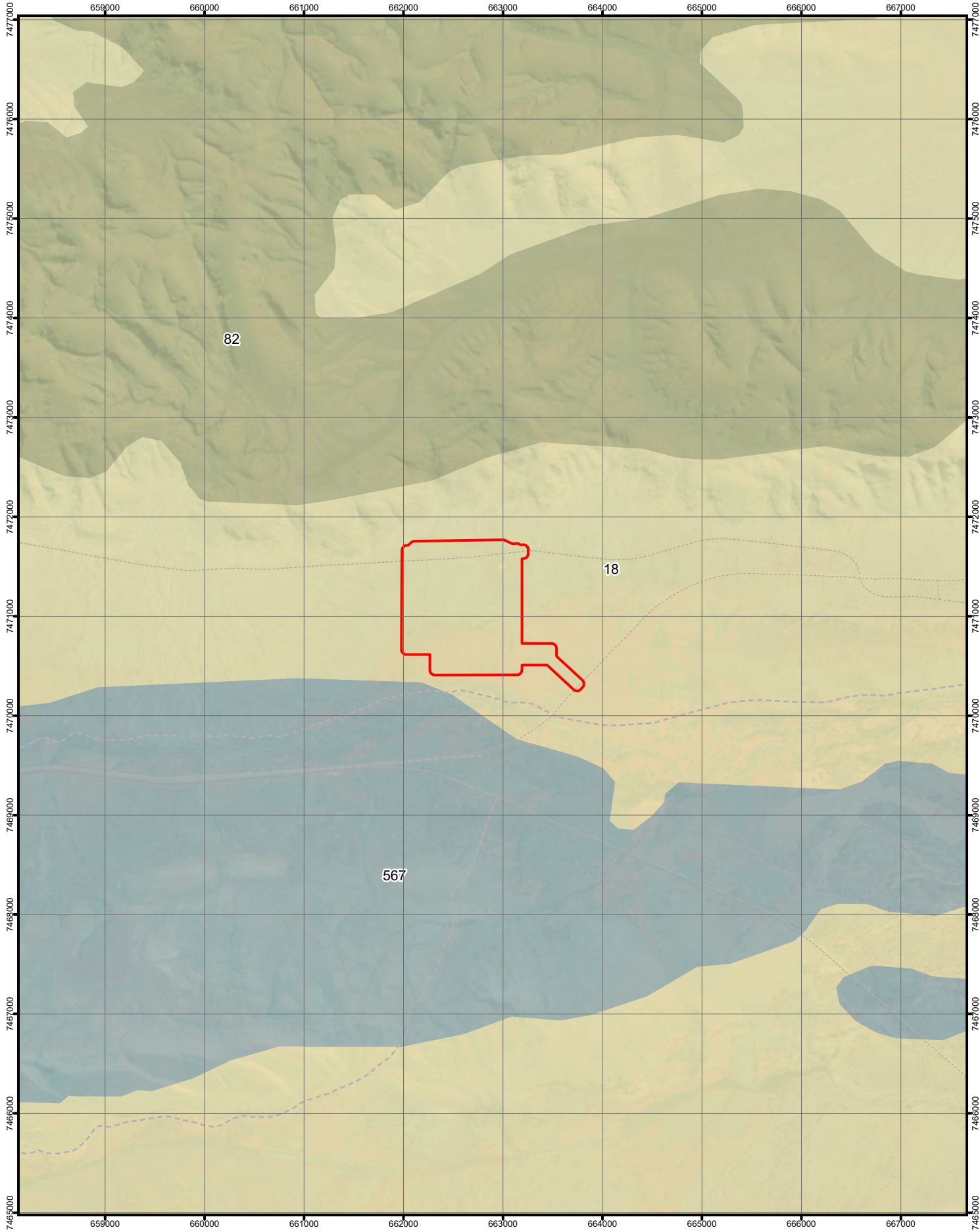
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Geology

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**WILDFLOWER CAMP FLORA,  
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Figure  
**4**



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Service Layer Credits: Main Roads: Pre-European Vegetation (DPIRD-006) World Imagery: Vector One: Minor Roads: Freeways & Highways: JRS

LEGEND

 Survey Area

Pre-European Vegetation  
(DPIRD-006)

 18, Low woodland, open low woodland or sparse woodland, Mulga *Acacia aneura* and associated species.

 82, Low tree-steppe, Hummock grassland with scattered bloodwoods and snappy gum *Triodia* spp., *Corymbia dichromophloia*, *Eucalyptus leucophloia*

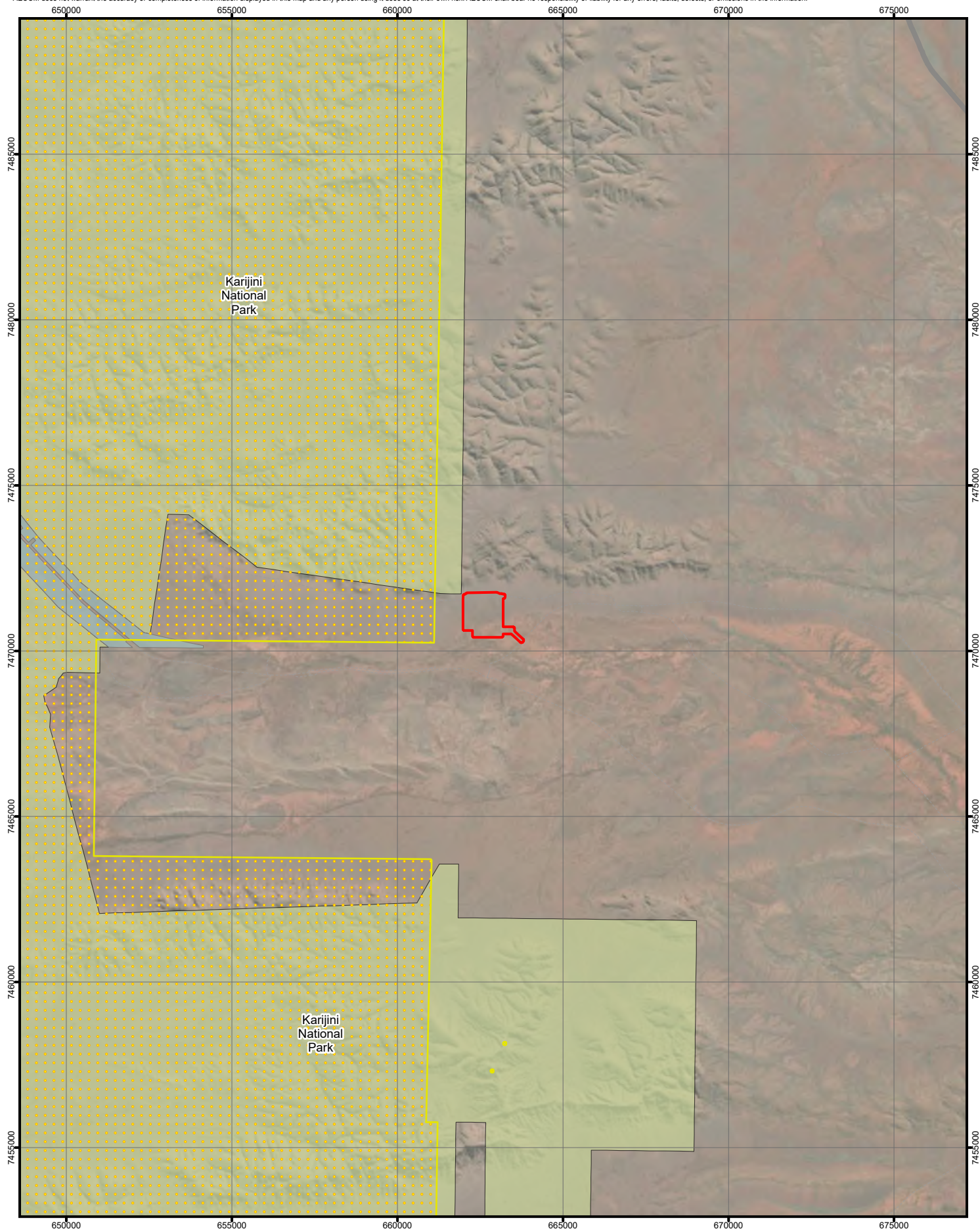
 567, Shrub-steppe, Hummock grassland with scattered shrubs or mallee *Triodia* spp. *Acacia* spp., *Grevillea* spp. *Eucalyptus* spp

Pre-European Vegetation

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**WILDFLOWER CAMP FLORA,  
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Figure  
**5**



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Service Layer Credits: Main Roads: DBCA - Legislated Lands and Waters (DBCAL11); Department of Biodiversity, Conservation and Attractions: World Imagery; Esri/DeLorme/GeoEye; Minor Roads: Freeways & Highways; Clearing Regulations - Environmentally Sensitive Areas (DWER-046); JWS

Project: I:\na.aecomnet.com\lfs\APAC\Perth-AUPER1\Legacy\Projects\60742977\_RTIO\_Targeted\_Flora\_2025\900\_CAD\_GIS\920\_GIS\Trip 2\02\_APRX\03\_Report\_Figures\60742977\_RTIO\_Targeted\_Flora\_2025\_Trip2\_Report\Figures\_NVCP.aprx (WyattK2).  
Layout: 60742977\_Trip2\_NVCP\_Fig6\_ConsEstates\_A4\_v1, Last exported: 22/01/2026 1:19 PM

#### LEGEND

Survey Area

DBCA - Legislated Lands and Waters (DBCAL11)

National Park

Section 5(1)(g) Reserve

Clearing Regulations -  
 Environmentally Sensitive Areas (DWER-046)

#### Conservation Reserves and Environmentally Sensitive Areas

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**WILDFLOWER CAMP FLORA,  
VEGETATION AND FAUNA HABITAT  
ASSESSMENT**

Figure

**6**

A4 size

## 3.0 Methodology

### 3.1 Desktop Assessment

#### 3.1.1 Database Searches

A desktop assessment was undertaken using Commonwealth and State databases, and flora and fauna data provided by Rio Tinto, to identify listed significant ecological communities, flora and fauna species that are likely to be present within, or near, the survey area. Data sources used are detailed below.

- Department of Biodiversity Conservation and Attractions (DBCA) Threatened Species and Communities database including Threatened and Priority flora, fauna and communities with a 100 km buffer
- Western Australian Herbarium (WAH) records with a 50 km buffer
- Protected Matters Search Tool (PMST) with a 50 km buffer (DCCEE 2022)
- Rio Tinto flora and fauna data with a 20km buffer
- Results from previous reports outlined in Section 3.1.2.

All conservation significant matters including flora, fauna and communities were reviewed and a likelihood of occurrence was scored based on the categories outlined in Table 4 (flora and communities) and Table 5 (fauna). Further details on conservation significance are presented in Appendix A. The desktop results include a pre-survey likelihood based on this scoring system, and a post-survey likelihood based on field observations, habitat suitability, and detectability of species during the survey (Appendix B; Appendix C).

**Table 4 Likelihood categories for flora species and communities**

| Likelihood of occurrence | Definition                                                                                                             |
|--------------------------|------------------------------------------------------------------------------------------------------------------------|
| Known                    | Species known to occur in survey area.                                                                                 |
| High (Likely)            | Recent record (<20 years) of species in local area (<5 km) and habitat is suitable.                                    |
| Moderate (Possible)      | Suitable habitat present and record in region (<20 km)<br>OR<br>Habitat marginal, recent record in local area (<5 km). |
| Low (Unlikely)           | Habitat marginal OR record in region (<20 km).                                                                         |
| Negligible               | No suitable habitat.                                                                                                   |

**Table 5 Likelihood categories for fauna species**

| Likelihood of occurrence | Definition                                                                                                        |
|--------------------------|-------------------------------------------------------------------------------------------------------------------|
| Known                    | Species is known to occur in the survey area.                                                                     |
| High (Likely)            | Recent records (<20 years) known from within 20 km and suitable habitat present.                                  |
| Moderate (Possible)      | Recent records (<20 years) OR known from within 20 km and suitable habitat is present or is likely to be present. |
| Low (Unlikely)           | Recent records (<20 years) or records nearby (<20 km) and marginal habitat (score 1 of 2) present.                |
| Negligible               | No suitable habitat present.                                                                                      |

### 3.1.2 Previous Surveys

Several ecological surveys have been undertaken within and adjacent to the survey area. These reports were reviewed to provide regional context and compare vegetation and flora values. The results of these surveys are summarised in Table 6.

**Table 6 Results of previous surveys conducted in the vicinity of the survey area**

| Report and survey details                                                                                                                    | Extent (ha) | No. of taxa                                         | Significant flora                         | Significant fauna                                                                                                                                                                                                                                                                                                                                                                                                                       | Significant vegetation                                                                                                           | Limitations                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biota Environmental Sciences (2008a)<br>Wildflower Rail Construction Camp: Native Vegetation Clearing Permit Report<br><br>NVCP level survey | 144         | 143 flora species<br><br>Fauna species not assessed | No Threatened or Priority flora recorded. | Habitat for: <ul style="list-style-type: none"> <li>Night Parrot (<i>Pezoporus occidentalis</i>, CR)</li> <li>Northern Quoll (<i>Dasyurus hallucatus</i>, EN)</li> <li>Pilbara Orange Leafnosed-Bat (<i>Rhinonictis aurantius</i>, VU)</li> <li>Pilbara Olive Python (<i>Liasis olivaceus barroni</i>, VU)</li> <li>Bilby (<i>Macrotis lagotis</i>, VU)</li> <li>Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>, P4).</li> </ul> | No vegetation units were deemed to be TECs or PECs. No vegetation associations were considered to be rare, restricted or unique. | <ul style="list-style-type: none"> <li>Field survey took place over one day</li> <li>Recent fire impacted the survey area</li> <li>Despite optimal seasonal conditions prior to survey, many flora species present only as seedlings</li> <li>No targeted survey</li> </ul> |

| Report and survey details                                                                                                                                              | Extent (ha) | No. of taxa            | Significant flora                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Significant fauna                                                                                                                                                                                                                                                                                                                                                                                    | Significant vegetation                                                                                                           | Limitations                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Biota Environmental Sciences (2008b)<br/>A Vegetation and Flora Survey of the Rio Tinto Rail Duplication – Bellbird Siding to Juna Downs</p> <p>Baseline survey</p> | 9,008       | 331 flora species      | <ul style="list-style-type: none"> <li>• <i>Calotis squamigera</i> (P1)</li> <li>• <i>Astrebla lappacea</i> (P3)</li> <li>• <i>Goodenia lyrata</i> (P3)</li> <li>• <i>Rostellularia adscendens</i> var. <i>latifolia</i> (P3)</li> <li>• <i>Goodenia pascua</i> (no longer Priority)</li> <li>• <i>Ischaemum albobillosum</i> (no longer Priority)</li> <li>• <i>Polymeria</i> sp. Hamersley (M.E.Trudgen 11353) (now)</li> <li>• <i>Polymeria longifolia</i> (no longer Priority).</li> <li>• <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794) (no longer Priority)</li> </ul> | Not assessed                                                                                                                                                                                                                                                                                                                                                                                         | No vegetation units were deemed to be TECs or PECs. No vegetation associations were considered to be rare, restricted or unique. | <ul style="list-style-type: none"> <li>• Poor seasonal conditions during survey</li> <li>• No targeted survey</li> </ul>                                             |
| <p>Biota Environmental Sciences (2008c)<br/>Rio Tinto Rail Duplication Fauna Assessment: Bellbird Siding to Juna Downs</p> <p>Baseline survey</p>                      | 9,008       | 120 vertebrate species | Not assessed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Peregrine Falcon (<i>Falco peregrinus</i>, OS)</li> <li>• Australian Bustard (<i>Ardeotis australis</i>) (no longer Priority)</li> <li>• Star Finch (<i>Neochmia ruficauda subclaescens</i>) (no longer Priority)</li> <li>• Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>, P4)</li> <li>• Rainbow Bee-eater (<i>Merops ornatus</i>, MI)</li> </ul> | Not assessed                                                                                                                     | <ul style="list-style-type: none"> <li>• Not all sections of survey area were ground-truthed</li> <li>• Not all sections of survey area sampled for fauna</li> </ul> |

| Report and survey details                                                                                                                                                                                             | Extent (ha)                             | No. of taxa       | Significant flora                                                                                                                                                                                                                                                                                                                                                                                                                                               | Significant fauna                                                                            | Significant vegetation                                                                                                           | Limitations     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------|
| ecologia Environment (2012)<br>Rio Tinto Iron Ore Juna Downs Targeted Flora Assessment<br><br>Targeted flora survey                                                                                                   | 837.8                                   | 280 flora species | <ul style="list-style-type: none"> <li>• <i>Vittadinia</i> sp. Coondewanna Flats (S. van Leeuwen 4684) (P1)</li> <li>• <i>Aristida jerichoensis</i> var. <i>subspinulifera</i> (P3)</li> <li>• <i>Brachyscome</i> sp. Wanna Munna Flats (S. van Leeuwen 4662) (no longer Priority)</li> <li>• <i>Brunonia</i> sp. Long hairs (D.E. Symon 2440) (no longer Priority)</li> <li>• <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794) (no longer Priority)</li> </ul> | Not assessed                                                                                 | Not assessed                                                                                                                     | None identified |
| Pilbara Flora (2012)<br>Flora and vegetation Survey for Drilling Areas at Juna Downs and Native Vegetation Clearing Permit Supporting Information<br><br>Flora and vegetation survey with NVCP supporting information | Four survey areas totalling 2,357.44 ha | 307 flora species | <ul style="list-style-type: none"> <li>• <i>Triodia</i> sp. Mt Ella (M.E Trudgen 12739) (P3)</li> <li>• <i>Eremophila magnifica</i> subsp. <i>magnifica</i> (P4)</li> <li>• <i>Brunonia</i> sp. long hairs (D.E. Symon 2440) (no longer Priority)</li> <li>• <i>Spartothamnella puberula</i> (no longer recorded in WA)</li> <li>• <i>Rhagodia</i> sp. Hamersley (M.E. Trudgen 17794) (no longer Priority)</li> </ul>                                           | Western Pebble-mound Mouse ( <i>Pseudomys chapmani</i> , P4) mounds recorded in survey area. | No vegetation units were deemed to be TECs or PECs. No vegetation associations were considered to be rare, restricted or unique. | None identified |

| Report and survey details                                                                                                                                                               | Extent (ha) | No. of taxa                                                        | Significant flora                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Significant fauna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Significant vegetation                                                                                                                          | Limitations                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <p>Rio Tinto (2016)<br/>Flora, Vegetation and<br/>Fauna Habitat Assessment<br/>at Juna Downs Native<br/>Vegetation Clearing Permit<br/>– Supporting Report</p> <p>NVCP level survey</p> | 546.4       | <p>186 flora<br/>species</p> <p>Fauna species<br/>not assessed</p> | <ul style="list-style-type: none"> <li>• <i>Tetratheca fordiana</i> (P2)</li> <li>• <i>Eremophila naaykensis</i> (P3)</li> <li>• <i>Rostellularia adscendens</i><br/>var. <i>latifolia</i> (P3)</li> <li>• <i>Solanum kentrocaule</i> (P3)</li> <li>• <i>Triodia</i> sp. Mt Ella (M.E.<br/>Trudgen 12739) (P3)</li> <li>• <i>Acacia bromilowiana</i> (P4)</li> <li>• <i>Eremophila magnifica</i><br/>subsp. <i>magnifica</i> (P4)</li> <li>• <i>Sida</i> sp. Barlee Range (S.<br/>van Leeuwen 1642) (no<br/>longer Priority)</li> </ul> | <ul style="list-style-type: none"> <li>• Northern Quoll (<i>Dasyurus<br/>hallucatus</i>, EN) scats<br/>recorded in survey area</li> <li>• Western Pebble-mound<br/>Mouse (<i>Pseudomys<br/>chapmani</i>, P4) mounds<br/>recorded in survey area.</li> </ul> <p>Habitat for:</p> <ul style="list-style-type: none"> <li>• Pilbara Olive Python (<i>Liasis<br/>olivaceus barroni</i>, VU)</li> <li>• Ghost Bat (<i>Macroderma<br/>gigas</i>, VU)</li> <li>• Pilbara Orange Leafnosed-<br/>Bat (<i>Rhinonictis aurantius</i>,<br/>VU)</li> <li>• Peregrine Falcon (<i>Falco<br/>peregrinus</i>, OS)</li> <li>• Rainbow Bee-eater (<i>Merops<br/>ornatus</i>, MI)</li> </ul> | No vegetation units were<br>deemed to be TECs or<br>PECs. No vegetation<br>associations were<br>considered to be rare,<br>restricted or unique. | Poor seasonal conditions during<br>survey |

## 3.2 Field Survey and Personnel

The field survey was undertaken across four days, between the 8<sup>th</sup> to 10<sup>th</sup>, and 13<sup>th</sup> of April 2025 by three botanists and one ecologist. The survey coincided with the optimal survey timing for vegetation surveys in the Pilbara bioregion, which is 6-8 weeks post wet season (EPA, 2016a).

The lead botanist for this survey was Celia Mitchell (collection permit FB62000077-3). Celia has completed a Master of Science (MSc) in Conservation Biology (Botany). They have six years' experience undertaking flora and vegetation surveys across WA, including baseline, monitoring and targeted surveys in the Pilbara region.

Celia was supported by Sophie Moss (collection permit FB62000754), Nina Sergeev (collection permit FB62000544) and Candice Le Roux (collection permit FB62000436).

Sophie Moss has completed a Bachelor of Science (BSc) in Environmental Science (Biology) and is a botanist with one year's experience. Sophie has previously been involved in various projects including targeted and baseline surveys in the Pilbara.

Nina has completed a BSc (Zoology). Nina is an ecologist with four years' experience undertaking fauna habitat surveys across WA. Nina has been involved in various projects including rehabilitation monitoring, vegetation and targeted flora surveys.

Candice is a botanist for Rio Tinto and has three years' experience undertaking flora and vegetation surveys in the Pilbara region of WA including baseline, monitoring and targeted surveys.

### 3.2.1 Weather

Daily weather observations recorded from Paraburdoo Aero Bureau of Meteorology (BoM) station (number 007185) were used to determine the local rainfall and temperatures preceding the field survey (Figure 7). This was compared against the long-term median (1974 to 2025). Rainfall at Paraburdoo Aero was above the long-term median in the 12 months leading up to the survey, with 420.6 mm of rain recorded compared to the long-term annual median of 312.8 mm. Considerably higher than average rainfall was recorded in December and January, with 93 mm and 90.8 mm recorded respectively compared to the long-term median of 14.1 mm and 35.8 mm for those months. Rainfall was below the long-term median for February, March and April 2025.

Temperature data from the Paraburdoo Aero BoM station from the 12 months preceding the survey was obtained and compared against the long-term mean (1996 to 2025). Temperatures were above or near-average in the 12 months preceding the survey.

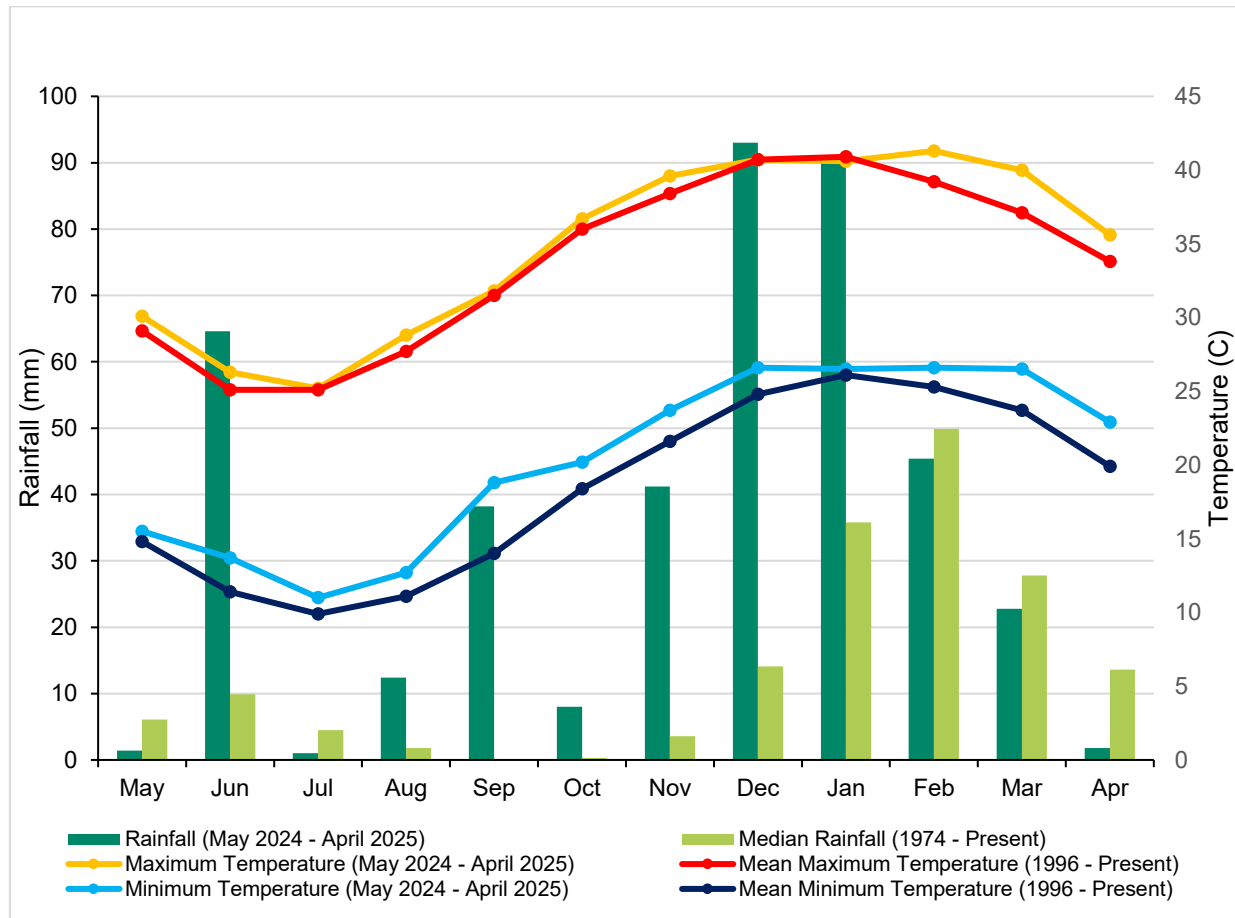


Figure 7 Rainfall and temperature data from Paraburdoo Aero (007185) station (BOM, 2025)

### 3.2.2 Flora and Vegetation Assessment

A detailed flora and vegetation assessment, as well as targeted flora searches were undertaken utilising methods outlined in the EPA *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016a). This level of assessment was requested by Rio Tinto to support an NVCP application. The survey timing of April coincided with the optimal survey timing for the Pilbara bioregion of 6-8 weeks post wet season.

#### 3.2.2.1 Sampling Methods

Floristic data was collected from six 50 m x 50 m quadrats delineated with measuring tapes.

Each quadrat was given a unique identifier, and the following parameters recorded:

- Date
- Recorder details
- Location using hand-held GPS
- Sample site type and size
- Photograph (north-west corner facing quadrat centre)
- Soil details (type, colour, moisture)
- Landform
- Vegetation condition using the Trudgen (1988) scale and description of disturbance

- Fire history
- Tracklogs
- Species list denoting height and percent foliar cover.

Any species unable to be identified in the field were collected for identification using the resources at the Western Australian Herbarium (WAH).

Targeted searches were undertaken for significant flora species considered likely to occur based on desktop results. All target species were reviewed and incorporated into detailed field guide booklets. These guides included photographs and description of morphological features that would assist in identifying the species in the survey area. Linear traverses were walked between 20 m to 50 m apart as dictated by species detectability and habitat suitability within the survey area.

Significant flora species were recorded using a handheld GPS unit. Specimens were collected from representative habitats and photographed in situ. Where multiple individuals occurred at a location, the number of individuals was counted. For extensive populations, individual data points were recorded at approximately 5-meter radii to represent population extent. Survey tracklogs demonstrate the survey effort for targeted searches (Figure 9). Collected specimens that potentially represented significant flora species were submitted to the Rio Tinto sponsored taxonomist, Steve Dillon, for formal identification and lodgement at the Western Australian Herbarium.

### 3.2.2.2 Vegetation Mapping

Vegetation communities were described and mapped based on changes in dominant species composition and landform, supported by statistical analysis of floristic data from sample sites. The software program Primer-E was used to run Bray-Curtis resemblance matrices and produce similarity dendrograms that demonstrate the similarity of sample sites. Vegetation communities were described using a modification of Aplin (1979) at a scale of 1:10,000 based on the Association Level V in accordance with the National Vegetation Information System (NVIS) Framework (DotEE, 2017). Delineation of vegetation communities was informed by the dominance of flora species collected within quadrats and landform.

Vegetation condition was determined using the Trudgen (1988) vegetation condition scale as recommended in the Technical Guidance (EPA, 2016a).

Analysis of known species richness provides a statistical basis for assessing how effectively the survey captured the taxa present within the survey area and in turn, assess sample effort adequacy. This analysis was conducted using a site-by-species matrix derived from floristic data collected from the quadrats within the survey area. The software package Primer-E was used to produce species-accumulation rarefaction and extrapolation curves, as well as several species-richness estimators suitable for ecological surveys based on abundance data (Hortal, Borges, & Gaspar, 2006). The species-richness estimators used in this analysis are explained below:

- Chao1 is an abundance-based estimator that accounts for the number of rare species to predict the number of undetected taxa. It is commonly used where many species are represented by very few individuals.
- Jackknife 1 is an incidence-based, non-parametric estimator that uses the frequency of species occurring in only one sample to estimate total species richness. It is less sensitive to the distribution of abundances and is effective in heterogeneous environments.
- Bootstrap is a non-parametric resampling estimator that uses the proportion of samples in which each species occurs to estimate the likelihood of additional undetected species. It typically provides a conservative estimate of total richness.

Using these estimators, a predicted range for total species richness within the survey area was generated to provide a robust and defensible assessment of survey completeness.

### 3.2.3 Basic Fauna Assessment

A basic fauna assessment was undertaken simultaneously with the flora and vegetation assessment, utilising methods outlined in the EPA *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA, 2020).

Habitat assessments were conducted systematically at locations representative of each habitat type across the survey area and included targeted habitat searches for conservation significant species identified during the desktop assessment. This included searches for suitable refuges and shelters for species such as the Northern Quoll, Pilbara Olive Python, Pilbara Leaf-nosed Bat and Ghost Bat. Assessments also focused on identifying potential foraging, hunting and breeding habitat, including, but not limited to mature eucalypts with hollows, rocky outcrops, caves, spinifex grasslands, termite mounds, creek lines, waterholes and semi-permanent drainage features. Key attributes, including soil type, flora cover, fire history, and signs of disturbance were also documented. These investigations were undertaken to determine the likelihood of significant fauna utilising the survey area.

Opportunistic fauna sightings were recorded where identification was supported by visual observations and recognition of distinctive vocalisations. Details of secondary evidence, such as scats, tracks and diggings were documented. All observations were made between daylight hours of 0700 and 1700.

Fauna habitat mapping was conducted in accordance with the Rio Tinto Data Standard for Fauna Habitat and the Rio Tinto Fauna Habitat Guidelines and Definitions (2023). Taxonomy and nomenclature for vertebrate species, specifically mammals, reptiles, and amphibians follow the Western Australian Museum's Checklist of the Terrestrial Vertebrate Fauna (2025).

## 3.3 Limitations

An evaluation of the potential limitations of this survey is summarised in Table 7. No significant limitations were identified that could affect the flora, fauna, and vegetation assessment.

**Table 7 Survey limitations**

| Limitation                                             | Flora and vegetation assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Fauna assessment                                                                                                                                                                                      |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Availability of contextual information on the region   | <b>Nil</b><br>The survey area is situated in the Pilbara bioregion, specifically within the Hammersley sub-region. Contextual information was obtained through DBCA database searches, publicly available datasets, previous surveys undertaken in the area and the Rio Tinto database. These datasets and the extent of work previously undertaken to support similar programs in the local and regional area provide adequate context to assess significance of results for this Program. |                                                                                                                                                                                                       |
| Competency/experience of consultants conducting survey | <b>Nil</b><br>The flora and vegetation assessment was undertaken by Celia Mitchell, Sophie Moss, Candice Le Roux and Nina Sergeev. Their experience is detailed in Section 3.2.                                                                                                                                                                                                                                                                                                             | <b>Nil</b><br>The basic fauna survey was undertaken by Nina Sergeev who has four years' experience undertaking fauna scopes across WA. Nina was supported by AECOM Senior Zoologist Hannah Spanswick. |

| Limitation                                                                                                | Flora and vegetation assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Fauna assessment                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Proportion of flora/fauna identified, recorded and/or collected (based on sampling, timing and intensity) | <p><b>Nil</b></p> <p>The desktop assessment suggested two vegetation communities would be present in the survey area and this was ground-truthed during the survey. Flora was collected from six 50 m x 50 m quadrats, and opportunistic species were recorded while walking linear traverses. Survey effort is presented in Figure 9.</p> <p>Three flora specimens were unable to be confidently identified to the lowest taxonomic level (denoted by a “?”, where there was some confidence in a specimen identity, and “sp. indet.” where the species was unable to be identified with any confidence) due to lack of suitable material. This is not considered to represent a significant limitation for this survey.</p> | <p><b>Nil</b></p> <p>The basic fauna assessment involved one person traversing the area on foot to document fauna habitat features and record opportunistic fauna sightings. Fauna surveys were restricted to terrestrial vertebrates. Three opportunistically sighted fauna records were unable to be identified to species level. This is not considered to represent a significant limitation for this survey.</p>                                         |
| Completion (is further work needed)                                                                       | <p><b>Nil</b></p> <p>Each vegetation community was captured by a minimum of three quadrats or relevés where appropriate to adequately represent the vegetation, as suggested in The Technical Guide (EPA, 2016a). Survey effort was considered adequate and the survey was undertaken during the ideal survey period for the Pilbara, thereby maximising detection of significant flora species.</p>                                                                                                                                                                                                                                                                                                                          | <p><b>Nil</b></p> <p>The basic fauna assessment effort was considered adequate to meet the objective of the survey.</p>                                                                                                                                                                                                                                                                                                                                       |
| Remoteness and/or access issues                                                                           | <p><b>Nil</b></p> <p>The entire survey area was accessible on foot.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Timing, weather, season, cycle                                                                            | <p><b>Nil</b></p> <p>The survey was undertaken in April 2025. This followed a 5-month period of above average rainfall in the region. Grasses and annual species with fruiting material were prevalent during the time of the survey</p> <p>The 12 months preceding the survey (May 2024 to April 2025) received a total of 420.6 mm compared to the annual long-term median rainfall of 167.4 mm (BOM, 2025). This was evident in the abundance of flowering and fruiting material, and the high number of annual species recorded.</p> <p>Temperature variation is unlikely to have had an effect on the objective of this survey</p>                                                                                       | <p><b>Nil</b></p> <p>The abundance and detectability of some fauna species may have been affected as a result of the warmer conditions during this survey period due to decreased food, water or shelter resource availability. Physical presence of fauna species including all significant fauna have no implication on the ability to interpret habitat suitability results. As such climate has no influence on the ability to interpret the results.</p> |
| Disturbances (e.g. fire, flood, accidental human intervention) which affected results of the survey       | <p><b>Nil</b></p> <p>No recent fire or other disturbance affected the ability to interpret the flora and fauna data.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## 4.0 Desktop Assessment Results

### 4.1 Significant Ecological Communities

Seven Priority Ecological Communities (PECs) occur within 50 km of the survey area, described in Table 8. None of these intersect with the survey area. No Threatened Ecological Communities (TECs) occur within 50 km of the survey area.

**Table 8 Significant ecological communities in the vicinity of the survey area (DBCA, 2023)**

| Community                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Cons. code <sup>1</sup>   | Distance from survey area                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------|
| <b>Brockman Iron cracking clay communities of the Hamersley Range</b> Rare tussock grassland dominated by <i>Astrebla lappacea</i> in the Hamersley Range, on the Brockman land system. Tussock grassland on cracking clays - derived in valley floors, depositional floors. This is a rare community and the landform is rare.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | P1                        | 23.93 km south                                                            |
| <b>Coolibah-lignum flats: Eucalyptus victrix over lignum community in the Pilbara</b><br>Woodland or forest of <i>Eucalyptus victrix</i> (coolibah) over thicket of <i>Duma florulenta</i> (lignum) on red clays in run-on zones. Associated species include <i>Eriachne benthamii</i> , <i>Themeda triandra</i> , <i>Aristida latifolia</i> , <i>Eulalia aurea</i> and <i>Acacia aneura</i> . A series of sub-types have been identified: <ul style="list-style-type: none"> <li>Coolibah and mulga (<i>Acacia aneura</i>) woodland over lignum and tussock grasses on clay plains (Coondewanna Flats and Wanna Munna Flats)</li> <li>Coolibah woodlands over lignum (<i>Duma florulenta</i>) over swamp wandiree (Lake Robinson is the only known occurrence)</li> <li>Coolibah woodland over lignum and silky browntop (<i>Eulalia aurea</i>) (two occurrences known on Mt Bruce Flats)</li> </ul> | P3(i)<br><br>P1<br><br>P1 | 21.92 km south-east<br><br>21.97 km south-east<br><br>43.62 km north-west |
| <b>Kumina Land System</b><br>Ferricrete duricrust plains, uplands and plateaux remnants, relief up to 15 m. Duricrust plains and plateau remnants support hard spinifex grasslands.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | P3(iii)                   | 37.40 km north                                                            |
| <b>West Angelas Cracking-Clays</b><br>Open tussock grasslands of <i>Astrebla pectinata</i> , <i>A. elymoides</i> , <i>Aristida latifolia</i> , in combination with low scattered shrubs of <i>Sida fibulifera</i> , on basalt (Jerrinah formation) derived cracking-clay loam depressions and flowlines. Occurs throughout the central and eastern Hamersley Range from near Tom Price east to Newman.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | P1                        | 33.34 km south                                                            |
| <b>Riparian Flora and Plant Communities of Springs and River Pools with High Water Permanence of the Pilbara Region</b><br>The community includes flora with restricted distributions or populations that are highly disjunct or are major range extensions from northern and eastern Australia. These include <i>Imperata cylindrica</i> , <i>Cladium procerum</i> , <i>Schoenus falcatus</i> and <i>Fimbristylis sieberiana</i> (P3). In the Pilbara these taxa are almost exclusively restricted to the riparian zones of permanent wetlands with high soil moisture maintained by groundwater flows. Occurrences are disjunct with sites typically associated with groundwater discharge in gorge and valley wetlands that are often coupled with significant shading.                                                                                                                            | P2                        | 33.0 km north                                                             |

1. DBCA P Priority

## 4.2 Significant Flora

A total of 81 significant flora species were identified to have the potential to occur in the survey area. Two species are listed under the EPBC Act and BC Act: *Tetratheca butcheriana* (listed as Endangered under the BC Act) and *Thryptomene wittweri* (listed as Vulnerable under the EPBC Act and BC Act). The remaining 79 species are listed as Priority flora. The likelihood assessment determined that:

- 17 species were considered to have a high likelihood of occurring
- 13 species were considered to have a moderate likelihood of occurring
- 51 species were considered to have a low or negligible likelihood of occurring.

Species with a high likelihood to occur are described in Table 9. The comprehensive species list of the desktop flora results are presented in Appendix B and includes a pre-survey and post-survey likelihood. All known locations of significant flora identified in the desktop assessment are mapped in Figure 8.

**Table 9 Significant flora species considered to have a high likelihood of occurrence**

| Species                                                                  | Cons. code <sup>1</sup>   | Habitat <sup>2</sup>                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Acacia effusa</i>                                                     | P3                        | Stony red loam. Scree slopes of low ranges.                                                                                                                                                                                                                                                                      |
| <i>Aristida jerichoensis</i> var. <i>subspinulifera</i>                  | P3                        | Hardpan plains.                                                                                                                                                                                                                                                                                                  |
| <i>Aristida lazardis</i>                                                 | P3                        | Sand or loam. Low open woodland, closed tussock grassland, hummock grassland.                                                                                                                                                                                                                                    |
| <i>Eremophila pusilliflora</i>                                           | P3 (P2 at time of survey) | Found on seasonally inundated alluvial plains between Turee Creek, Pingandy Creek and drainage systems leading into the Ashburton River, growing in red-brown sandy loams soils in open low shrubland (Buirchell & Brown, 2016).                                                                                 |
| <i>Euphorbia australis</i> var. <i>glabra</i>                            | P3                        | Sumps, low in the landscape on alluvial cracking clay loamy soil, gritty with ironstone fragments, saline flats (Astron, 2018).                                                                                                                                                                                  |
| <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i>               | P3                        | Clay soils on plains (PlantNet, 2024).                                                                                                                                                                                                                                                                           |
| <i>Indigofera rivularis</i>                                              | P3                        | Along rocky creek-lines in open low woodland of eucalypts and Acacias on ironstone substrates. Used to be known as sp. Bungaroo Creek (Wilson P. G., 2021).                                                                                                                                                      |
| <i>Iotasperma sessilifolium</i>                                          | P3                        | Cracking clay, black loam. Edges of waterholes, plains.                                                                                                                                                                                                                                                          |
| <i>Oxalis</i> sp. Pilbara (M.E. Trudgen 12725)                           | P3                        | Brown sandy loam or clay. Gorge, ironstone outcrops, gully, shaded areas, creek lines (Biologic Environmental Services, 2024).                                                                                                                                                                                   |
| <i>Pentalepis trichodesmoides</i> subsp. <i>hispida</i>                  | P3                        | Found in <i>Triodia</i> hummock grasslands, often in the understorey of a shrubland of <i>Acacia</i> spp., <i>Gossypium</i> spp., <i>Senna</i> spp., <i>Brachychiton</i> spp. and <i>Eucalyptus</i> spp., on summits and slopes of low hills, on basaltic soils, at altitudes to 1150 m (Orchard & Cross, 2012). |
| <i>Rostellularia adscendens</i> var. <i>latifolia</i>                    | P3                        | Ironstone soils. Near creeks, rocky hills.                                                                                                                                                                                                                                                                       |
| <i>Streptoglossa</i> sp. Cracking clays (S. van Leeuwen et al. PBS 7353) | P3                        | Red brown sandy clay. Ironstone.                                                                                                                                                                                                                                                                                 |
| <i>Swainsona thompsoniana</i>                                            | P3                        | Inhabits open floodplains on heavy clay soils (Davis & Hurter, 2013).                                                                                                                                                                                                                                            |

| Species                                                       | Cons.<br>code <sup>1</sup> | Habitat <sup>2</sup>                                                                                                      |
|---------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)     | P3                         | Drainage lines, clay flats, crabhole flats and dark self mulching clays.                                                  |
| <i>Triodia</i> sp. Mt Ella (M.E. Trudgen 12739)               | P3                         | Light orange-brown, pebbly loam. Amongst rocks and outcrops, gully slopes.                                                |
| <i>Vittadinia</i> sp. Coondewanna Flats (S. van Leeuwen 4684) | P3                         | Plains with red-brown sandy clay and clay-loams, usually in association with low open woodland and frequently with mulga. |
| <i>Sida</i> sp. Barlee Range (S. van Leeuwen 1642)            | P4                         | Skeletal red soils pockets. Steep slope.                                                                                  |

1. DBCA P Priority

2. Habitat information sourced from (WAH, 1998) unless stated otherwise

### 4.3 Significant Fauna

The desktop assessment identified 44 conservation significant fauna species, including 24 bird, one fish, 12 mammal, and seven reptile species. The pre-survey likelihood assessment determined:

- Nine species have a high likelihood of occurrence, including one bird, five mammal and three reptile species
- Five species have a moderate likelihood of occurrence, including two bird, one invertebrate and two mammal species
- 14 species have a low likelihood of occurrence, including six bird, five mammal and three reptile species
- 19 species have a negligible likelihood of occurrence, including 15 bird, one fish, two invertebrate, and one reptile species.

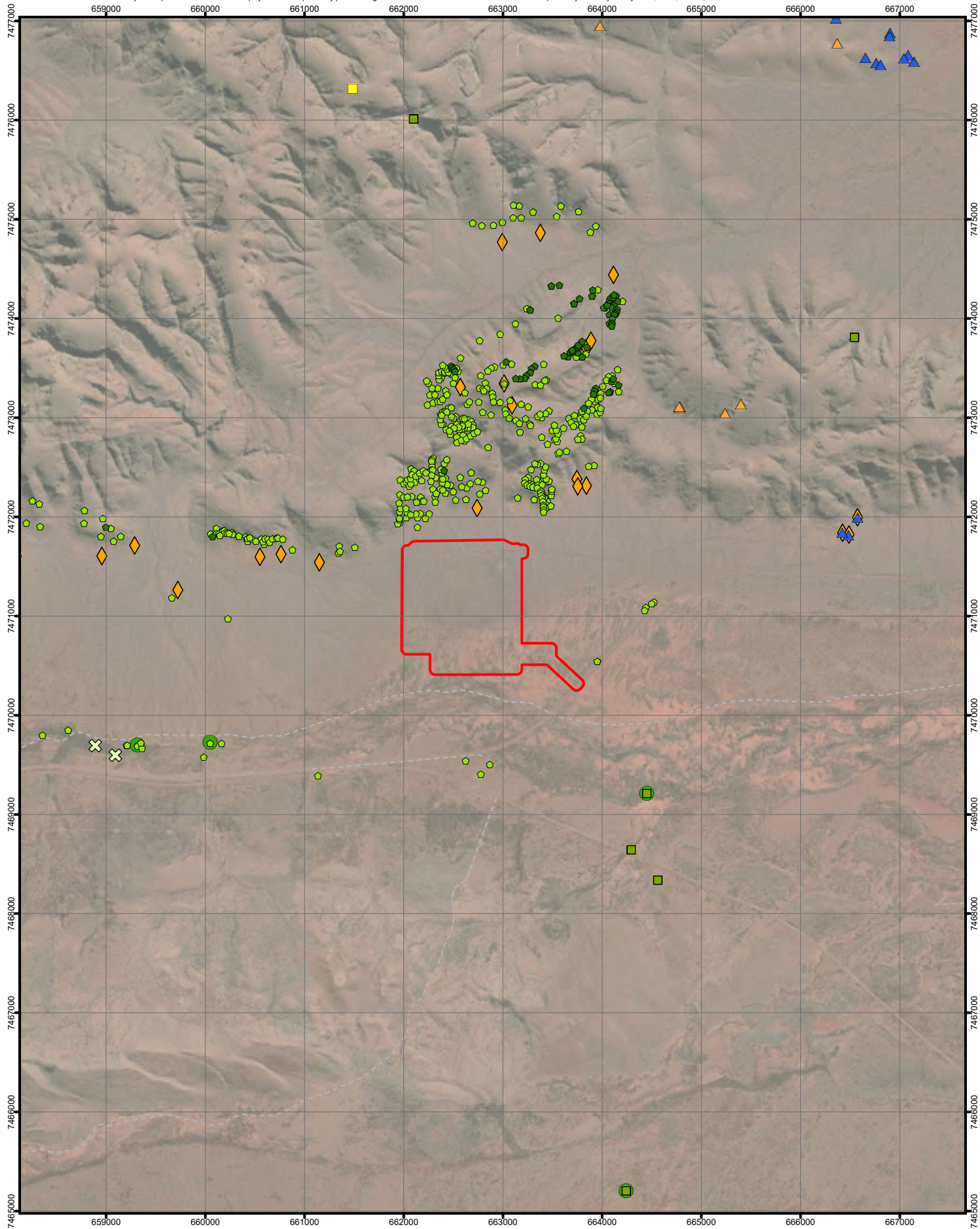
Species with a high and moderate likelihood to occur are described in Table 10. The comprehensive species list of the desktop fauna results is presented in Appendix C and includes a pre-survey and post-survey likelihood. All known locations of significant fauna identified in the desktop assessment are mapped in Figure 8.

Table 10 Significant fauna species considered to have high or moderate likelihood of occurrence

| Species                              | Common Name                                 | Cons. Code <sup>1</sup> |          | Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------|---------------------------------------------|-------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                      |                                             | BC Act/DBCA             | EPBC Act |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| High                                 |                                             |                         |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>Dasyurus hallucatus</i>           | Northern Quoll                              | EN                      | EN       | The Pilbara and further north through to the Kimberley (DSEWPaC, 2011). The species occupies rocky areas, deserts, eucalypt forests and woodlands, hummock grass ( <i>Plechtrachne</i> spp.), basalt hills, mesas, high and low plateaux, lower slopes, occasional visits fields and stony plains supporting spinifex grasslands (Braithwaite & Griffiths, 1994; Van Vreeswyk et al. 2004).                                                                                                                                                                                                                                                                                                           |
| <i>Leggadina lakedownensis</i>       | Short-tailed Mouse                          | P4                      |          | Known to occur on sandy soils and cracking clays in Western Australia (DBCA, n.d.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Lerista macropisthopus remota</i> | Unpatterned Robust Slider (Robertson Range) | P2                      |          | In soil beneath leaf litter, <i>Triodia</i> sandplain (WAM, 1996).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Liasis olivaceus barroni</i>      | Olive Python                                | VU                      | VU       | The Olive Python (Pilbara subspecies) prefers deep gorges and water holes in the ranges of the Pilbara region. The python recorded at the proposed shipping facility site was on a vehicle track adjacent to outcropping rocks and near to gullies. Radio-telemetry has shown that individuals spend the cooler winter months hiding in caves and rock crevices away from water sources. In the warmer summer months the pythons were found to move around widely, usually in close proximity to water and rock outcrops. Part of its habitat is conserved in Karijini National Park. This species occurs within the Rangelands (Western Australia) Natural Resource Management Region (DEWHA, 2008). |
| <i>Macroderma gigas</i>              | Ghost Bat                                   | VU                      | VU       | Northern Australia, inhabiting arid Pilbara to tropical savanna woodlands and rainforests rainforest, monsoon and vine thicket, open woodlands and arid areas and reside in caves, rock crevices and disused mine adits (DoE, 2016).                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>Macrotis lagotis</i>              | Bilby                                       | VU                      | VU       | Arid to semi-arid woodlands and hummock grasslands in the north of Australia, restricted to the Gibson, Little Sandy and Great Sandy Deserts, and parts of the Pilbara, Dampierland, Central Kimberley and Ord-Victoria Plains bioregions in Western Australia (Bradley et al. 2015).                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <i>Pezoporus occidentalis</i>        | Night Parrot                                | CR                      | CR       | Wiluna district of central Western Australia, and the Lake Gregory area of northern Western Australia (Olsen, 2018), in spinifex grasslands and/or chenopod shrublands (Garnett et al., 2011).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Species                                      | Common Name                | Cons. Code <sup>1</sup> |          | Habitat                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------|----------------------------|-------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                              |                            | BC Act/DBCA             | EPBC Act |                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Pseudomys chapmani</i>                    | Western Pebble-mound Mouse | P4                      |          | Pebbly soils in arid tussock grassland and acacia woodland of Western Australia, in hummock grasslands, <i>Triodia basedowii</i> , <i>Acacia</i> spp. and <i>Ptilotus</i> . It is associated with eroding sands and can be found in the Pilbara region in areas of rocky hummock grassland with little or no soil and an overstorey of <i>Acacia</i> spp. (Kitchener, 1983; Burbidge, 2016). |
| <i>Underwoodisaurus seorsus</i>              | Pilbara Barking Gecko      | P2                      |          | Known only from the Hamersley Range in the Pilbara region, they have been observed at the bottom of a rocky gorge with a low tree cover, with associated vegetation such as low sparse trees of <i>Eucalyptus leucophloia</i> , low shrubs of <i>Acacia pilbara</i> and <i>Triodia wiseana</i> (Doughty & Oliver, 2011).                                                                     |
| Moderate                                     |                            |                         |          |                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Falco hypoleucos</i>                      | Grey Falcon                | VU                      | VU       | Timbered lowland plains, including acacia shrublands, particularly with tree-lined watercourses, tussock grassland and open woodland (TSSC, 2020).                                                                                                                                                                                                                                           |
| <i>Falco peregrinus</i>                      | Peregrine Falcon           | OS                      |          | Rainforests, arid zones and coastal to alpine areas (BirdLife Australia, 2021).                                                                                                                                                                                                                                                                                                              |
| <i>Leporillus conditor</i>                   | Greater Stick-nest Rat     | VU                      | VU       | Southern arid and semi-arid regions of southern Australia including the local mountain ranges with perennial, semi-succulent shrubs. Greater stick-nest rats prefer dune and dune base habitats (DCCEEW, 2024).                                                                                                                                                                              |
| <i>Rhinioncteris aurantia</i> (Pilbara form) | Pilbara Leaf Nosed Bat     | VU                      | VU       | Occurs throughout the Pilbara and adjacent upper Gascoyne regions of Western Australia. This species relies on underground roosts supporting warm, high humidity microclimates. Only relatively deep, complex caves and disused underground mines contain such conditions - these are relatively uncommon and limit the area of occupancy of this species (TSSC, 2016).                      |

1. P Priority VU Vulnerable CR Critically Endangered EN Endangered S Other Specially Protected



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0 200 400 600 800  
metres  
GDA2020 MGA ZONE 50

DATA SOURCES Base Data: (s) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019)  
Service Layer Credits: Main Roads, World Imagery, Vector, Others, Minor Roads, Freeways & Highways, VMS

LEGEND

Survey Area

WA Herbarium database  
(WAHERB)

P2

P3

P3

Threatened and Priority Flora

database (TPFL)

Priority Flora (Rio Tinto)

P2

P3

P4

Priority Flora (Rio Tinto)

P3

Threatened Fauna database  
(DBCA)

Vulnerable

Priority 4

Priority Fauna (Rio Tinto)

P4

**Conservation Significant Flora and Fauna Desktop Results**

**RIO TINTO**

**WILDFLOWER CAMP FLORA,  
VEGETATION AND FAUNA HABITAT  
ASSESSMENT**

Figure

**8**

## 5.0 Field Survey Results

### 5.1 Vegetation

#### 5.1.1 Communities

Two native vegetation communities were described and mapped:

- AaSaTm: Open Mulga woodland over hummock grasses and mixed tussock grasses on clay plains
- EgHgTp: *Eucalyptus gamophylla* mallee woodland over mixed shrubs on undulating stony plains.

Two non-native/modified communities were mapped, including Cleared, areas with no native species, and areas of Rehabilitation. Vegetation communities are described in Table 11 and mapped in Figure 9.

Analysis of floristic data was undertaken using sample site data and foliage cover as described in Section 3.2.2.2. Results of the floristic analysis is presented in Plate 1 and show clear groupings representative of the two vegetation communities.

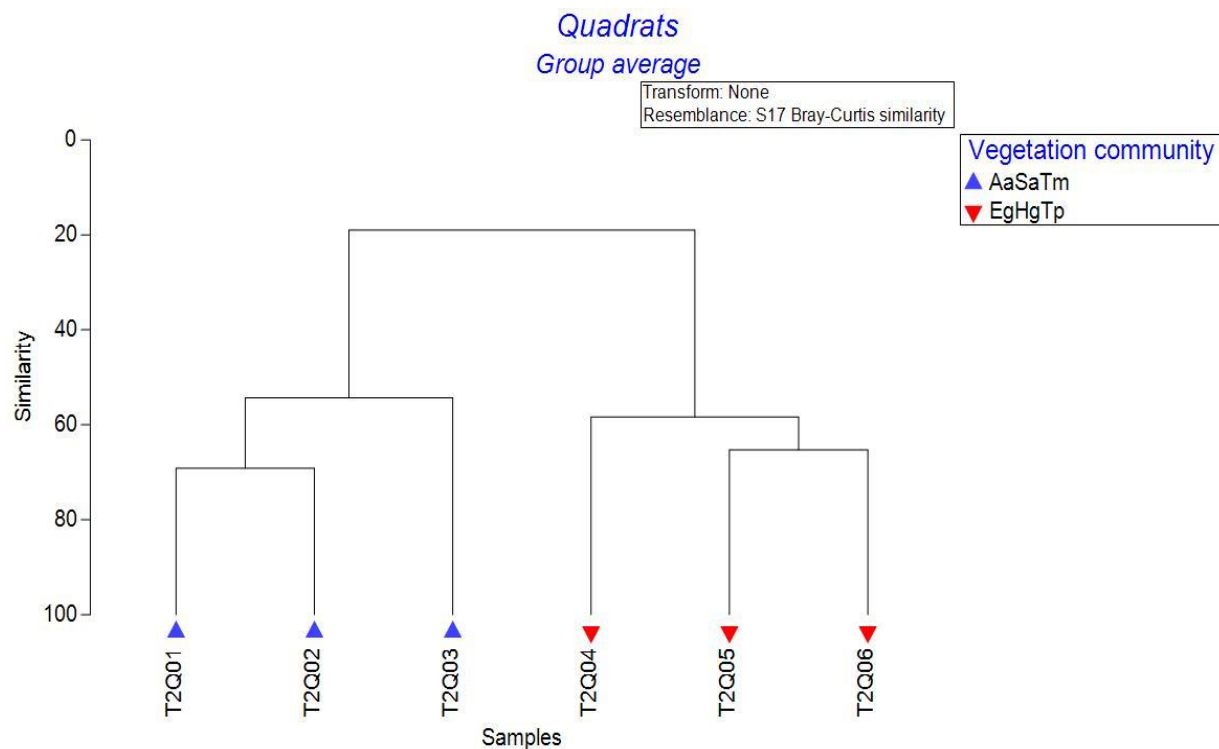
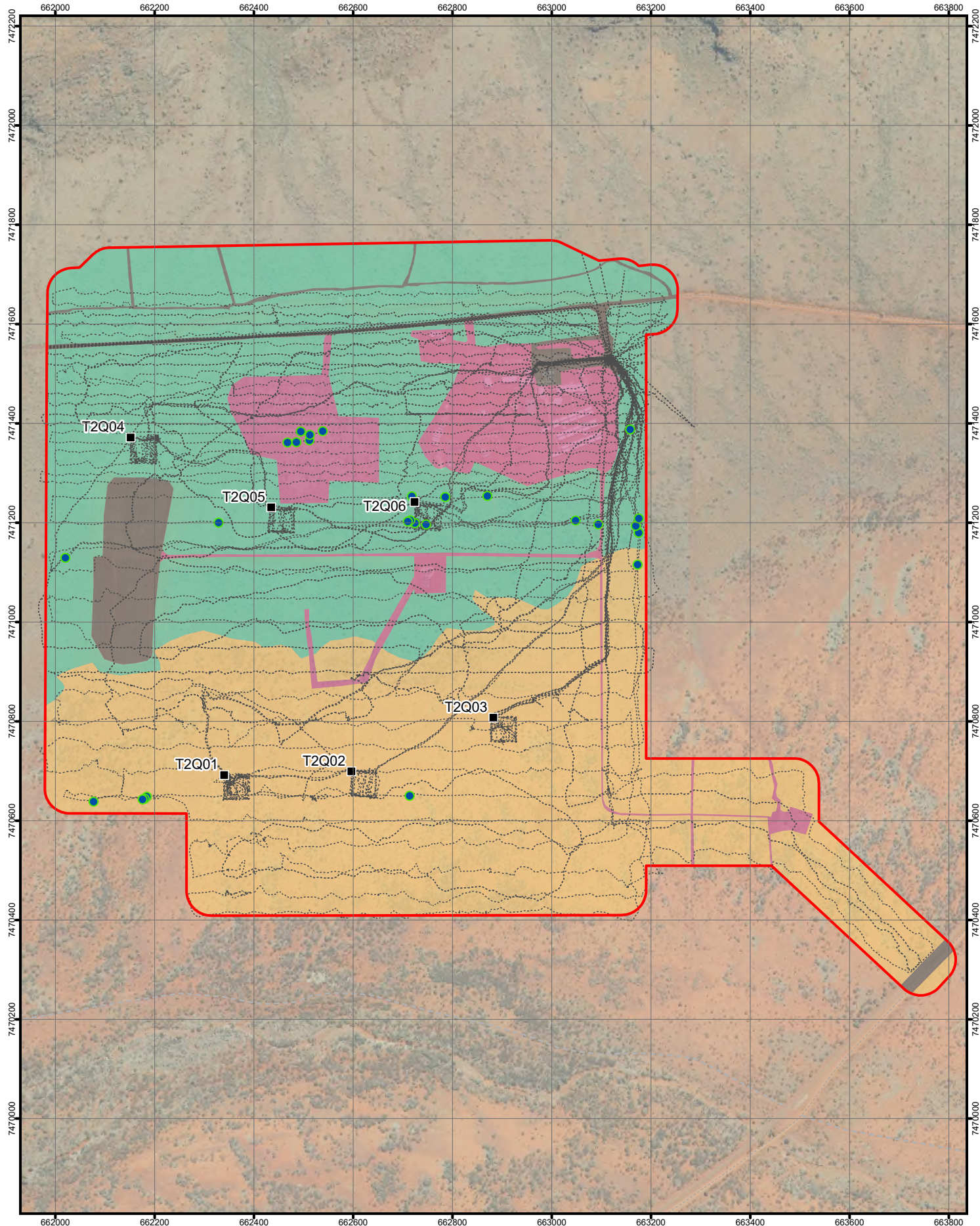


**Plate 1** Similarity of sample sites using Bray-Curtis similarity index on foliage cover data symbolised by vegetation community

Table 11 Vegetation community descriptions, details and photographs

| Vegetation unit code and description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Survey effort, diversity and extent                                                                                                                                               | Photograph                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b>AaSaTm</b><br/> <b>Acacia aptaneura low open woodland</b></p> <p><i>Acacia aptaneura</i> low woodland to open woodland over <i>Salsola australis</i>, <i>Sclerolaena tetragona</i> and <i>Sida platycalyx</i> low open shrubland to scattered low shrubs over <i>Triodia melvillei</i> scattered hummock grasses over <i>Aristida inaequiglumis</i>, <i>Aristida contorta</i> and <i>Chrysopogon fallax</i> very open tussock grassland over <i>Lepidium echinatum</i> scattered herbs.</p> <p>Recorded in the southern half of the survey area on clay plains.</p>                                                                                 | <p>Survey effort: T2Q01, T2Q02, T2Q03</p> <p>Diversity: 64 native and three weed species</p> <p>Extent: 73.87 ha, 44% of survey area</p> <p>Condition: Excellent to Very Good</p> |   |
| <p><b>EgHgTp</b><br/> <b>Eucalyptus gamophylla mallee woodland</b></p> <p><i>Corymbia deserticola</i> scattered low trees over <i>Eucalyptus gamophylla</i> low open mallee woodland over <i>Halgania gustafsenii</i> var. <i>gustafsenii</i> and <i>Scaevola parvifolia</i> ?subsp. <i>parvifolia</i> scattered low shrubs over <i>Triodia pungens</i> very open hummock grassland to scattered hummock grasses over <i>Eulalia aurea</i>, <i>Themeda triandra</i> and <i>Aristida holathera</i> var. <i>holathera</i> very open to scattered tussock grassland.</p> <p>Recorded in the northern half of the survey area on undulating stony plains.</p> | <p>Survey effort: T2Q04, T2Q05, T2Q06</p> <p>Diversity: 76 native and two weed species</p> <p>Extent: 70.76 ha, 42% of survey area</p> <p>Condition: Excellent to Good</p>        |  |
| <p><b>Cleared</b><br/> Highly modified/cleared areas devoid of native species</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Extent: 7.77 ha, 4% of survey area</p>                                                                                                                                         |                                                                                      |
| <p><b>Rehabilitation</b><br/> Areas previously cleared for camp infrastructure and then rehabilitated<br/> Ripping is evident.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Extent: 17.21 ha, 10% of the survey area</p> <p>Condition: Very Good to Poor</p>                                                                                               |                                                                                      |



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GDA2020 MGA ZONE 50  
0 50 100 150 200 metres

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Service Layer Credits: Main Roads, World Imagery, Vector, Others, Minor Roads, Freeways & Highways, WMS.

LEGEND

Survey Area

Quadrat

Significant Flora

Vittadinia sp. Coondewanna Flats, P3

Tracklogs

Vegetation Community

AaSaTm

EgHgTp

Rehabilitation

Cleared

Survey Effort, Vegetation Communities and Significant Flora

RIO TINTO

WILDFLOWER CAMP FLORA, VEGETATION AND FAUNA HABITAT ASSESSMENT

Figure

9

### 5.1.2 Significant Vegetation

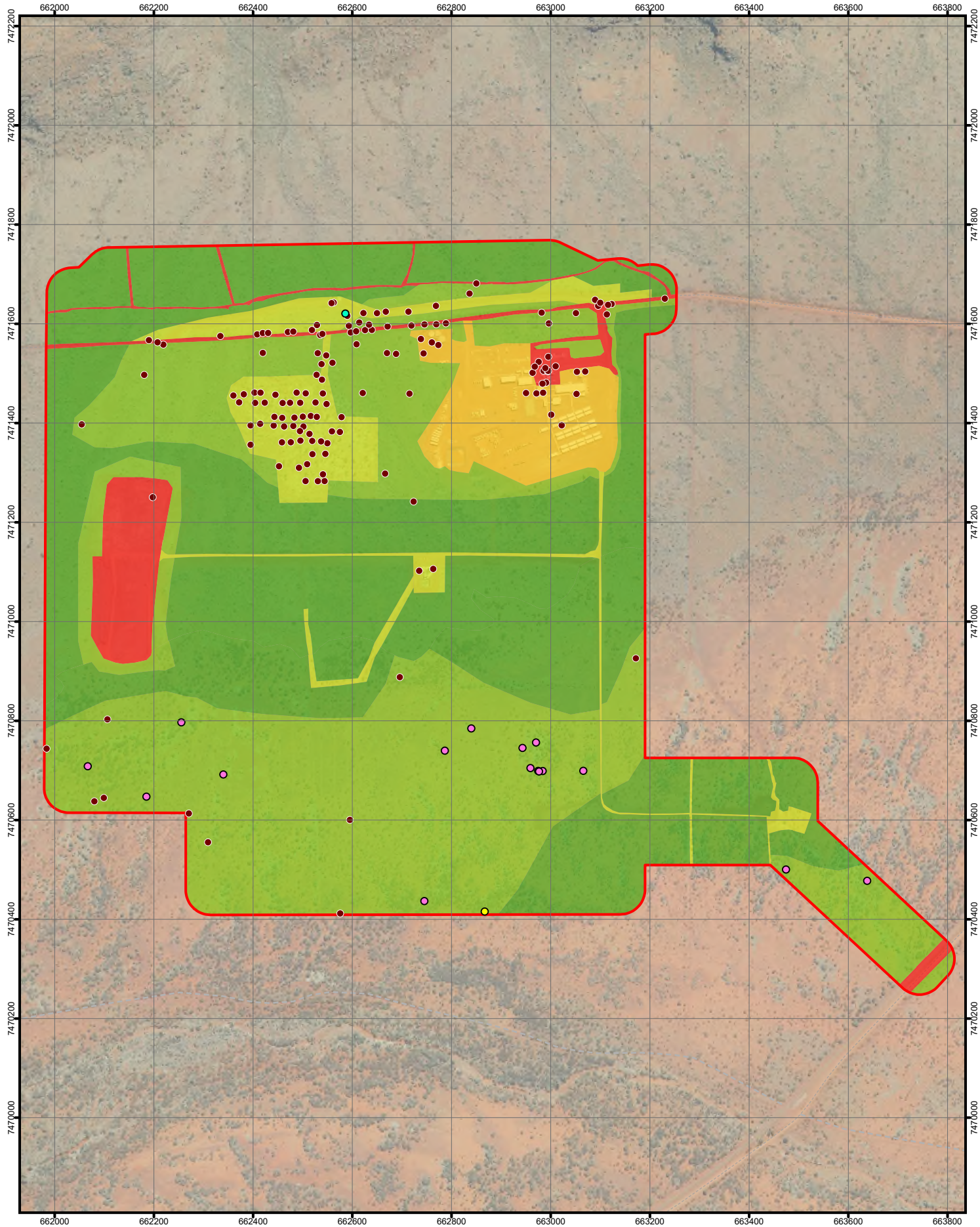
The assessment of significant vegetation was considered using the EPA Environmental Factor Guideline for Flora and Vegetation (EPA, 2016b). None of the vegetation associations recorded within the survey area are analogous with any Commonwealth or State listed TECs, or PECs listed by DBCA. Likewise, none of the vegetation associations recorded are restricted in distribution or provide a role as refuge, nor are any representative of groundwater dependent ecosystems.

### 5.1.3 Condition

The vegetation condition of the survey area ranged from Excellent to Completely Degraded, with the majority mapped as Excellent and Very Good. Disturbance was evident from old camp infrastructure, rehabilitation of varying ages, old roads and tracks, an old borrow pit, weed invasion and evidence of grazing. Adjacent infrastructure has also altered hydrology. No evidence of recent fire was observed in the survey area. Condition extent is described in Table 12 and mapped in Figure 10.

**Table 12 Condition extent within survey area**

| Condition Rating    | Extent (ha)   | Percent of Survey Area |
|---------------------|---------------|------------------------|
| Excellent           | 73.79         | 44%                    |
| Very Good           | 67.57         | 40%                    |
| Good                | 11.63         | 7%                     |
| Poor                | 8.85          | 5%                     |
| Completely Degraded | 7.77          | 4%                     |
| <b>Total</b>        | <b>169.61</b> | <b>100%</b>            |



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0

50

100

150

200

metres

GDA2020 MGA ZONE 50

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DATA SOURCES Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019)

Service Layer Credits: Main Roads, World Imagery, Vector, Others, Minor Roads, Freeways & Highways, VMMS

LEGEND

Survey Area

Quadrat

Weeds

*\*Bidens bipinnata*

*\*Cenchrus ciliaris*

*\*Malvastrum americanum*

*\*Melinis repens*

Vegetation Condition

0.1 - Completely Degraded

0.4 - Poor

0.6 - Good

0.8 - Very Good

1 - Excellent

Vegetation Condition

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WILDFLOWER CAMP FLORA,  
VEGETATION AND FAUNA HABITAT  
ASSESSMENT

Figure

10

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A4 size

5.2 Flora

5.2.1 Flora Diversity

A total of 120 flora species were recorded during the survey, including four weed species, one Priority 3 species, and one range extension of 150 km.

The 116 native flora species represented 76 genera and 29 families. The most taxon rich families included Poaceae (24 native species), Fabaceae (15 native species) and Malvaceae (13 native species). The four weed species represented common Pilbara weeds.

The species by family by community matrix is presented in Appendix D. Quadrat data is presented in Appendix E.

The species accumulation curve (Plate 2) demonstrates a steady increase, approaching a plateau. Estimated native species richness ranged from 125 to 154, with an observed value of 111 native taxa across quadrats, and 116 native taxa inclusive of mapping notes and opportunistic observations. Richness estimates indicate that 80%-89% of total native flora was sampled and 83%-93% of total native flora was recorded across the survey area (Table 13).

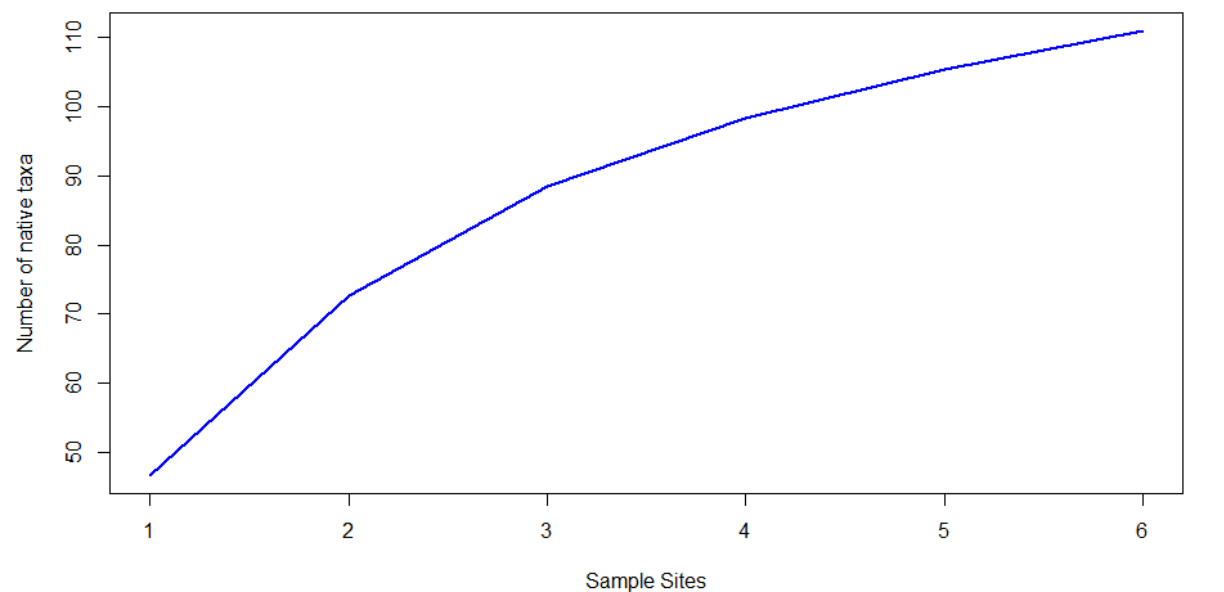


Plate 2 Species accumulation curve

Table 13 Species richness estimators

| Treatment  | Estimated number of species<br>(± standard deviation) | % Estimated richness<br>(sample sites) | % Estimated richness (all) |
|------------|-------------------------------------------------------|----------------------------------------|----------------------------|
| Chao1      | 136 ± 11                                              | 82%                                    | 85%                        |
| Jackknife1 | 139 ± 14                                              | 80%                                    | 83%                        |
| Bootstrap  | 125 ± 8                                               | 89%                                    | 93%                        |

### 5.2.2 Significant Flora

#### ***Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684) (P3)**

*Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684) is an annual herb species that has been recorded on floodplains around Karijini National Park (WAH, 1998). A total of 91 individuals were recorded at 27 locations within the survey area (Figure 9). It was recorded within both vegetation types, as well as on rehabilitated land. One specimen (CLR250410-04) was collected and verified by the Rio Tinto sponsored taxonomist at the WA Herbarium (Plate 3).



**Plate 3** *Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684) (P3) habitat (left) and habit with GPS for scale (right)

### 5.2.3 Other Flora

One range extension was recorded, described below.

*Halgania erecta* was recorded and collected (CM250409-47) and verified by the Rio Tinto sponsored taxonomist, Steve Dillon, at the WA Herbarium. It was recorded at one location in T2Q04 associated with *Eucalyptus gamophylla* mallee woodland EgHgTp. This species is an erect woody shrub and is better known from the Gibson Desert, Great Victoria Desert, Little Sandy Desert, Gascoyne and the Murchison bioregions. The nearest record is more than 150 km south of the survey area.

Three specimens were unable to be identified to species level:

- *Aristida* sp. Indet
- *Corchorus* ?*lasiocarpus*
- *Scaevola parvifolia* ?subsp. *parvifolia*.

### 5.2.4 Introduced Species

Four introduced species were recorded during the survey, and are displayed on Figure 10:

- *\*Bidens bipinnata* (estimated 405 individuals)
- *\*Cenchrus ciliaris* (estimated 1 individual)
- *\*Malvastrum americanum* (estimated 10 individuals)
- *\*Melinis repens* (estimated 1,695 individuals).

The introduced species recorded during the survey represent common Pilbara weeds. None of the recorded weeds species are listed as a Weed of National Significance (WoNS), or under the Biodiversity and Agriculture Management Act 2007 (BAM Act).

## 5.3 Fauna

### 5.3.1 Fauna Observations

Two mammal species, Domestic Cattle (*Bos taurus*) and Camel (*Camelus dromedarius*), two reptile species; Ring-tailed Dragon (*Ctenophorus caudicinctus*) and Long-nosed Dragon (*Gowidon longirostris*), and 34 bird species were recorded opportunistically during the survey.

The Whistling Kite (*Haliastur sphenurus*), listed as marine under the EPBC Act, was recorded. No conservation significant fauna species listed under the EPBC Act, BC Act or by DBCA were recorded during the survey.

Three observations of reptiles were unable to be identified to genus level.

Two inactive Western Pebble-mound Mouse mounds (*Pseudomys chapmani*; P4) were recorded in the north of the survey area (Plate 4). The complete list of fauna species observed during the survey is presented in Appendix F and displayed on Figure 11.



Plate 4 Western Pebble-mound Mouse mound (*Pseudomys chapmani*; P4) (left) and typical habitat (right)

### 5.3.2 Fauna Habitats

Four fauna habitats were mapped in the survey area including:

- Clay Plain (with Mulga Woodland microhabitat)
- Stony Plain
- Rehab
- Disturbed.

Habitats were assessed and named in accordance with the RTIO Fauna Habitat Guidelines and Definitions V2 (2023).

Fauna habitats were assessed for their suitability as habitat for conservation significant fauna. The categories assigned to conservation significant species identified in the desktop assessment included:

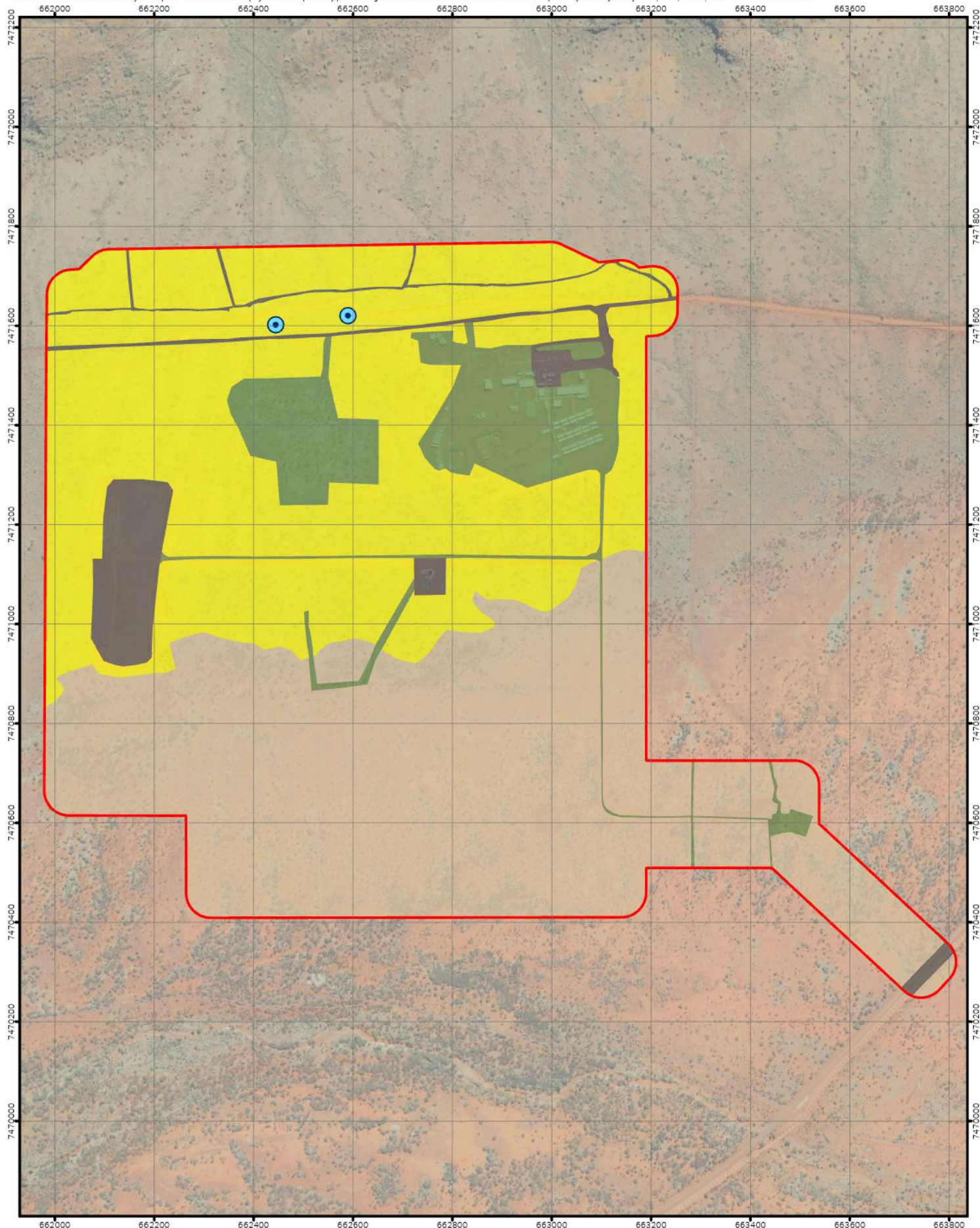
- Critical habitat – Species likely to occur, habitat essential for reproduction, denning or survival, as defined in the species recovery plan or conservation advice.
- Suitable habitat – Species may occur, habitat structure and resources align with known species preferences.
- Supporting habitat – Species may occur, habitat likely used opportunistically or seasonally for foraging, dispersal, or movement between core areas.
- Marginal habitat – Species unlikely to rely on the habitat, provides limited resources and is unlikely to support long-term occupation.

Fauna habitats are described in Table 14 and mapped on Figure 11.

**Table 14 Fauna habitats of the survey area**

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Conservation Significant Fauna Habitat                                                                                                                                                                                                                                                                                                                                                                                                                           | Photograph of Representative Habitat                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Clay Plain (Extent: 73.71 ha)</b></p> <p>This habitat is characterised by scattered native shrubs over hummock grasses on lower slopes. Substrate is clay loam. Groundcover is low to moderate.</p> <p>Microhabitat: Mulga Woodland</p> <p>The Mulga Woodland habitat is scattered throughout the Clay Plain habitat. In this microhabitat there are stands of mulga on clay substrates and a high density of grass understory that provide shelter and foraging resources.</p> | <p>Suitable habitat for:</p> <ul style="list-style-type: none"> <li>• Short-tailed Mouse (foraging, dispersal)</li> <li>• Unpatterned Robust Slider (especially in Mulga woodland microhabitat, foraging and dispersal)</li> </ul> <p>Supporting habitat:</p> <ul style="list-style-type: none"> <li>• Greater Bilby (foraging, burrowing if substrate is soft enough)</li> <li>• Pilbara Leaf Nosed Bat (foraging)</li> <li>• Grey Falcon (foraging)</li> </ul> |  <p><b>Mulga Woodland Microhabitat</b></p>  |

| Description                                                                                                                                                                                                                                                                                     | Conservation Significant Fauna Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Photograph of Representative Habitat                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b>Stony Plain (Extent: 70.93 ha)</b></p> <p>This habitat is characterised by stony and pebbly substrate with a moderate cover of grasses including <i>Triodia</i> spp. with scattered low trees of <i>Eucalypt</i> spp. Fire-age varies between 2 and 10 years across the habitat type.</p> | <p>Suitable habitat for:</p> <ul style="list-style-type: none"> <li>Western Pebble-mound Mouse (Pebble-mounds, dispersal)</li> </ul> <p>Supporting habitat for:</p> <ul style="list-style-type: none"> <li>Northern Quoll (foraging)</li> <li>Night Parrot (seasonal foraging)</li> <li>Pilbara Olive Python (foraging)</li> <li>Ghost Bat (foraging)</li> <li>Pilbara Leaf Nosed Bat (foraging)</li> <li>Grey Falcon (foraging)</li> </ul>                                                            |   |
| <p><b>Rehab (Extent: 16.73 ha)</b></p> <p>Rehabilitation of previously cleared areas of varying quality. Ripping is still evident. Mix of <i>Acacia</i>, <i>Triodia</i> and <i>Eucalypt</i> spp. regrowth. The dominating habitat type under rehabilitation is Stony Plain.</p>                 | <p>Depending on progress of rehabilitation.</p> <p>Suitable habitat for:</p> <ul style="list-style-type: none"> <li>Western Pebble-mound Mouse (Pebble-mounds - dispersal, foraging)</li> </ul> <p>Supporting habitat for:</p> <ul style="list-style-type: none"> <li>Northern Quoll (foraging)</li> <li>Night Parrot (seasonal foraging)</li> <li>Pilbara Olive Python (foraging)</li> <li>Ghost Bat (foraging)</li> <li>Pilbara Leaf Nosed Bat (foraging)</li> <li>Grey Falcon (foraging)</li> </ul> |  |
| <p><b>Disturbed (Extent: 8.24 ha)</b></p> <p>Areas substantially modified by earthworks, clearing or other anthropogenic activity. Vegetation cover is patchy or absent, soils may be compacted, and overall habitat value is generally low. Opportunistic species may use this area.</p>       | <p>Supporting habitat for highly mobile species.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>No image</p>                                                                      |



**AECOM** Delivering a better world

PROJECT ID 60742977 CREATED BY JOHNSTONES2  
DATE MODIFIED 18 MAY 2026 APPROVED BY C. MITCHELL

1:10,000  
metres  
GDA2020 MGA ZONE 50

DATA SOURCES: Base Data (S) Based on information provided by and with the permission of the Western Australian Government Authority (Indigenous Land Use Group) 2018  
Service Layer Credits: Other: Minor Roads; Main Roads; Freeways & Highways; JMS; World Imagery; Vector

#### LEGEND

Survey Area

Pebble-mound Mouse observation (*Pseudomys chapmani*, P4)

#### Fauna Habitat

Clay Plain

Disturbed

Rehab

Stony Plain

#### Significant Fauna and Fauna Habitats

##### RIO TINTO

**WILDFLOWER CAMP FLORA,  
VEGETATION AND FAUNA HABITAT  
ASSESSMENT**

Figure  
**11**

## 6.0 Discussion

### 6.1 Vegetation

The survey area encompasses the old Wildflower Camp site and includes 144.63 ha of intact native vegetation and remnant infrastructure such as fences, cleared tracks, a generator and buildings. Other disturbances include abundant weed populations, in particular *Melinis repens*, and grazing from cattle, which likely contribute to the spread of weed seeds.

The survey area is described as having subdued relief, with gentle undulating terrain of predominantly sandy clay soils. Two native vegetation communities and two modified communities (Cleared and Rehabilitation) were defined and mapped. Vegetation comprises AaSaTm Open Mulga Woodland (73.87 ha) in the southern half and EgHgTp *Eucalyptus gamophylla* Mallee Woodland (70.76 ha) in the northern half of the survey area. Rehabilitated areas (17.21 ha) were areas previously cleared for camp infrastructure and were in varying stages of vegetation regeneration. Roads and Tracks (7.77 ha) represent cleared or otherwise modified areas that do not support any native vegetation.

No Threatened or Priority Ecological Communities (TECs or PECs) are known to intersect with the survey area, none have been identified in previous surveys, and none were recorded during this survey.

The vegetation communities are homogenous in the wider area as demonstrated by mapping undertaken in adjacent projects (Trudgen, 1988; Biota Environmental Sciences, 2008a; Biota Environmental Sciences, 2008b; Biota Environmental Sciences, 2008c; Pilbara Flora, 2012; ecologia Environment, 2012; Rio Tinto, 2016). They represent vegetation communities typical for the Pilbara. None of the vegetation is considered locally or regionally significant as defined in the Technical Guidance (EPA, 2016a).

### 6.2 Flora

Flora diversity in the survey area is typical for the region, with the cumulative flora inventory of 120 species from 29 families. This total includes 116 native flora and four introduced species. The diversity recorded in this survey is less than similar sized surveys in the same area of the Pilbara (Table 15). This could be attributed to variation in seasonal conditions prior to survey as well as the relative homogeneity of vegetation communities and landforms within the survey area compared to previous surveys.

**Table 15 Flora diversity comparison**

| Survey                               | Native taxa | Introduced taxa | Survey area (ha) |
|--------------------------------------|-------------|-----------------|------------------|
| Biota Environmental Sciences (2008a) | 138         | 5               | 144              |
| Biota Environmental Sciences (2008b) | 320         | 11              | 9,008            |
| Ecologia Environment (2012)          | 271         | 9               | 837.8            |
| Pilbara Flora (2012)                 | 298         | 9               | 2,357            |
| Rio Tinto (2016)                     | 185         | 1               | 546.4            |

One Priority species was recorded within the survey area. *Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684) is a Priority 3 annual herb that was recorded throughout the survey area, with the majority of the records collected within the EgHgTp vegetation community (55 individuals). This aligns with the species habitat preference of sandy clay plains in association with low open woodland and mulga (DPaW & Rio Tinto, 2015). There are six DBCA records, six verified TPFL records and 45 Rio Tinto records from previous surveys within 5 km of the survey area, with the closest record occurring approximately 1 km south east of the survey area.

Sixteen Priority species had a high pre-survey likelihood of occurrence and were not recorded during the survey. These are discussed below.

*Aristida jerichoensis* var. *subspinulifera* (P3) is an annual grass associated with hardpan plains with open *Acacia* woodland over *Triodia* and other grasses (DPaW & Rio Tinto, 2015). It has been recorded by Rio Tinto in previous surveys as recent as 2019 as occurring 300 m northeast of the survey area. There is one DBCA record and one verified TPLF population approximately 5 km south of the survey area. The survey area contains habitat consistent with *Acacia* woodlands, however no individuals were recorded. One collection (CM250408-44) of *Aristida* sp. Indet was unable to be identified to a species level due to immature material. The post-survey likelihood has been reduced to low.

*Aristida lazaridis* (P3) is a perennial grass recorded from hard spinifex hummock grassland and is characterised by having a very open inflorescence (DPaW & Rio Tinto, 2015). As the survey took place during the ideal flowering time for this species, and due to its distinctive features, it would have been detectable by botanists during this survey. The post-survey likelihood has been reduced to low.

*Eremophila pusilliflora* (P3; P2 at the time of survey) is a low growing open shrub associated with sandy loam soils on seasonally inundated alluvial plains (DPaW & Rio Tinto, 2015). There is one DBCA record from 1977 approximately 7 km southeast of the survey area, and one TPFL verified population approximately 28 km southwest of the survey area. There is one Rio Tinto record from a previous survey in 2024 approximately 19 km southwest of the survey area. The survey area contains habitat consistent with alluvial plains and sheetwash, however no individuals were recorded. The post-survey likelihood has been reduced to negligible.

*Euphorbia australis* var. *glabra* (P3), *Euphorbia inappendiculata* var. *queenslandica* (P3), *Iotasperma sessilifolium* (P3), *Streptoglossa* sp. Cracking clays (S. van Leeuwen et al. PBS 7353) (P3), and *Swainsona thompsoniana* (P3) are annual herb species associated with cracking clay habitats. This cracking clay habitat was not recorded within the survey area therefore the post-survey likelihood for these five species has been reduced to negligible.

*Oxalis* sp. Pilbara (M.E. Trudgen 12725) (P3) and *Rostellularia adscendens* var. *latifolia* (P3) are perennial herbs associated with sheltered and shaded areas around rocky ridges and gullies. These habitats were not recorded within the survey area therefore the post-survey likelihood has been reduced to negligible.

*Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3) is a perennial grass species associated with drainage lines, clay flats and crabhole plains (DPaW & Rio Tinto, 2015). Three specimens were collected and identified as *Themeda triandra*. As cracking clay habitats were not recorded within the survey area, the post-survey likelihood has been reduced to negligible.

The lack of skeletal soils, and high-altitude rocky slopes within the survey area meant that there was no suitable habitat for the perennial species *Acacia effusa* (P3), *Indigofera rivularis* (P3), *Pentalepis trichodesmoides* subsp. *hispida* (P3), *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P4), and *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (P3). These species have records within 12 km of the survey area due to the proximity of the Hamersley Ranges where all of these are known to occur. No suitable habitat was recorded in the survey area therefore the post-survey likelihood has been reduced to negligible.

One range extension was recorded. *Halganina erecta* was recorded and collected (CM250409-47) and verified by the Rio Tinto sponsored taxonomist, Steve Dillon, at the WA Herbarium. It was recorded at one location in T2Q04 associated with *Eucalyptus gamophylla* mallee woodland EgHgTp. This species is an erect woody shrub and is better known from the Gibson Desert, Great Victoria Desert, Little Sandy Desert, Gascoyne and the Murchison bioregions. The nearest record is more than 150 km south of the survey area.

### 6.3 Fauna

This section discusses conservation significant vertebrate fauna species that have a high and moderate likelihood of occurring in the survey area. These species were identified through desktop assessments and/or field observations.

The Northern Quoll (*Dasyurus hallucatus*) is listed as Endangered under the EPBC Act and BC Act. There are 521 DBCA and 317 Rio Tinto records with the closest within 36 km and 9 km of the survey area respectively. The Northern Quoll primarily utilises rocky hills, slopes and rock piles which provide foraging opportunities, shelter and denning sites, and they may opportunistically forage in less rugged habitats according to season and availability (Hill & Ward, 2010). Stony plain and Mulga Woodland microhabitat within the Clay Plain habitat offer supporting habitat for the Northern Quoll for opportunistic foraging within the survey area. Most regional records are associated with the Hamersley Ranges, which provide higher quality habitat and better protection from feral predators. The species may occur as a transient visitor and may use the survey area opportunistically when foraging resources are available, but it is unlikely that the species will rely on the habitat for survival. The likelihood has been reduced to moderate.

The Grey Falcon (*Falco hypoleucos*) is listed as Vulnerable under the BC Act and EPBC Act. There are seven records in the DBCA database and one record in the Rio Tinto database with the closest recorded 16 km from the survey area. The species frequents lowland plains, particularly *Acacia* shrublands that are crossed by tree-lined water courses. The species has been observed hunting in treeless areas and in tussock grassland and open woodland (TSSC, 2020). This avian species is highly mobile and may utilise the survey area as a vagrant visitor based on proximity of known records and habitat suitability. It is unlikely that the species will rely on the habitat for survival. The post-survey likelihood remains moderate.

The Peregrine Falcon (*Falco peregrinus*) is listed as Other Specially Protected Fauna under the BC Act. There are 30 records in the DBCA database and 16 records in the Rio Tinto database recorded within 7 km and 38 km respectively of the survey area. The Peregrine Falcon uses a range of environments for hunting and is often associated with hilly country (Storr, 1984). This habitat is consistent with the fauna records from the Hamersley Ranges where they were observed amongst the ranges and hills. The habitat in the survey area is considered marginal for the species and may be exploited by the Peregrine Falcon when prey is abundant. The likelihood has been reduced to low.

The Short-Tailed Mouse (*Leggadina lakedownensis*) is a Priority 4 species with 75 records in the DBCA database. Four records occur within 40 km of the survey area and the closest within 13 km. It occupies a diverse range of environments including dry tussock and hummock grasslands, *Acacia* woodlands, and open woodlands on heavy clay and sandy soils, often subject to seasonal inundation (DBCA, n.d.; Moro & Kutt, 2008). the tussock grasses and Mulga Woodlands of the Clay Plain represent suitable habitat for the Short-tailed Mouse. The post-survey likelihood remains high.

The Greater Stick-nest Rat (*Leporillus conditor*) is listed as Conservation Dependent under the BC Act and Vulnerable under the EPBC Act. There are three records in the DBCA database with the closest recorded approximately 19 km from the survey area. The plausibility of these records was questionable, as the species is considered extinct on the mainland except for managed populations within feral-predator-proof fenced reserves and a few predator-free offshore islands (DCCEEW, 2008). Historically the species occurred across much of the semi-arid and southern arid zones, inhabiting perennial shrublands, particularly those dominated by succulent and semi-succulent plant species (DCCEEW, 2008). DBCA recently confirmed that these records likely reflect a misidentification and have been removed from their dataset (J. Ross (DBCA) pers. Comm, 26 August 2025). The likelihood has been reduced to negligible.

The Unpatterned Robust Slider (*Lerista macropisthopus remota*) is a Priority 2 species with two records in the DBCA database. The closest record occurs approximately 47 km from the survey area. This species occupies *Acacia* shrublands and woodlands in semi-arid to arid habitats (Wilson & Swan, 2021). Limited data exists for the Unpatterned Robust Slider and its only known from a few locations and specimens. Considering that the survey area is in the suitable climate region and contains suitable habitat within the Clay Plain habitat and Mulga Woodland microhabitat, the post-survey likelihood remains high.

The Pilbara Olive Python (*Liasis olivaceus barroni*) is listed as Vulnerable under the EPBC Act and BC Act. There are 50 records in the DBCA database, with eight records within 40 km and the closest recorded approximately 16 km from the survey area. The Pilbara Olive Python is associated with rocky environments such as escarpments, gorges, rock piles and waterholes (DEWHA, 2008). Most records occur within the ranges and gorges of Karijini National Park and surrounding area, which are considered critical habitat for the species. While the Pilbara Olive Python may occur as an occasional transient visitor to the survey area, suitable shelter is limited. Given the large extent of preferred habitat in the surrounding landscape, the post-survey likelihood has been reduced to low.

The Ghost Bat (*Macroderma gigas*) is listed as Vulnerable under the EPBC Act and BC Act, with 447 records in the DBCA database and 209 records in the Rio Tinto database. There are 29 DBCA records within 10 km of the survey area and the closest within 2 km. The closest Rio Tinto record occurs within 27 km of the survey area. It inhabits open woodlands and arid areas, roosting in caves, rock crevices and disused mine adits (DoE, 2016). The survey area does not support diurnal roost for the species, but considering there are confirmed records in close proximity within the ranges of Karijini National Park and the species is known to forage up to 12 km of their diurnal roosts, foraging may occur in the survey area (Bullen, 2021). The post-survey likelihood remains high.

The Greater Bilby (*Macrotis lagotis*) is listed as Vulnerable under the EPBC Act and BC Act. There are six records in the DBCA database with the closest recorded 10 km from the survey area. All records are more than 20 years old. This species is associated with sandy plains but can also burrow and forage in softer stony substrates where conditions allow (DCCEEW, 2023). No critical habitat as described in the conservation advice is present in the survey area. Suitable foraging habitat in the form of sandy substrates are also largely absent, and no burrows or signs of activity were recorded during the survey. The likelihood has been reduced to low.

The Night Parrot (*Pezoporus occidentalis*) is listed as Critically Endangered under the BC Act and EPBC Act. The closest confirmed records are 30 km from the survey area dated 2017. Night Parrots are strongly associated with long-unburnt old-growth spinifex (*Triodia* spp.), typically > 20 years unburnt, which they rely on for diurnal roosting and nesting. The fire age of the spinifex in the survey area is estimated at 2-10 years, rendering it unsuitable for these purposes. The survey area may provide marginal seasonal foraging habitat, particularly when spinifex is seeding, however foraging is usually within 10 km of suitable roosting and nesting habitat (DPaW, 2017; DCCEEW, 2025). Considering the lack of critical habitat required for ongoing use within the survey area, the post-survey likelihood was reduced to low.

The Western Pebble-mound Mouse (*Pseudomys chapmani*) is a Priority 4 species. There are 647 records in the DBCA database and 1,187 records in the Rio Tinto database with the closest recorded 320 metres from survey area. This species is associated with pebbly soils in arid tussock grassland and *Acacia* woodland (Burbidge, 2016). The Stony Plain habitat within the survey area contains suitable substrates and suitable habitat for the species. Two old Western Pebble-mound Mouse mounds were recorded in the Stony Plain habitat. The post-survey likelihood remains high.

The Pilbara Leaf Nosed Bat (*Rhinonictis aurantia* Pilbara form) is listed as Vulnerable under the BC Act and EPBC Act. There are 167 records in the DBCA database and 572 records in the Rio Tinto database, of those records are 11 DBCA records and 3 Rio Tinto records within 30 km of the survey area, with the closest recorded within 20 km. Nearby records are mostly associated with gorges and gullies. The species depends on warm, humid underground diurnal roosts to maintain heat and water balance, which are critical for their survival in the Pilbara (TSSC, 2016). Open grassland and woodland represent Priority 5 foraging habitat (lowest priority), including *Triodia*-dominated lowland plains and colluvial slopes and hilltops (TSSC, 2016). Given the proximity to potential roosting habitat in nearby ranges, the Stony and Clay Plain habitats within the survey area may be used opportunistically for foraging. While the available habitat is unlikely to be critical for the survival of the species, the post-survey likelihood remains moderate.

The Pilbara Barking Gecko (*Underwoodisaurus seorsus*) is a Priority 2 species with 24 records in the DBCA database and three records in the Rio Tinto database. The closest records in both databases occur 39 km from the survey area. The Pilbara Barking Gecko is restricted to the Hamersley Ranges and is typically associated with rocky and stony areas, and areas with low sparse trees of *Eucalyptus leucophloia*, low *Acacia pilbara* shrubs and *Triodia wiseana* spinifex (Doughty & Oliver, 2011). The survey area is within the known species distribution, but the lacks the preferred habitat of Rocky Hills, Low Hills and Slopes and Gullies. The post-survey likelihood has been reduced to negligible.

## 7.0 Conclusion

Rio Tinto Iron Ore engaged AECOM Australia Pty Ltd to undertake a detailed flora and vegetation assessment and a basic fauna assessment for a defined survey area in the Pilbara region. The survey area comprises 169.61 ha and is situated at the old Wildflower Camp site, intersected by Packsaddle Road.

The objective of the survey was to assist Rio Tinto to complete a Native Vegetation Clearing Permit (NVCP) application. To meet this objective, a baseline ecological survey was undertaken in accordance with the relevant EPA technical guides to assess the environmental values that are present.

The survey was completed by botanists Celia Mitchell and Candice Le Roux, and environmental scientists Nina Sergeev and Sophie Moss between the 8<sup>th</sup> to 10<sup>th</sup>, and 13<sup>th</sup> April 2025.

In summary:

- No TECs or PECs were identified and none were anticipated to occur.
- Two native vegetation communities were mapped over 144.63 ha of the survey area. Another 17.21 ha was mapped as Rehabilitation and 7.77 ha was mapped as Cleared.
- The Priority 3 flora species *Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684) was recorded at 27 locations representing 91 individuals. One range extension of over 150 km was recorded, *Halgania erecta* was recorded and collected at one location.
- Four fauna habitats were mapped including a Clay Plain (with Mulga Woodland microhabitat), Stony Plain, Rehab and Disturbed.
- Two old Western Pebble-mound Mouse mounds were recorded.

The survey area has been subject to historical disturbance, which is evident from the presence of old camp infrastructure, rehabilitation of native vegetation of different ages, access tracks, weed invasion and evidence of grazing.

The basic fauna assessment was conducted in accordance with the EPA *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* (2020). Consistent with the guidance, the need for subsequent detailed or targeted surveys was considered.

The field survey was successfully undertaken with no significant limitations identified. Survey effort was suitable for meeting the objectives of the flora, vegetation and fauna assessment.

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# Appendix A

## Federal and State Legislation

## Appendix A Federal and State Legislation

### 1.1 Commonwealth

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the main piece of Federal legislation protecting biodiversity in Australia. Species at risk of extinction are recognised at a Commonwealth level and are categorised in one of six categories as outlined in Table 1.

**Table 1 Categories and definitions for Threatened species listed under the EPBC Act**

| Code      | Category and Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EX</b> | <b>Extinct Taxa</b><br>A species which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>EW</b> | <b>Extinct in the Wild Taxa</b><br>A species which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>CR</b> | <b>Critically Endangered Taxa</b><br>A species which at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>EN</b> | <b>Endangered Taxa</b><br>A species which is not critically endangered, and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>VU</b> | <b>Vulnerable Taxa</b><br>A species which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>CD</b> | <b>Conservation Dependent Taxa</b><br>A species which at a particular time if, at that time:<br>the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered the following subparagraphs are satisfied: <ul style="list-style-type: none"> <li>the species is a species of fish,</li> <li>the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised the plan of management is in force under a law of the Commonwealth or of a State or Territory cessation of the plan of management would adversely affect the conservation status of the species.</li> </ul> |
| <b>Mi</b> | <b>Migratory Taxa</b><br>The EPBC Act also requires the compilation of a list of migratory species that are recognised under international treaties including: <ul style="list-style-type: none"> <li>Japan Australia Migratory Bird Agreement 1981 (JAMBA)</li> <li>China Australia Migratory Bird Agreement 1998 (CAMBA)</li> <li>Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA)</li> <li>Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).</li> </ul> All migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as a MNES under the EPBC Act.                                                                                                                                                                                 |
| <b>Ma</b> | <b>Marine Taxa</b><br>A species established under s248 of the EPBC Act.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Communities can be classified as Threatened Ecological Communities (TECs) under the EPBC Act. The EPBC Act protects Australia's ecological communities by providing for:

- identification and listing of ecological communities as threatened
- development of conservation advice and recovery plans for listed ecological communities
- recognition of key threatening processes
- reduction of the impact of these processes through threat abatement plans.

Categories of federally listed TECs are described in Table 2.

**Table 2 Categories and criteria of TECs listed under the EPBC Act**

| Code      | Category and Criteria                                                                                                                                                |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CE</b> | <b>Critically Endangered</b><br>If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future.                             |
| <b>E</b>  | <b>Endangered</b><br>If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future.                  |
| <b>V</b>  | <b>Vulnerable</b><br>If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future. |

## 1.2 Western Australia

### 1.2.1 Flora and Fauna Species

The *Biodiversity Conservation Act 2016* (BC ACT) Provides for the conservation and protection of Western Australia's biodiversity and biodiversity components. Conservation codes and explanations are derived from DBCA (2019).

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

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below. It includes species listed as Threatened (Table 3), Extinct (Table 4) or specially protected (Table 5)

**Table 3 Categories and definitions for Threatened flora and fauna species (Jan 2019)**

| Code      | Category and Definition                                                                                                                                                                                                                 |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CR</b> | <b>Critically Endangered</b><br>Threatened species considered to be “facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines”. |
| <b>EN</b> | <b>Endangered</b><br>Threatened species considered to be “facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines”.                       |
| <b>VU</b> | <b>Vulnerable</b><br>Threatened species considered to be “facing a high risk of extinction in the wild in the medium term future, as determined in accordance with criteria set out in the ministerial guidelines”.                     |

**Table 4 Categories and definitions for Extinct flora and fauna species (Jan 2019)**

| Code      | Category and Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EX</b> | <b>Extinct Species</b><br>Species where “there is no reasonable doubt that the last member of the species has died”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>EW</b> | <b>Extinct in the Wild</b><br>Species that “is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).<br><br>Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice. |

**Table 5 Categories and definitions for Other Protected species (Jan 2019)**

| Code      | Category and Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MI</b> | <b>Migratory Species</b><br>Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).<br><br>Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under |

| Code      | Category and Definition                                                                                                                                                                                                                        |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           | the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.                                |
| <b>CD</b> | <b>Species of special conservation interest (conservation dependent species)</b><br>Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. |
| <b>OS</b> | <b>Other specially protected species</b><br>Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).                     |

Species that have not yet been adequately surveyed to warrant being listed under the BC Act, or are otherwise data deficient, are added to a Priority Lists under Priorities 1, 2 or 3 by the State Minister for Environment. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. Categories and definitions of Priority flora species are summarised in Table 6.

**Table 6 Categories and definitions for WA flora and fauna species as listed by DBCA and endorsed by the Ministers for Environment**

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

| Code | Category and Definition                                                                                 |
|------|---------------------------------------------------------------------------------------------------------|
|      | removed from the list of threatened species during the past five years for reasons other than taxonomy. |

### 1.2.2 Ecological Communities

Threatened Ecological Communities (TECs) are naturally occurring biological assemblages that occur in a particular type of habitat and that may be subject to processes that threaten to destroy or significantly modify the assemblage across its range. TECs are listed by both state and commonwealth legislation.

Vegetation communities in Western Australia are described as TECs if they have been endorsed by the Western Australian Minister for Environment following recommendations made by the Threatened Species Scientific Committee. A TEC is one which is found to fit into one of four categories, summarised in Table 7 (DEC, 2013).

**Table 7 Categories and criteria for State listed TECs**

| Code      | Category and Criteria                                                                                                                                                                                                                                                                                                                                                                     |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PD</b> | <b>Presumed Totally Destroyed</b><br>Adequately searched for but no representative occurrence have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.                                                   |
| <b>CR</b> | <b>Critically Endangered</b><br>Adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.    |
| <b>EN</b> | <b>Endangered</b><br>Adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.                                                                                   |
| <b>VU</b> | <b>Vulnerable</b><br>Adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range. |

Possible TECs that do not meet survey criteria or are not adequately defined are listed as Priority Ecological Communities (PECs) and listed in one of five categories, described in Table 8.

**Table 8 Categories and definitions for Priority Ecological Communities**

| Code      | Category and Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>P1</b> | <b>Priority One: Poorly known ecological communities</b><br>Ecological communities that are known from very few occurrences with a very restricted distribution (generally $\leq 5$ occurrences or a total area of $\leq 100$ ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range. |

| Code | Category and Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2   | <p><b>Priority Two: Poorly known ecological communities</b></p> <p>Communities that are known from few occurrences with a restricted distribution (generally <math>\leq 10</math> occurrences or a total area of <math>\leq 200</math>ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.</p>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| P3   | <p><b>Priority Three: Poorly known ecological communities</b></p> <p>(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:</p> <p>(ii) communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;</p> <p>(iii) communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.</p> <p>Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.</p> |
| P4   | <p><b>Priority Four: Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list.</b></p> <p>(i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.</p> <p>(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>(iii) Ecological communities that have been removed from the list of threatened communities during the past five years.</p>                                                                                 |
| P5   | <p><b>Priority Five: Conservation dependent ecological communities</b></p> <p>Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### 1.3 Biosecurity and Agriculture Management Act 2007

Biosecurity is the management of the risk of animal and plant pests and diseases entering, emerging, establishing or spreading in WA to protect the economy, environment and community. Biosecurity is managed under the *Biosecurity and Agricultural Management Act 2007* (BAM Act), which came into effect 1 May 2013. Exotic animals and plants can become an invasive species if they can establish in new areas where local conditions are favourable for their growth. Each organism listed under the BAM Act comes with certain legal / import requirements:

- Declared Pest, Prohibited - s12. Prohibited organisms are declared pests by virtue of section 22(1) and may only be imported and kept subject to permits.
- Permitted - s11. Permitted organisms may be subject to an import permit if they are potential carriers of high-risk organisms.
- Declared Pest - s22(2). Declared pests may be subject to an import permit if they are potential carriers of high-risk organisms and may also be subject to control and keeping requirements once within Western Australia.
- Permitted, Requires Permit - r73. Regulation 73 permitted organisms may only be imported subject to an import permit.
- Declared pests can be assigned to a C1, C2 or C3 control category under the [Biosecurity and Agriculture Management Regulations 2013](#):
  - C1 Exclusion - Organisms which should be excluded from part or all of Western Australia
  - C2 Eradication - Organisms which should be eradicated from part or all of Western Australia
  - C3 Management - Organisms that should have some form of management applied that will alleviate the harmful impact of the organism, reduce the numbers or distribution of the organism or prevent or contain the spread of the organism.
- Unassigned - Declared pests that are recognised as having a harmful impact under certain circumstances, where their subsequent control requirements are determined by a Plan or other legislative arrangements under the BAM Act.

# Appendix B

## Significant Flora Desktop Results

## Appendix B- Significant Flora Desktop Results

| Taxon                                                              | Habitat                                                                                                                                                                                                                                                                               | Cons. Code EPBC | Cons. Code BC Act/DBCA | Distance from Survey Area |       |      | Date    |      |      | PMST | Pre-survey Likelihood Assessment |                       |                        |                               |                             | Total Score | Pre-field Likelihood | Post-field Likelihood | Comments                    | References                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------|---------------------------|-------|------|---------|------|------|------|----------------------------------|-----------------------|------------------------|-------------------------------|-----------------------------|-------------|----------------------|-----------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                    |                                                                                                                                                                                                                                                                                       |                 |                        | WAHerb                    | TPFL  | Rio  | WA Herb | TPFL | Rio  |      | Recorded in the survey area      | Known occurrence <5km | Known occurrence <20km | Recent Record (Last 20 years) | Habitat suitability (0,1,2) |             |                      |                       |                             |                                                                                                                                                                                                                                                                                                                                     |
| <i>Acacia bromilowiana</i>                                         | Red skeletal stony loam, orange-brown pebbly, gravel loam, laterite, banded ironstone, basalt. Rocky hills, breakaways, scree slopes, gorges, creek beds.                                                                                                                             |                 | P4                     | 14.70                     | 14.70 | 0.7  | 2015    | 2006 | 2024 |      | 0                                | 1                     | 1                      | 1                             | 1                           | 4           | Moderate             | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Acacia dawsona</i>                                              | Stony red loamy soils. Low rocky rises, along drainage lines.                                                                                                                                                                                                                         |                 | P3                     | 15.78                     | 15.67 | -    | 2006    | 1991 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Acacia effusa</i>                                               | Stony red loam. Scree slopes of low ranges.                                                                                                                                                                                                                                           |                 | P3                     | 5.22                      | 15.86 | 19   | 2022    | 2005 | 2019 |      | 0                                | 0                     | 1                      | 1                             | 2                           | 4           | High                 | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Acacia subuliformis</i>                                         | On rocky calcareate plateau.                                                                                                                                                                                                                                                          |                 | P3                     | 35.16                     | 38.32 | -    | 2020    | 2004 |      |      | 0                                | 0                     | 0                      | 1                             | 0                           | 1           | Negligible           | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Adiantum capillus-veneris</i>                                   | Moist, sheltered sites in gorges and on cliff walls.                                                                                                                                                                                                                                  |                 | P2                     | 33.36                     |       | -    | 2015    |      |      |      | 0                                | 0                     | 0                      | 1                             | 0                           | 1           | Negligible           | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Amaranthus centralis</i>                                        | Red sand in ephemeral watercourses, sandy to clayey loam on river banks and edges of permanent pools in eucalypt lined channels, or Acacia shrubland. Also occurs in areas of permanent watering, e.g. bore overflows, gardens and cultivation (Palmer, 2009).                        |                 | P3                     | 44.24                     |       | 26   | 1992    |      | 2015 |      | 0                                | 0                     | 0                      | 1                             | 0                           | 1           | Negligible           | Negligible            | No suitable habitat.        | Palmer, J., 2009. A conspectus of the genus Amaranthus L. (Amaranthaceae) in Australia. Nuytsia.                                                                                                                                                                                                                                    |
| <i>Ampelopteris proliera</i>                                       | Near water or in wet ground.                                                                                                                                                                                                                                                          |                 | P3                     | 40.11                     |       | -    | 1974    |      |      |      | 0                                | 0                     | 0                      | 0                             | 1                           | 1           | Negligible           | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Aristida jerichoensis</i> var. <i>subspinulifera</i>            | Hardpan plains.                                                                                                                                                                                                                                                                       |                 | P3                     | 2.79                      | 2.79  | 0.3  | 2022    | 2018 | 2019 |      | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Low                   | Not detected during survey. | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Aristida lazardis</i>                                           | Sand or loam. Low open woodland, closed tussock grassland, hummock grassland.                                                                                                                                                                                                         |                 | P3                     | 8.90                      | 31.32 | 2.42 | 2022    | 2022 | 2019 |      | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Low                   | Not detected during survey. | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Arthropodium vanleeuwenii</i>                                   | Known from two small populations growing above 900 m on south-facing hillslopes of Brockman Iron Formation in the Pilbara region. Often found growing under <i>Triodia</i> spp. and occasionally under the <i>Themeda triandra</i> , very rarely growing in the open (Nuytsia, 2020). |                 | P2                     | 4.31                      |       | -    | 2018    |      |      |      | 0                                | 1                     | 1                      | 1                             | 1                           | 4           | Moderate             | Negligible            | No suitable habitat.        | Dillon, S.J. & Macfarlane, T.D. (2020). Leeuwen's Lily ( <i>Arthropodium vanleeuwenii</i> : Asparagaceae), a remarkable new discovery from the Pilbara, Western Australia. Nuytsia. Available from: <a href="https://florabase.dbca.wa.gov.au/science/nuytsia/963.pdf">https://florabase.dbca.wa.gov.au/science/nuytsia/963.pdf</a> |
| <i>Barbula ehrenbergii</i>                                         | Recorded growing in a very thick layer of a gorge wall, restricted to a small area where water trickles down the wall. On iron rich, weathered conglomerate.                                                                                                                          |                 | P1                     | 37.44                     | 34.35 | -    | 1976    | 1976 |      |      | 0                                | 0                     | 0                      | 0                             | 0                           | 0           | Negligible           | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Calotis squamigera</i>                                          | Pebbly loam. Associated with Mulga woodland to low forest over <i>Eremophila</i> sp. open shrubland with open lower layer of <i>Phibotus obovatus</i> (DPaW & Rio Tinto, 2015).                                                                                                       |                 | P1                     | 38.12                     | 38.10 | -    | 1992    | 1992 |      |      | 0                                | 0                     | 0                      | 0                             | 2                           | 2           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Cladium procerum</i>                                            | Densely tufted perennial, grass-like or herb (sedge), 2 m high. Flowering November (?). Perennial pools.                                                                                                                                                                              |                 | P2                     | 37.88                     |       | -    | 2014    |      |      |      | 0                                | 0                     | 0                      | 1                             | 0                           | 1           | Negligible           | Negligible            |                             | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Dampiera anonyma</i>                                            | Skeletal red-brown to brown gravelly soil over banded ironstone, basalt, shale and jaspilite. Hill summits, upper slopes (above 1000m).                                                                                                                                               |                 | P3                     | 17.24                     | 17.24 | -    | 2024    | 2006 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Dampiera metalorum</i>                                          | Skeletal red-brown gravelly soil over banded ironstone. Steep slopes, summits of hills.                                                                                                                                                                                               |                 | P3                     | 3.77                      | 3.77  | -    | 2016    | 2006 |      |      | 0                                | 1                     | 1                      | 1                             | 1                           | 4           | Moderate             | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Di cladanthera glabra</i>                                       | Alluvium. Along watercourses, near rock pools.                                                                                                                                                                                                                                        |                 | P3                     | 49.18                     |       | -    | 2016    |      |      |      | 0                                | 0                     | 0                      | 1                             | 2                           | 3           | Moderate             | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) | Cracking clay, basalt. Gently undulating plain with large surface rocks, flat crabholed plain.                                                                                                                                                                                        |                 | P3                     | 32.70                     |       | 6.8  | 2018    |      |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Eragrostis</i> sp. Mt Robinson (S. van Leeuwen 4109)            | Red-brown skeletal soils, ironstone. Steep slopes, summits.                                                                                                                                                                                                                           |                 | P3                     | 14.59                     | 14.59 | -    | 2022    | 2022 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Eragrostis surreyana</i>                                        | Found in seasonally wet, shallow, grey alluvial soils over rock, with some from deeper soils in a seasonally wet creek line (Shepherd & Trudgen, 2011).                                                                                                                               |                 | P3                     | 12.85                     |       | -    | 2009    |      |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | Shepherd, KA & Trudgen, ME, 2011. <i>Eragrostis surreyana</i> (Poaceae) an uncommon, habitat restricted new species from the Pilbara Bioregion of Western Australia. Telopea, 13(1-2): 143-148.                                                                                                                                     |
| <i>Eremophila magnifica</i> subsp. <i>magnifica</i>                | Skeletal soils over ironstone. Rocky screes.                                                                                                                                                                                                                                          |                 | P4                     | 4.51                      |       | -    | 2015    |      |      |      | 0                                | 1                     | 1                      | 1                             | 1                           | 4           | Moderate             | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |
| <i>Eremophila magnifica</i> subsp. <i>velutina</i>                 | Skeletal soils over ironstone. Summits.                                                                                                                                                                                                                                               |                 | P3                     | 14.17                     | 14.17 | -    | 2012    | 2007 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                                                       |

Appendix B- Significant Flora Desktop Results

| Taxon                                                         | Habitat                                                                                                                                                                                                                                                                                                                               | Cons. Code EPBC | Cons. Code BC Act/DBCA | Distance from Survey Area |       |        | Date    |      |      | PMST | Pre-survey Likelihood Assessment |                       |                        |                               |                             | Total Score | Pre-field Likelihood | Post-field Likelihood | Comments                    | References                                                                                                                                                                                     |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------|---------------------------|-------|--------|---------|------|------|------|----------------------------------|-----------------------|------------------------|-------------------------------|-----------------------------|-------------|----------------------|-----------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                               |                                                                                                                                                                                                                                                                                                                                       |                 |                        | WAHerb                    | TPFL  | Rio    | WA Herb | TPFL | Rio  |      | Recorded in the survey area      | Known occurrence <5km | Known occurrence <20km | Recent Record (Last 20 years) | Habitat suitability (0,1,2) |             |                      |                       |                             |                                                                                                                                                                                                |
| <i>Eremophila naaykensis</i>                                  | Rocky slopes, gullies and rock faces associated with large hills and cliffs.                                                                                                                                                                                                                                                          |                 | P3                     | 6.91                      |       | -      | 2022    |      | 2016 |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Eremophila pusilliflora</i>                                | Found on seasonally inundated alluvial plains between Turee Creek, Pingard Creek and drainage systems leading into the Ashburton River, growing in red-brown sandy loam soils in open low shrubland (Buirchell & Brown, 2016).                                                                                                        |                 | P3                     | 7.16                      | 28.63 | 19     | 2013    | 2000 | 2024 |      | 0                                | 0                     | 1                      | 1                             | 2                           | 4           | High                 | Negligible            | Not detected during survey. | Buirchell, B. J. & Brown, A. P., 2016. New species of <i>Eremophila</i> (Scrophulariaceae): thirteen geographically restricted species from Western Australia. Nuytsia, 27, 253-283.           |
| <i>Eremophila</i> sp. West Angelas (S. van Leeuwen 4068)      | Slopes, skeletal brown-red stoney soils over massive banded Brockman Iron Formation (Biologic, 2024).                                                                                                                                                                                                                                 |                 | P3                     | 14.78                     | 14.78 | -      | 2022    | 2022 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | Biologic Environmental Services, 2024. Jinidi Detailed Flora and Vegetation Survey Interim Report: Dry-season.                                                                                 |
| <i>Eucalyptus lucens</i>                                      | Ironstone. Rocky slopes and mountain tops, high in the landscape.                                                                                                                                                                                                                                                                     |                 | P1                     | 31.25                     |       | -      | 2002    |      |      |      | 0                                | 0                     | 0                      | 0                             | 1                           | 1           | Negligible           | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Eucalyptus rowleyi</i>                                     | Usually grows on broad floodplains or in open mallee vegetation. Only known from the area between Marble Bar, Newman and the Rudall River National Park in the Little Sandy Desert and Pilbara biogeographic regions (ALA, 2024).                                                                                                     |                 | P3                     | 48.19                     |       | -      | 2002    |      |      |      | 0                                | 0                     | 0                      | 0                             | 0                           | 0           | Negligible           | Negligible            | Not detected during survey. | Atlas of Living Australia, 2024. <i>Eucalyptus rowleyi</i> D.Nicoll & M.E.French.                                                                                                              |
| <i>Euphorbia australis</i> var. <i>glabra</i>                 | Sump, low in the landscape on alluvial cracking clay loamy soil, gritty with ironstone fragments, saline flats (Astron, 2018).                                                                                                                                                                                                        |                 | P3                     | 6.99                      | 43.02 | -      | 2022    | 1998 |      |      | 0                                | 0                     | 1                      | 1                             | 2                           | 4           | High                 | Negligible            | No suitable habitat.        | Astron, 2018. Greater Paraburdoo Detailed Flora and Vegetation Survey.                                                                                                                         |
| <i>Euphorbia inappendiculata</i> var. <i>inappendiculata</i>  | Cracking clays, associated with tussock grassland.                                                                                                                                                                                                                                                                                    |                 | P3                     | 25.35                     | 25.35 | -      | 2016    | 2018 |      |      | 0                                | 0                     | 0                      | 1                             | 2                           | 3           | Moderate             | Low                   | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Euphorbia inappendiculata</i> var. <i>queenslandica</i>    | Clay soils on plains (PlantNet, 2024).                                                                                                                                                                                                                                                                                                |                 | P3                     | 3.77                      | 5.57  | 6.27   | 2024    | 2022 | 2022 |      | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Euphorbia stevenii</i>                                     | Somewhat succulent perennial, herb, 0.1-0.5 m high. Clay, sandy soils.                                                                                                                                                                                                                                                                |                 | P3                     | 30.03                     |       | -      | 2022    |      |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | Not detected during survey. | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Fimbristylis sieberiana</i>                                | Mud, skeletal soil pockets. Pool edges, sandstone cliffs.                                                                                                                                                                                                                                                                             |                 | P3                     | 33.84                     | 34.15 | -      | 2015    | 1991 |      |      | 0                                | 0                     | 0                      | 1                             | 0                           | 1           | Negligible           | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Geijera salicifolia</i>                                    | Skeletal soils, stony soils. Massive rock scree, gorges.                                                                                                                                                                                                                                                                              |                 | P3                     | 23.10                     |       | -      | 2023    |      |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Glycine falcata</i>                                        | Black clayey sand. Along drainage depressions in crabhole plains on river floodplains.                                                                                                                                                                                                                                                |                 | P3                     | 18.35                     | 35.11 | -      | 2017    | 2008 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Gompholobium karjini</i>                                   | Occurs in open Triodia hummock grassland with scattered shrubs and trees on ironstone gravel (Nuytsia, 2012).                                                                                                                                                                                                                         |                 | P2                     | 20.57                     |       | -      | 2024    |      |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | Not detected during survey. | Carolyn F. Wilkins and Malcolm E. Trudgen, 2012. A new species of <i>Gompholobium</i> (Fabaceae: Mirtellieae) from the Pilbara bioregion of Western Australia. Nuytsia.                        |
| <i>Goodenia obscurata</i>                                     | Occurs on floodplains or low rocky ridges, growing in red-brown sandy clay or lateritic loam over banded ironstone. Associated with low open woodland of <i>Acacia</i> over Triodia, or open shrubland with a sparse overstorey of <i>Corymbia hamersleyana</i> and <i>Hakea chordophylla</i> over Triodia (Shepherd & Lepshi, 2023). |                 | P3                     | 51.23                     |       | -      | 2024    |      |      |      | 0                                | 0                     | 0                      | 1                             | 2                           | 3           | Moderate             | Low                   | Not detected during survey. | Shepherd, KA & Lepshi, BJ, 2023. Revision of the connate bract group allied to <i>Goodenia panduriformis</i> (Goodeniaceae), including recognition of three new species. Nuytsia, 34: 227-254. |
| <i>Goodenia</i> sp. East Pilbara (A.A. Mitchell PRP 727)      | Red-brown clay soil, calcareous pebbles. Low undulating plain, swampy plains.                                                                                                                                                                                                                                                         |                 | P3                     | 22.64                     | 5.85  | -      | 2021    | 2008 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Grevillea saxicola</i>                                     | Orange-brown to red-brown loam soils on the upper scree/breakway slopes and crests often associated with banded iron formation outcropping. Often found growing in Mulga woodland (Dillon, 2014).                                                                                                                                     |                 | P3                     | 21.73                     |       | -      | 2014    |      |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.        | Dillon, SJ, 2014. <i>Grevillea saxicola</i> (Proteaceae), a new species from the Pilbara of Western Australia. Nuytsia, 24: 103-108.                                                           |
| <i>Gymnanthera cunninghamii</i>                               | Sandy soils.                                                                                                                                                                                                                                                                                                                          |                 | P3                     | 19.80                     | 39.35 | -      | 2024    | 1998 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Helichrysum oligochaetum</i>                               | Depressions and floodplains in clay soils. Red clay and alluvial plains.                                                                                                                                                                                                                                                              |                 | P1                     | 128.25                    |       | 113.57 | 2024    |      | 2024 |      | 0                                | 0                     | 0                      | 1                             | 2                           | 3           | Moderate             | Low                   | Not detected during survey. | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Hibiscus</i> sp. Gurinbiddy Range (M.E. Trudgen MET 15708) | Sheltered or rocky drainage lines below associated cliff-lines or rocky ridges, skeletal red-brown stony soil over massive ironstone of the Brockman Iron Formation (Astron, 2018).                                                                                                                                                   |                 | P2                     | 21.21                     |       | -      | 2022    |      | 2015 |      | 0                                | 0                     | 0                      | 1                             | 2                           | 3           | Moderate             | Negligible            | No suitable habitat.        | Astron, 2018. Greater Paraburdoo - Detailed Flora and Vegetation Survey.                                                                                                                       |
| <i>Hibiscus</i> sp. Mt Brockman (E. Thoma ET 1354)            | Rocky drainage lines below cliff-lines or rocky gorges. Red brown loam.                                                                                                                                                                                                                                                               |                 | P1                     | 11.27                     |       | -      | 2024    |      |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |
| <i>Indigofera gilesii</i>                                     | Pebbly loam. Amongst boulders and outcrops, hills.                                                                                                                                                                                                                                                                                    |                 | P3                     | 8.64                      | 8.66  | -      | 2020    | 2006 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-- Florabase--the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                 |

## Appendix B- Significant Flora Desktop Results

| Taxon                                                             | Habitat                                                                                                                                                                                                                                                                                          | Cons. Code EPBC | Cons. Code BC Act/DBCA | Distance from Survey Area |       |      | Date    |      |      | PMST | Pre-survey Likelihood Assessment |                       |                        |                               |                             | Total Score | Pre-field Likelihood | Post-field Likelihood | Comments                    | References                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------|---------------------------|-------|------|---------|------|------|------|----------------------------------|-----------------------|------------------------|-------------------------------|-----------------------------|-------------|----------------------|-----------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                   |                                                                                                                                                                                                                                                                                                  |                 |                        | WAHerb                    | TPFL  | Rio  | WA Herb | TPFL | Rio  |      | Recorded in the survey area      | Known occurrence <5km | Known occurrence <20km | Recent Record (Last 20 years) | Habitat suitability (0,1,2) |             |                      |                       |                             |                                                                                                                                                                                                                                                                                                |
| <i>Indigofera irocarpa</i>                                        | Skeletal red soils over massive ironstone.                                                                                                                                                                                                                                                       |                 | P2                     | 29.71                     | 31.35 | -    | 2017    | 2006 |      |      | 0                                | 0                     | 0                      | 1                             | 0                           | 1           | Negligible           | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Indigofera rivularis</i>                                       | Along rocky creek-lines in open low woodland of eucalypts and acacias on ironstone substrates. Used to be known as sp. Bungaroo Creek (Wilson, 2021).                                                                                                                                            |                 | P3                     | 11.43                     |       | -    | 2015    |      |      |      | 0                                | 0                     | 1                      | 1                             | 2                           | 4           | High                 | Negligible            | No suitable habitat.        | Wilson, PG, 2021. Progress towards resolution of the <i>Indigofera monophylla</i> complex (Fabaceae: Faboideae). Telopea, 24: 311-317.                                                                                                                                                         |
| <i>Iotasperma sessilifolium</i>                                   | Cracking clay, black loam. Edges of waterholes, plains.                                                                                                                                                                                                                                          |                 | P3                     | 7.16                      |       | -    | 2024    |      |      |      | 0                                | 0                     | 1                      | 1                             | 2                           | 4           | High                 | Negligible            | Not detected during survey. | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Ipomoea racemigera</i>                                         | Creeping annual, herb or climber. Creek bed and banks, sandy loam gravel.                                                                                                                                                                                                                        |                 | P3                     | 34.49                     | 35.12 | -    | 2022    | 2022 |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Ipomoea</i> sp. Karijini (H. Ajduk HAOF305) PN                 | Native to Hamersley, in the shire of Ashburton.                                                                                                                                                                                                                                                  |                 | P2                     | 46.50                     |       | -    | 2023    |      |      |      | 0                                | 0                     | 0                      | 1                             | 2                           | 3           | Moderate             | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Isotropis parviflora</i>                                       | Valley slope of Ironstone plateau.                                                                                                                                                                                                                                                               |                 | P3                     | 23.62                     | 22.67 | -    | 2022    | 2022 |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Kohautia australiensis</i>                                     | Calcareate hills. Orange skeletal fine clay. Calcrete plain with brown sandy loam soil.                                                                                                                                                                                                          |                 | P2                     | 36.18                     |       | -    | 2017    |      |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Neptunia longipila</i>                                         | Cracking clay area, very gently sloping. Soil: Red-brown clay with numerous cobbles and some pebbles.                                                                                                                                                                                            |                 | P3                     | 34.25                     | 34.25 | -    | 1997    | 2024 |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | Not detected during survey. | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Olearia mucronata</i>                                          | Schistose hills, along drainage channels.                                                                                                                                                                                                                                                        |                 | P3                     | 29.43                     | 27.84 | -    | 2011    | 2005 |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Oxalis</i> sp. Pilbara (M.E. Trudgen 12725)                    | Brown sandy loam or clay. Gorge, ironstone outcrops, gully, shaded areas, creeklines (Biologic Environmental Services, 2024).                                                                                                                                                                    |                 | P3                     | 6.97                      | 6.96  | -    | 2016    | 2021 |      |      | 0                                | 0                     | 1                      | 1                             | 2                           | 4           | High                 | Negligible            | No suitable habitat.        | Biologic Environmental Services, 2024. Jinidi Detailed Flora and Vegetation Survey Interim Report. Dry-season.                                                                                                                                                                                 |
| <i>Pentalepis trichodesmoides</i> subsp. <i>hispida</i>           | Found in Triodia hummock grassland, often in the understorey of a shrubland of <i>Acacia</i> spp., <i>Gossypium</i> spp., <i>Senna</i> spp., <i>Brachychiton</i> spp. and <i>Eucalyptus</i> spp., on summits and slopes of low hills, on basaltic soils, at altitudes to 1150 m (Nuytsia, 2012). |                 | P3                     | 11.43                     |       | -    | 2013    |      |      |      | 0                                | 0                     | 1                      | 1                             | 2                           | 4           | High                 | Low                   | No suitable habitat.        | Anthony E. Orchard and Edward W. Cross (2012). A revision of the Australian endemic genus <i>Pentalepis</i> (Asteraceae: Ecliptinae). Nuytsia. Available from: <a href="https://florabase.dbca.wa.gov.au/science/nuytsia/646.pdf">https://florabase.dbca.wa.gov.au/science/nuytsia/646.pdf</a> |
| <i>Pilbara trudgenii</i>                                          | Skeletal, red stony soil over ironstone. Hill summits, steep slopes, screes, cliff faces.                                                                                                                                                                                                        |                 | P3                     | 17.64                     | 17.64 | -    | 2014    | 2005 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Ptilotus mollis</i>                                            | Stony hills and screes.                                                                                                                                                                                                                                                                          |                 | P4                     | 29.81                     |       | -    | 2012    |      |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Ptilotus subspinescens</i>                                     | The new species has a restricted habitat, preferring gentle rocky slopes, screes and the bases of screes (Davis, 2007).                                                                                                                                                                          |                 | P3                     | 7.82                      | 20.30 | -    | 2015    | 2007 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | Davis, RW, 2007. A new rare and geographically restricted <i>Ptilotus</i> (Amaranthaceae) from the Pilbara Bioregion of Western Australia. Nuytsia, 16(2): 265-268.                                                                                                                            |
| <i>Ptilotus trichocephalus</i>                                    | Clay flats, sandy colluvial soils and gibber plains. Often with Mulga.                                                                                                                                                                                                                           |                 | P4                     | 29.32                     | 42.80 | -    | 2009    | 2006 |      |      | 0                                | 0                     | 0                      | 1                             | 2                           | 3           | Moderate             | Negligible            | Not detected during survey. | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Rhodanthe ascendens</i>                                        | Roadside verge. In open shrub of <i>Acacia aneura</i> over open tussock grass of <i>Aristida</i> spp. over dense herbs of <i>Erodium cymnorum</i> , <i>Stenopetalum decipiens</i> , <i>Rhodanthe charleyae</i> .                                                                                 |                 | P1                     | 23.46                     | 23.46 | -    | 1998    | 1998 |      |      | 0                                | 0                     | 0                      | 0                             | 1                           | 1           | Negligible           | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Rhynchosia bungarensis</i>                                     | Pebbly, shingly coarse sand amongst boulders. Banks of flow line in the mouth of a gully in a valley wall.                                                                                                                                                                                       |                 | P4                     | 26.72                     |       | -    | 2014    |      |      |      | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Rostellularia adscendens</i> var. <i>latifolia</i>             | Ironstone soils. Near creeks, rocky hills.                                                                                                                                                                                                                                                       |                 | P3                     | 5.96                      |       | 0.81 | 2024    |      | 2006 |      | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Scaevola</i> sp. Hamersley Range basalts (S. van Leeuwen 3675) | Skeletal, brown gritty soil over basalt. Summits of hills, steep hills.                                                                                                                                                                                                                          |                 | P2                     | 10.26                     | 10.26 | -    | 2006    | 2006 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Sida</i> sp. Barlee Range (S. van Leeuwen 1642)                | Skeletal red soil pockets. Steep slope.                                                                                                                                                                                                                                                          |                 | P4                     | 1.03                      | 1.03  | -    | 2022    | 2022 |      |      | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Negligible            | No suitable habitat.        | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                                                                                                                  |
| <i>Sida</i> sp. Hamersley Range (K. Newbey 10692)                 | Gorges, base of cliffs, rocky outcrops and breakaways, sometimes found in flat areas between hills in shrubby grassland (Astron, 2018).                                                                                                                                                          |                 | P3                     | 18.60                     | 18.60 | -    | 2017    | 2009 |      |      | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.        | Astron, 2018. Rio Tinto Iron Ore Greater Paraburdoo - Detailed Flora and Vegetation Survey, April 2018. Appendix F: Threatened and Priority Flora Species Likelihood of Occurrence within the Survey Area.                                                                                     |
| <i>Solanum albotellatum</i>                                       | Found on cracking clay soils on open floodplains in open scrubland over grasses. Associated species include <i>Acacia</i> spp., <i>Aristida latifolia</i> , <i>Chrysopogon fallax</i> and <i>Triodia</i> spp. (Davis & Hurter, 2012).                                                            |                 | P3                     | 24.52                     |       | -    | 2011    |      |      |      | 0                                | 0                     | 0                      | 1                             | 2                           | 3           | Moderate             | Negligible            | Not detected during survey. | Davis, RW & Hurter, P.J.H, 2012. <i>Solanum albotellatum</i> (Solanaceae), a new species from the Pilbara bioregion of Western Australia. Nuytsia, 22(5): 329-334.                                                                                                                             |

Appendix B- Significant Flora Desktop Results

| Taxon                                                                    | Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Cons. Code EPBC | Cons. Code BC Act/DBCA | Distance from Survey Area |       |      | Date    |      |      | PMST  | Pre-survey Likelihood Assessment |                       |                        |                               |                             | Total Score | Pre-field Likelihood | Post-field Likelihood | Comments                                                               | References                                                                                                                                                                                         |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------|---------------------------|-------|------|---------|------|------|-------|----------------------------------|-----------------------|------------------------|-------------------------------|-----------------------------|-------------|----------------------|-----------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                        | WAHerb                    | TPFL  | Rio  | WA Herb | TPFL | Rio  |       | Recorded in the survey area      | Known occurrence <5km | Known occurrence <20km | Recent Record (Last 20 years) | Habitat suitability (0,1,2) |             |                      |                       |                                                                        |                                                                                                                                                                                                    |
| <i>Solanum kentrocaule</i>                                               | Endemic to WA, has been found only in the Hamersley Range between 700 m to 1250 m altitude. Inhabits hillsides and mountaintops, or occasionally creek-beds, in skeletal red-brown soil over ironstone or on basalt scree (Bean, 2013).                                                                                                                                                                                                                                                                                                                                                                                                   |                 | P3                     | 11.66                     |       | -    | 2017    |      |      |       | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.                                                   | Bean, AR, 2013. A taxonomic review of the <i>Solanum</i> sturtianum subgroup of subgenus <i>Leptostemonum</i> (Solanaceae). <i>Nuytsia</i> , 23: 129-161.                                          |
| <i>Solanum</i> sp. Red Hill (S. van Leeuwen et al. PBS 5415)             | Shale hill, colluvial footslopes, gorges, stony upper footslopes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 | P3                     | 30.45                     |       | -    | 1998    |      |      |       | 0                                | 0                     | 0                      | 0                             | 1                           | 1           | Negligible           | Negligible            | No suitable habitat.                                                   | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Stackhousia clementii</i>                                             | Grows in skeletal soils and sandstone hills. Species recorded across the Eremaean Province.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 | P3                     | 5.69                      |       | -    | 2015    |      |      |       | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.                                                   | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Streptoglossa</i> sp. Cracking clays (S. van Leeuwen et al. PBS 7353) | Red brown sandy clay. Ironstone.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 | P3                     | 2.12                      | 29.01 | -    | 2021    | 2021 |      |       | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Negligible            | Not detected during survey.                                            | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Styidium weeliwoi</i>                                                 | Gritty sand soil, sandy clay. Edge of watercourses.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 | P3                     |                           | 32.60 | -    | 2006    |      |      |       | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | Not detected during survey.                                            | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Swainsona thompsoniana</i>                                            | A prostrate, annual herb, to 10 cm high, flowers mauve with cream - yellow centres. Inhabits open floodplains on heavy clay soils (Nuytsia, 2013).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 | P3                     | 2.12                      |       | -    | 2024    |      |      |       | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Negligible            | Not detected during survey.                                            | Robert W. Davis and P. Johan H. Hurter, 2013. <i>Swainsona thompsoniana</i> (Fabaceae: Faboideae: Galegeae), a new species endemic to the Pilbara bioregion of Western Australia. <i>Nuytsia</i> . |
| <i>Tetradlea butcheriana</i>                                             | Restricted to the Hamersley subregion of the Pilbara bioregion in Western Australia where it is known only from a 500 m stretch of ironstone cliffs and breakaways. The surrounding vegetation consists of scattered low trees of <i>Corymbia deserticola</i> and <i>Eucalyptus leucophloia</i> over scattered shrubs of <i>Astrotrocha hamptonii</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> and <i>Acacia pruinocarpa</i> over open hummock grassland of <i>Triodia wiseana</i> over scattered tussock grasses of <i>Cymbopogon ambiguus</i> and bunch grasses of <i>Eriachne mucronata</i> (Perkins, Reiffer, & Ajduk, 2016). |                 | EN                     | 13.24                     | 13.27 | -    | 2022    | 2019 |      |       | 0                                | 0                     | 1                      | 1                             | 0                           | 2           | Negligible           | Negligible            | No suitable habitat.                                                   | Perkins, AJ, Reiffer, S & Ajduk, H, 2016. <i>Tetradlea butcheriana</i> (Elaeocarpaceae), a new and rare species from the Pilbara bioregion of Western Australia. <i>Nuytsia</i> , 27: 203-209.     |
| <i>Tetradlea fordiana</i>                                                | Shale pocket amongst ironstone.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 | P2                     | 6.41                      | 34.31 | -    | 2018    | 1987 |      |       | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Negligible           | Negligible            | No suitable habitat.                                                   | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Teucrium pilbaranum</i>                                               | Crabhole plains dominated by <i>E. victrix</i> and calcrete tables dominated by grasses.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 | P2                     | 11.57                     |       | -    | 2015    |      |      |       | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.                                                   | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)                | Drainage lines, clay flats, crabhole flats and dark self mulching clays.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 | P3                     | 21.03                     |       | 1.25 | 2022    |      | 2006 |       | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Negligible            | Three specimens collected, all identified as <i>Themeda triandra</i> . | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Thryptomene wittweri</i>                                              | This species inhabits steep slopes, rock scree and breakaways near the summits of prominent hills. Plants often grow from ledges and fissures along rock faces and walls, and the species often occurs with several other scrubby species, usually in open situations under a sparse canopy of mallee and acacia, and is located from Wiluna and Karratha (DEWHA, 2008).                                                                                                                                                                                                                                                                  | V               | VU                     | 11.70                     | 11.51 | -    | 2000    | 2013 | 2024 | Known | 0                                | 0                     | 1                      | 1                             | 1                           | 3           | Low                  | Negligible            | No suitable habitat.                                                   | DEWHA, 2008. Approved Conservation Advice for <i>Thryptomene wittweri</i> (Mountain Thryptomene). Canberra: Department of the Environment, Water, Heritage and the Arts.                           |
| <i>Triodia bastricha</i>                                                 | Rocky or gravelly slopes of mountains or low hills (Ecologia Environment, 2023).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 | P3                     | 21.76                     |       | -    | 2020    |      |      |       | 0                                | 0                     | 0                      | 1                             | 1                           | 2           | Low                  | Negligible            | No suitable habitat.                                                   | Ecologia Environment, 2023. FMG Iron Bridge (Aust) Pty Ltd North Star Extension Targeted Flora Assessment.                                                                                         |
| <i>Triodia karjini</i>                                                   | It is located in the central Hamersley Range. Its distribution is centred on Karjini National Park, and also on mountains adjacent to the north and east of the Park. Near outcropping ironstone, on summits or steep hillslopes of mountains (Nuytsia, 2023).                                                                                                                                                                                                                                                                                                                                                                            |                 | P2                     | 4.51                      |       | -    | 2016    |      |      |       | 0                                | 1                     | 1                      | 1                             | 1                           | 4           | Moderate             | Negligible            | No suitable habitat.                                                   | Barrett, MD, de Kock, PL, & Dillon, SJ, 2023. <i>Four new species of Triodia</i> (Poaceae) from the Pilbara and adjacent bioregions, Western Australia. <i>Nuytsia</i> , 34: 261-294.              |
| <i>Triodia luteana</i>                                                   | Rocky ironstone hill slope. Reddish brown clay loam.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 | P1                     | 14.41                     |       | -    | 2018    |      |      |       | 0                                | 0                     | 1                      | 1                             | 0                           | 2           | Negligible           | Negligible            | No suitable habitat.                                                   | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Triodia</i> sp. Mt Ella (M.E. Trudgen 12739)                          | Light orange-brown, pebbly loam. Amongst rocks and outcrops, gully slopes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | P3                     | 3.97                      |       | -    | 2020    |      |      |       | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Negligible            | No suitable habitat.                                                   | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.                                                                                      |
| <i>Triodia veniciae</i>                                                  | Occurs on slopes of low hills of broken shale on the northern/western flanks of Marra Mamba mesa formations, along a 140 km transect of the eastern Chichester Ranges, between Roy Hill Station in the east and Mulga Downs Station in the west. Often occurs intermixed with or immediately adjacent to <i>T. epactia</i> . Replaced by other species such as <i>T. brizoides</i> , <i>T. scintillans</i> and <i>T. wiseana</i> on the more widespread ironstone hills in the area (Barrett, 2019).                                                                                                                                      |                 | P1                     | 21.89                     |       | -    | 2021    |      |      |       | 0                                | 0                     | 0                      | 1                             | 0                           | 1           | Negligible           | Negligible            | No suitable habitat.                                                   | Barrett, MD, 2019. <i>Triodia veniciae</i> (Poaceae), a new species from the Pilbara region, Western Australia. <i>Nuytsia</i> , 30: 221-228.                                                      |

Appendix B- Significant Flora Desktop Results

| Taxon                                                  | Habitat                                                                                                                   | Cons. Code EPBC | Cons. Code BC Act/DBCA | Distance from Survey Area |      |     | Date    |      |      | PMST | Pre-survey Likelihood Assessment |                       |                        |                               |                             | Total Score | Pre-field Likelihood | Post-field Likelihood | Comments              | References                                                                                                     |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------|---------------------------|------|-----|---------|------|------|------|----------------------------------|-----------------------|------------------------|-------------------------------|-----------------------------|-------------|----------------------|-----------------------|-----------------------|----------------------------------------------------------------------------------------------------------------|
|                                                        |                                                                                                                           |                 |                        | WAHerb                    | TPFL | Rio | WA Herb | TPFL | Rio  |      | Recorded in the survey area      | Known occurrence <5km | Known occurrence <20km | Recent Record (Last 20 years) | Habitat suitability (0,1,2) |             |                      |                       |                       |                                                                                                                |
| Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684) | Plains with red-brown sandy clay and clay-loams, usually in association with low open woodland and frequently with mulga. |                 | P3                     | 1.30                      | 0.10 | 0.3 | 2021    | 2020 | 2012 |      | 0                                | 1                     | 1                      | 1                             | 2                           | 5           | High                 | Known                 | Found in survey area. | WAH, 1998-. Florabase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions.. |

# Appendix C

## Significant Fauna Desktop Results

Appendix C- Significant Fauna Desktop Results

| Type    | Taxon                                | Common Name                                 | Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Cons. Code    |              | Date       |             | No. of records |      | Distance (km)       |                      | PMST   | Pre-survey Likelihood Assessment |                        |                         |                             | Total Score | Pre-survey Likelihood | Post-survey Likelihood | Comments                                                                                                                                                                                                                                                                                             | References                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|--------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|------------|-------------|----------------|------|---------------------|----------------------|--------|----------------------------------|------------------------|-------------------------|-----------------------------|-------------|-----------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | BC Act / DBCA | EPBC Act     | Date (Rio) | Date (DBCA) | Rio            | DBCA | Distance (km) [Rio] | Distance (km) [DBCA] |        | Recorded in Survey Area          | Known Occurrence <20km | Recent Record <20 years | Habitat Suitability (0,1,2) |             |                       |                        |                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Bird    | <i>Actitis hypoleucos</i>            | Common Sandpiper                            | Wide range of coastal wetlands, around muddy margins or rocky shores, some inland wetlands and rarely on mudflats (DCCEEW, 2025)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MI            | MI & MA      |            | 2022        |                | 12   |                     | 43.13                | May    | 0                                | 0                      | 1                       | 0                           | 1           | Negligible            | Negligible             | No suitable habitat.                                                                                                                                                                                                                                                                                 | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                                                                                                             |
| Bird    | <i>Amytornis oweni oweni</i>         | Sandhill Grasswren                          | Sandplain deserts of central Western Australia to central Queensland and northwestern South Australia (Christidis et al. 2013).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | P4            |              |            | 2005        |                | 2    |                     | 144.95               |        | 0                                | 0                      | 0                       | 1                           | 1           | Low                   | Negligible             | No suitable sand plain habitat in survey area.                                                                                                                                                                                                                                                       | Christidis, Les, Rheindt, FE, Boles, WE & Norman, JA, 2013. A re-appraisal of species diversity within the Australian grasswrens Amytornis (Aves: Maluridae). Australian Zoologist, 36(4):429-437.                                                                                                                                                                                                                                                              |
| Reptile | <i>Anilius ganei</i>                 | Gane's Blind Snake (Pilbara)                | This species is endemic to the Pilbara found only between Newman and Pannawonica. The species is associated with moist microhabitats which exist in many of the deeper, better shaded gorges throught the region (Aplin, 1998).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | P1            |              | 2019       | 2014        | 4              | 8    | 42.72               | 32.21                |        | 0                                | 0                      | 1                       | 1                           | 2           | Low                   | Low                    | Species is mostly associated with moist gorges and gullies but may occur in stony plain habitat.                                                                                                                                                                                                     | Aplin, K.P (1998) Three new blindsnakes (Squamata: Typhlopidae) from northwestern Australia, Records of the Western Australian Museum 19: 1-12.                                                                                                                                                                                                                                                                                                                 |
| Mammal  | <i>Antechinomys longicaudata</i>     | Long-tailed dunnart                         | The species is known to occur throughout the arid zone of Western Australia, among rocky scree landscapes which include include breakaways, sandstone ranges, inland cliffs and flat-topped hills with generally little vegetation (Withers & Edward, 1997; McKenzie, Woinarski, & Burbidge, 2016; WAM, 2021). Vegetation within these areas includes sparse mulga over spinifex hummock grasses and shrubs (McKenzie, Woinarski, & Burbidge, 2016; WAM, 2021). Records were from Owl Roost Cave and Monajee Cave.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | P4            |              |            | 2011        |                | 6    |                     | 80.10                |        | 0                                | 0                      | 1                       | 1                           | 2           | Low                   | Negligible             | No recent records in close proximity. No suitable rocky/breakaway habitat.                                                                                                                                                                                                                           | Western Australian Museum. (n.d.). Sminthopsis longicaudata (Long-tailed Dunnart) [Online species page]. Retrieved October 22, 2025, from https://museum.wa.gov.au/online-collections/names/sminthopsis-longicaudata                                                                                                                                                                                                                                            |
| Mammal  | <i>Dasyurus hallucatus</i>           | Northern Quoll                              | In Western Australia the Northern Quoll is restricted to the Pilbara and Kimberley regions. They den in rock crevices, tree holes or occasionally termite mounds (TSSC, 2005). Occupy a diverse number of habitats such as rocky areas, eucalypt forest and woodlands, rainforests, sandy lowlands and beaches, shrubland, grasslands and desert. Habitat in the Top End and Kimberley comprises rocky areas and tall Eucalypt forests. In the Pilbara region, the species tends to prefer the Rocklea, Macroy and Robe land systems. These land systems comprise of basalt hills, mesas (and buttes of limonites), high and low plateaux, lower slopes, occasional for fields and stony plains supporting either hard or soft spinifex grasslands. The Northern Quoll has also been recorded in other land systems which comprise sandstone and dolomite hills and ridges, shrublands, sandy plains, clay plans and tussock grasslands and coastal fringes including dunes islands and beaches (DCCEEW, 2025). | EN            | EN           | 2023       | 2024        | 317            | 521  | 8.73                | 35.99                | Known  | 0                                | 1                      | 1                       | 2                           | 4           | High                  | Moderate               | Within the 10,000 km2 range, therefore may occur.                                                                                                                                                                                                                                                    | TSSC, 2005. Commonwealth Listing Advice on Northern Quoll (Dasyurus hallucatus).<br>DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                         |
| Bird    | <i>Aphelocephala leucopsis</i>       | southern whiteface                          | Southern whitefaces live in a wide range of open woodlands and shrublands where there is an understory of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains (DCCEEW, 2023).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | VU            | VU           |            |             |                |      |                     |                      | Likely | 0                                | 0                      | 0                       | 1                           | 1           | Low                   | Low                    | No records of the species and habitat is very limited in the survey area.                                                                                                                                                                                                                            | DCCEEW (2023) Conservation Advice for Aphelocephala leucopsis (sothern whiteface). In effect under the Environmental Protection and Biodiversity Conservation Act 1999 from 31 March 2023, Department of Climate Change, Energy, the Environment and Water                                                                                                                                                                                                      |
| Bird    | <i>Apus pacificus</i>                | Pacific Swift (Fork-tailed Swift)           | Over inland plains, sometimes boave foothills or in coastal areas, and are almost exclusively aerial, flying from less than 1m up to at least 300 m (DCCEEW, 2025)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MI            | MI & MA      | 2019       | 2013        | 9              | 15   | 30.01               | 33.86                | Likely | 0                                | 0                      | 1                       | 1                           | 2           | Low                   | Low                    | May occur as vagrant visitor.                                                                                                                                                                                                                                                                        | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                                                                                                             |
| Bird    | <i>Calidris acuminata</i>            | Sharp-tailed Sandpiper                      | Occur within all states of Australia, but found mostly in the south-east and widespread in both inland and coastal locations. Found in fresh and hypersaline environments, in mudflats, coastal and inland wetlands and sewage ponds (DCCEEW, 2024).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MI            | VU & MI & MA |            |             |                |      |                     |                      | May    | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable wetland or inundated habitat in survey area.                                                                                                                                                                                                                                             | DCCEEW, 2024. Conservation Advice for Calidris acuminata (sharp-tailed sandpiper). Canberra: Department of Climate Change, Energy, the Environment and Water.                                                                                                                                                                                                                                                                                                   |
| Bird    | <i>Calidris ferruginea</i>           | Curlew Sandpiper                            | Intertidal mudflats in sheltered coastal areas and inland around ephemeral and permanent lakes, dams, waterholes and bore drains with bare edges of mud and sand (DCCEEW, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CR            | CR & MI & MA |            |             |                |      |                     |                      | May    | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable watered habitat in the survey area.                                                                                                                                                                                                                                                      | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                                                                                                             |
| Bird    | <i>Calidris melanotos</i>            | Pectoral Sandpiper                          | Occupies shallow, fresh waters often containing low grass or other small herbs, swamp margins, flooded pastures and saltmarshes (DCCEEW, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MI            | MI & MA      |            |             |                |      |                     |                      | May    | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable watered habitat in the survey area.                                                                                                                                                                                                                                                      | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                                                                                                             |
| Bird    | <i>Calidris subminuta</i>            | Long-toed Stint                             | Freshwater or brackish wetlands, such as lakes, swamps, river floodplains, streams, lagoons and sewage ponds. (DCCEEW, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MI            | MI & MA      |            | 2010        |                | 4    |                     | 84.03                |        | 0                                | 0                      | 1                       | 0                           | 1           | Negligible            | Negligible             | No suitable wetland habitat in survey area.                                                                                                                                                                                                                                                          | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                                                                                                             |
| Bird    | <i>Anarhynchus veredus</i>           | Oriental Plover                             | This species is a non-breeding visitor to Australia, where the species occurs in both coastal and inland areas, mostly in northern Australia. Most records are along the north-western coast, between Exmouth Gulf and Derby in Western Australia, and there are records at a few scattered sites elsewhere, mainly along the northern coast. They inhabit coastal habitats, flat, open, semiarid or arid grasslands, bare ground, and mudflats (DCCEEW, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MI            | MI & MA      | 2019       | 2019        | 1              | 4    | 48.10               | 48.10                | May    | 0                                | 0                      | 1                       | 1                           | 2           | Low                   | Low                    | No suitable habitat.                                                                                                                                                                                                                                                                                 | This species is a non-breeding visitor to Australia, where the species occurs in both coastal and inland areas, mostly in northern Australia. Most records are along the north-western coast, between Exmouth Gulf and Derby in Western Australia, and there are records at a few scattered sites elsewhere, mainly along the northern coast. They inhabit coastal habitats, flat, open, semiarid or arid grasslands, bare ground, and mudflats (DCCEEW, 2025). |
| Reptile | <i>Ctenotus nigrilineatus</i>        | Pin-Striped Finesnout Ctenotus              | Known from spinifex plains adjacent to granite outcrops and watercourses (Wilson & Swan, 2023).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | P1            |              |            | 2011        |                | 1    |                     | 83.11                |        | 0                                | 0                      | 1                       | 0                           | 1           | Negligible            | Negligible             |                                                                                                                                                                                                                                                                                                      | Wilson, S.K., & Swan, G, 2023. A complete guide to reptiles of Australia, Sixth Edition. New Holland Publishers Chatswood, N.S.W                                                                                                                                                                                                                                                                                                                                |
| Mammal  | <i>Dasyercus blythi</i>              | Brush-tailed Mulgara, Ampurta               | Occuring from Queensland to near-coatal Western Australia, they primarily are found in spinifex habitat (ALA, 2025). On a microhabitat scale, the taxon has been found to use open areas between vegetation, which have been shown to support larger-sized invertebrate prey (Molyneux et al, 2017).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | P4            |              |            | 2017        |                | 1    |                     | 43.45                |        | 0                                | 0                      | 1                       | 1                           | 2           | Low                   | Negligible             | No suitable sandy substrate for their extensive burrow networks in the survey area.                                                                                                                                                                                                                  | ALA, 2025. Dasyercus blythi (Waite, 1904). Accessed, 2025.<br>Molyneux, J., Pavey, C. R., James, A. I., & Carthew, S. M. (2017). Habitat use by the brush-tailed mulgara (Dasyercus blythi). Australian Journal of Zoology, 65(5), 335–345. https://doi.org/10.1071/ZO17032                                                                                                                                                                                     |
| Mammal  | <i>Leggadina lakedownensis</i>       | Short-tailed Mouse                          | Short-tailed Mice occupy a diverse range of environments from the monsoon tropical coast to semiarid climates, including spinifex and tussock grasslands, samphire and sedgeland, Acacia shrublands, tropical Eucalyptus and Melaleuca woodlands and stony ranges. Most habitats, however, are seasonally inundated on red or white sandy-clay soils (Moro & Kutt, 2008).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | P4            |              | 2011       | 2019        | 9              | 75   | 108.55              | 13.13                |        | 0                                | 1                      | 1                       | 2                           | 4           | High                  | High                   | There are recent records within 10 km of the survey area. The species may use the area as a transient visitor while using the gorges in Karjini as main breeding habitat. There are no suitable rock piles, crevices or similar presence at the survey area for the Northern Quoll to shelter/breed. | Moro, Dorian & Kutt, Alex. (2008). Lakeland Downs Mouse Leggadina lakedownensis.                                                                                                                                                                                                                                                                                                                                                                                |
| Bird    | <i>Elanus scriptus</i>               | Letter-winged kite                          | Open country and grasslands throughout arid and semi-arid regionsWill disperse to high rainfall and coastal regions when food is abundant. It is rarely seen in Western Australia (ALA, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | P4            |              | 2018       | 2018        | 2              | 1    | 40.57               | 40.56                |        | 0                                | 0                      | 1                       | 1                           | 2           | Low                   | Low                    | May occur as a vagrant visitor.                                                                                                                                                                                                                                                                      | Atlas of Living Australia, 2025. Species Profile, accessed 2025.                                                                                                                                                                                                                                                                                                                                                                                                |
| Bird    | <i>Erythroriorchis radiatus</i>      | Red Goshawk                                 | The Red Goshawk occur in coastal and subcoastal tall open forests and woodlands, tropical savannas traversed by wooded or forested creeks and rivers, freshwater wetlands and their margins and edges of rainforests (DCCEEW, 2023).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | EN            | EN           |            |             |                |      |                     |                      | May    | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable habitat.                                                                                                                                                                                                                                                                                 | DCCEEW, 2023. Conservation Advice for Erythroriorchis radiatus (red goshawk). Canberra: Department of Climate Change, Energy, the Environment and Water.                                                                                                                                                                                                                                                                                                        |
| Reptile | <i>Lerista macropisthopus remota</i> | Unpatterned Robust Slider (Robertson Range) | In soil beneath leaf litter, Triodia sandplain (WAM, 1996).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | P2            |              | 2019       | 2019        | 1              | 2    | 46.92               | 46.89                |        | 0                                | 0                      | 1                       | 2                           | 3           | High                  | High                   | May occur as a vagrant visitor.                                                                                                                                                                                                                                                                      | WAM, 1996. Lerista macropisthopus remota Storr, 1991.                                                                                                                                                                                                                                                                                                                                                                                                           |

Appendix C- Significant Fauna Desktop Results

| Type    | Taxon                                         | Common Name                                         | Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Cons. Code    |          | Date       |             | No. of records |      | Distance (km)       |                      | PMST   | Pre-survey Likelihood Assessment |                        |                         |                             | Total Score | Pre-survey Likelihood | Post-survey Likelihood | Comments                                                                                                                                                                                | References                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|-----------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|------------|-------------|----------------|------|---------------------|----------------------|--------|----------------------------------|------------------------|-------------------------|-----------------------------|-------------|-----------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                                               |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | BC Act / DBCA | EPBC Act | Date (Rio) | Date (DBCA) | Rio            | DBCA | Distance (km) [Rio] | Distance (km) [DBCA] |        | Recorded in Survey Area          | Known Occurrence <20km | Recent Record <20 years | Habitat Suitability (0,1,2) |             |                       |                        |                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Reptile | <i>Liasis olivaceus barroni</i>               | Pilbara Olive Python                                | The Pilbara Olive Python prefers deep gorges and water holes in the ranges of the Pilbara region. The python recorded at the proposed shipping facility site was on a vehicle track adjacent to outcropping rocks and near to gullies. Radio-telemetry has shown that individuals spend the cooler winter months hiding in caves and rock crevices away from water sources. In the warmer summer months the pythons were fond to move around widely, usually in close proximity to water and rock outcrops. Part of its habitat is conserved in Karijini National Park. This species occurs within the Rangelands (Western Australia) Natural Resource Management Region (DEWHA, 2008).                                                                                                                                                                                                                         | VU            | VU       | 2019       | 2025        | 21             | 50   | 27.87               | 15.79                | Known  | 0                                | 1                      | 1                       | 1                           | 3           | Moderate              | Moderate               | No preferred habitat but may forage opportunistically when prey is abundant but only as a vagrant visitor.                                                                              | DEWHA, 2008. Approved Conservation Advice for Liasis olivaceus barroni (Olive Python - Pilbara subspecies). Canberra: Department of the Environment, Water, Heritage and the Arts. In effect under the EPBC Act from 03-Jul-2008.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Bird    | <i>Gallinago megala</i>                       | Swinhoe's Snipe                                     | Dense clumps of grass and rushes around the edges of fresh, brackish wetlands, including billabongs, rivers pools, small streams and sewage ponds. They are also found in drying clay pans and inundated plains (Higgins and Davis, 1996).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | MI            | MI & MA  |            | 1981        |                | 1    |                     | 117.52               |        | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable habitat.                                                                                                                                                                    | Higgins PJ, & Davies SJJF, eds., 1996. Handbook of Australian, New Zealand and Antarctic Birds. Volume Three - Snipe to Pigeons. Melbourne, Victoria: Oxford University Press.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Bird    | <i>Hirundo rustica</i>                        | Barn Swallow                                        | In Australia, the Barn Swallow is recorded in open country in coastal lowlands, often near water, towns and cities. Birds are often sighted perched on overhead wires, and also in or over freshwater wetlands, paperbark Melaleuca woodland, mesophyll shrub thickets and tussock grassland (DCCEEW, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MI            | MI & MA  |            |             |                |      |                     |                      | May    | 0                                | 0                      | 0                       | 1                           | 1           | Low                   | Negligible             | No suitable habitat.                                                                                                                                                                    | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Mammal  | <i>Lagorchestes conspicillatus leichardti</i> | Spectacled Hare-wallaby                             | L. conspicillatus leichardti, occurs on the mainland, where it is considered rare and scattered in Western Australia, but more common in the Northern Territory and Queensland where it inhabits open forests, woodlands, shrublands, and hummock grasslands, preferring areas where there is a mosaic of vegetation due to differences in fire history (DEWHA, 2008).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | P4            |          |            | 1966        |                | 1    |                     | 112.97               |        | 0                                | 0                      | 0                       | 1                           | 1           | Low                   | Negligible             | Marginal habitat and probably outside of current range.                                                                                                                                 | DEWHA, 2008. Approved Conservation Advice for Lagorchestes conspicillatus conspicillatus (Spectacled Hare-wallaby (Barrow Island)). Canberra: Department of the Environment, Water, Heritage and the Arts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Mammal  | <i>Macroderma gigas</i>                       | Ghost Bat                                           | Northern Australia, inhabiting arid Pilbara to tropical savanna woodlands and rainforests rainforest, monsoon and vine thicket, open woodlands and arid areas and reside in caves, rock crevices and disused mine adits (DoE, 2016).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | VU            | VU       | 2022       | 2024        | 209            | 447  | 27.15               | 2.08                 | Known  | 0                                | 1                      | 1                       | 2                           | 4           | High                  | High                   | There are records within 15 kilometres of the survey area and clay plain especially cracking clays are known to be utilised by the species.                                             | DoE, 2016. Macroderma gigas (ghost bat) Conservation Advice.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Fish    | <i>Leiopotherapon aheneus</i>                 | Fortescue Grunter                                   | Adult Fortescue Grunters are found rocky pools and the slow-flowing sections of streams, as well as in schools at the base of small waterfalls (ALA, 2024).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | P4            |          | 2020       | 2018        | 41             | 11   | 41.82               | 41.83                |        | 0                                | 0                      | 1                       | 0                           | 1           | Negligible            | Negligible             | No suitable watered habitat in the survey area.                                                                                                                                         | ALA, 2025. Leiopotherapon aheneus (Mees, 1963).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Mammal  | <i>Macrotis lagotis</i>                       | Bilby                                               | Occupies three main habitats: open tussock grassland on uplands and hills, Acacia aneura (mulga) woodland/shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas. In Western Australia they are known to occur in The Gibson Desert, Little Sandy Desert, Great Sandy Desert and parts of the Pilbara and Kimberley (TSSC, 2016).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | VU            | VU       | 1900       | 2001        | 2              | 6    | 33.76               | 10.03                | Likely | 0                                | 1                      | 0                       | 2                           | 3           | High                  | Low                    | Species only exists within fenced reserved. DBCA removed records after reaching out to them, assuming it was most likely a wrong identification.                                        | TSSC, 2016. Conservation Advice Macrotis lagotis greater bilby. Canberra: Department of the Environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Bird    | <i>Pezoporus occidentalis</i>                 | Night Parrot                                        | Wiluna district of central Western Australia, and the Lake Gregory area of northern Western Australia (Olsen, 2018), in spinifex grasslands and/or chenopod shrublands (Garnett et al., 2011).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CR            | CR       |            | 2017        |                | 3    |                     | 30.48                | Likely | 0                                | 0                      | 1                       | 2                           | 3           | High                  | Low                    | Only marginal seasonal foraging habitat, but no roosting or nesting habitat in the survey area.                                                                                         | Olsen, P., 2018. Night Parrot: Australia's Most Elusive Bird. CSIRO Publishing<br>Garnett, ST, Szabo, JK, & Dutton, G. 2011. The Action Plan for Australian Birds 2010. CSIRO Publishing, Collingwood.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Mammal  | <i>Pseudomys chapmani</i>                     | Western Pebble-mound Mouse                          | Pebly soils in arid tussock grassland and acacia woodland og Western Australia, in hummock grasslands, Triodia basedowii, Acacia spp. and Pilolus. It is associated with eroding sands and can be found in the Pilbara region in areas of rocky hummock grassland with little or no soil and an overstorey of Acacia spp. (Kitchener 1983; Burbidge 2016).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P4            |          | 2024       | 2024        | 1187           | 647  | 0.32                | 3.01                 |        | 0                                | 1                      | 1                       | 2                           | 4           | High                  | High                   | May occur as transient visitor.                                                                                                                                                         | Burbidge AA, 2016. Pseudomys chapmani (errata version published in 2017). The IUCN Red List of Threatened Species 2016.<br>Kitchener DJ, 1983. Pebble-mound Mouse Pseudomys chapmani. In Strahan, Ronald (ed.), Complete book of Australian mammals. Australian Museum: the National Photographic Index of Australian Wildlife. Sydney: Angus and Robertson. pp. 416–17.                                                                                                                                                                                                                                                                                                                                                                                                               |
| Reptile | <i>Liopholis kintorei</i>                     | Great Desert Skink                                  | The Great Desert Skink commonly occurs on open spinifex sandplains and adjacent dune field swales but rarely in extensive dune fields or rocky outcrops. Most sites are on low nutrient soils derived from laterites, sandstones and quartzites, supporting a simple, low, open shrubland flora that is usually dominated by spinifex hummock grasses with scattered shrubs including various Acacia, Eucalypt, Grevillea and Hakea species, and often the sub-shrub Androcalva loxophylla. Tjakura inhabit sandplain habitat , the spinifex species associated with the species vary but is most commonly hard spinifex (Triodia basedowii) (DCCEEW, 2023). The principle food source for the great desert skink is the termite Drepanotermes perniger which has a naturally patchy distribution and burrow systems that appear to be constructed in close proximity to termite mounds (McAlpin et al., 2011). | VU            | VU       |            |             |                |      |                     |                      | May    | 0                                | 0                      | 0                       | 1                           | 1           | Low                   | Negligible             | No suitable habitat.                                                                                                                                                                    | Threatened Species Scientific Committee (2016). Conservation Advice Liopholis kintorei great desert skink. Canberra: Department of the Environment and Energy. Available from: <a href="http://www.environment.gov.au/biodiversity/threatened/species/pubs/83160-conservation-advice-16122016.pdf">http://www.environment.gov.au/biodiversity/threatened/species/pubs/83160-conservation-advice-16122016.pdf</a> . In effect under the EPBC Act from 16-Dec-2016.<br><br>McAlpin S (2011) Social structure and mating system of the Great Desert Skink, Liopholis kintorei. Masters Thesis, Macquarie University.<br><br>DCCEEW (2023) Looking after Tjakura, Tjalapa, Mulyamiji, Warrama, Nampu - National Recovery Plan for the Great Desert Skink (Liopholis kintorei) 2023 - 2033. |
| Reptile | <i>Underwoodisaurus seorsus</i>               | Pilbara Barking Gecko                               | Known only from the Hamersley Range in the Pilbara region, they have been observed at the bottom of a rocky gorge with a low tree cover, with associated vegetation such as kiw soarse trees of Eucalyptus leucophloia, low shrubs of Acacia pilbara and Triodia wiseana (Doughty & Oliver, 2011).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | P2            |          | 2022       | 2022        | 3              | 24   | 39.25               | 33.15                |        | 0                                | 0                      | 1                       | 2                           | 3           | High                  | High                   | May use the area for foraging.                                                                                                                                                          | ALA, 2025. Underwoodisaurus seorsus Doughty & Oliver, 2011<br><br>Doughty, P & Oliver, PM, 2011. A new species of Underwoodisaurus (Squamata: Gekkota: Carphodactylidae) from the Pilbara region of Western Australia. Zootaxa, 3010: 20-30.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Bird    | <i>Motacilla cinerea</i>                      | Grey Wagtail                                        | Often near flowing water with nearby rocks or surrogate rocky habitat, from mountain streams to weirs in suburban parklands (eBird, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | MI            | MI & MA  |            |             |                |      |                     |                      | May    | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable watered habitat in the survey area.                                                                                                                                         | eBird, 2025. Grey Wagtail Motacilla cinerea. Accessed, 2025.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Bird    | <i>Motacilla flava</i>                        | Yellow Wagtail                                      | Open country near water, such as wet meadows (DCCEEW, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MI            | MI & MA  |            |             |                |      |                     |                      | May    | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable damp habitat in survey area.                                                                                                                                                | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Mammal  | <i>Notomys longicaudatus</i>                  | Long tailed hopping mouse                           | Species is extinct.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EX            | EX       |            | 0           |                | 1    |                     | 47.13                |        | 0                                | 0                      | 0                       | 1                           | 1           | Low                   | Negligible             | Extinct.                                                                                                                                                                                | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Reptile | <i>Notoscincus butleri</i>                    | Butler's snake-eyed skink/lined soil-creviche skink | This species resides in arid, rocky near coastal areas of the Pilbara, associated with spinifex dominated areas near creek and river margins and stony grassland (Wilson and Swan, 2023;ALA, 2024).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | P4            |          | 2019       | 2018        | 15             | 29   | 96.05               | 72.91                |        | 0                                | 0                      | 1                       | 1                           | 2           | Low                   | Negligible             | Occurs in near coastal rocky habitat.                                                                                                                                                   | Wilson, S.K., & Swan, G. 2023. A complete guide to reptiles of Australia, Sixth Edition. New Holland Publishers Chatswood, N.S.W<br>Atlas of Living Australia (ALA) (2024). Notoscincus butleri Storr, 1979.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Mammal  | <i>Nyctophilus major tor</i>                  | Central Long-eared Bat                              | The trees of the upperstory of its habitat are the large to very tall eucalypt species, karri Eucalyptus diversicolor, jarrah E. marginata, tuart E. gomphocephala, and marri Corymbia calophylla. Other woodland types inhabited by the bat include stands of melaleuca, banksia and sheoak tees of genus Allocasuarina, and include a dense understory (Andrew, 2015).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | P3            |          |            | 1977        |                | 1    |                     | 52.30                |        | 0                                | 0                      | 0                       | 1                           | 1           | Low                   | Negligible             | The species is found in jarrah, marri, karri and tuart eucalypt woodland and other woodlands with dense understory. There is only one singular record of the species from 50 years ago. | Andrew, D., 2015. Complete Guide to Finding the Mammals of Australia. CSIRO Publishing, Clayton South, Victoria. p. 336                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Bird    | <i>Pandion haliaetus</i>                      | Osprey                                              | Littoral and coastal habitats, terrestrial wetlands of tropical and temperate Australia, and offshore islands. Atypical habitats incude heath, woodland or forest (DCCEEW, 2025).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               | MI & MA  | 1981       |             |                | 1    |                     | 40.18                |        | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable wetland habitat.                                                                                                                                                            | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

Appendix C- Significant Fauna Desktop Results

| Type   | Taxon                                        | Common Name                          | Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Cons. Code    |              | Date       |             | No. of records |      | Distance (km)       |                      | PMST  | Pre-survey Likelihood Assessment |                        |                         |                             | Total Score | Pre-survey Likelihood | Post-survey Likelihood | Comments                                                                                              | References                                                                                                                                             |
|--------|----------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|------------|-------------|----------------|------|---------------------|----------------------|-------|----------------------------------|------------------------|-------------------------|-----------------------------|-------------|-----------------------|------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |                                              |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | BC Act / DBCA | EPBC Act     | Date (Rio) | Date (DBCA) | Rio            | DBCA | Distance (km) [Rio] | Distance (km) [DBCA] |       | Recorded in Survey Area          | Known Occurrence <20km | Recent Record <20 years | Habitat Suitability (0,1,2) |             |                       |                        |                                                                                                       |                                                                                                                                                        |
| Bird   | <i>Falco hypoleucos</i>                      | Grey Falcon                          | Timbered lowland plains, including acacia shrublands, particularly with tree-lined watercourses, tussock grassland and open woodland (TSSC, 2020).                                                                                                                                                                                                                                                                                                                                             | VU            | VU           | 2020       | 2024        | 1              | 7    | 126.97              | 16.47                | Known | 0                                | 1                      | 1                       | 1                           | 3           | Moderate              | Moderate               | May utilise area for seasonal foraging as a transient visitor, no suitable breeding/roosting habitat. | TSSC, 2020. Conservation Advice Falco hypoleucos Grey Falcon. Canberra: Department of Agriculture, Water and the Environment.                          |
| Bird   | <i>Plegadis falcinellus</i>                  | Glossy Ibis                          | The Glossy Ibis' preferred habitat for foraging and breeding are fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation. The species is occasionally found in coastal locations such as estuaries, deltas, saltmarshes and coastal lagoon. Generally located east of the Kimberley in WA, and patchily distributed throughout the rest of WA (DCCEEW, 2025).            | MI            | MI & MA      |            | 2010        |                | 3    |                     | 83.45                |       | 0                                | 0                      | 1                       | 0                           | 1           | Negligible            | Negligible             | No suitable wetland habitat.                                                                          | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                    |
| Bird   | <i>Polytelis alexandrae</i>                  | Princess Parrot                      | The Princess Parrot is usually recorded from shrubland in swales between sand dunes, with occupied sites typically having a variety of shrubs (including Grevillea, Hakea, Cassia and Eremophila species) among scattered emergent trees, with a ground-cover of spinifex Triodia species. The species occurs less often in woodland, and sometimes occurs in vegetated riverine and littoral areas. The princess parrot forages on the ground and in flowering shrubs and trees (TSSC, 2018). | P4            | VU           |            |             |                |      |                     |                      | May   | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No records of the species. No suitable habitat.                                                       | TSSC, 2018. Conservation Advice Polytelis alexandrae princess parrot. Canberra: Department of the Environment and Energy.                              |
| Bird   | <i>Falco peregrinus</i>                      | Peregrine Falcon                     | This species is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas.(BirdLife Australia, 2025).                                                                                                                                                                                                                                                                                                                                   | OS            |              | 2019       | 2017        | 16             | 30   | 37.98               | 7.00                 |       | 0                                | 1                      | 1                       | 1                           | 3           | Moderate              | Moderate               | Old mounds in area and suitably pebbled substrate.                                                    | BirdLife Australia, 2025. Peregrine Falcon - Species Profile. Accessed 2025.                                                                           |
| Mammal | <i>Leporillus conditor</i>                   | Greater Stick-nest Rat               | Southern arid and semi-arid regions of Australia, with the only natural extant population being on Franklin Island, SA. Individuals from this island have been bred and reintroduced to other islands in SA and Salutation Island in WA. Inhabits perennial shrublands, particularly with succulent and semi-succulent shrubs (DCCEEW, 2025).                                                                                                                                                  | CD            | VU           |            | 2024        |                | 3    |                     | 19.34                |       | 0                                | 1                      | 1                       | 1                           | 3           | Moderate              | Negligible             | May utilise area for opportunistic foraging.                                                          | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                    |
| Bird   | <i>Rostratula australis</i>                  | Australian Painted Snipe             | Shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans (DCCEEW, 2025).                                                                                                                                                                                                                                                                                                                                                  | EN            | EN & MA      |            |             |                |      |                     |                      | May   | 0                                | 0                      | 0                       | 0                           | 0           | Negligible            | Negligible             | No suitable habitat.                                                                                  | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                    |
| Bird   | <i>Tringa glareola</i>                       | Wood sandpiper                       | Well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes with emergent plants or grasses, dominated by taller fringing vegetation including rushes, reeds, shrubs and trees (dead or alive) (DCCEEW, 2025).                                                                                                                                                                                                                                       | MI            | MI & MA      |            | 2013        |                | 6    |                     | 84.03                |       | 0                                | 0                      | 1                       | 0                           | 1           | Negligible            | Negligible             | No suitable watered habitat in the survey area.                                                       | DCCEEW, 2025. Species Profile and Threats Database.                                                                                                    |
| Bird   | <i>Tringa nebularia</i>                      | Common Greenshank                    | Inland wetlands and sheltered coastal habitats In shallows around the edges of water often among pneumatophores of mangroves or other sparse, emergent or fringing vegetation, such as sedges or saltmarsh (DCCEEW, 2025).                                                                                                                                                                                                                                                                     | MI            | EN & MI & MA |            | 2011        |                | 2    |                     | 41.92                |       | 0                                | 0                      | 1                       | 0                           | 1           | Negligible            | Negligible             | No suitable habitat.                                                                                  | DCCEEW, 2024. Conservation Advice for Tringa nebularia (common greenshank). Canberra: Department of Climate Change, Energy, the Environment and Water. |
| Mammal | <i>Rhinonictoris aurantia</i> (Pilbara form) | Orange leaf nosed Bat (Pilbara form) | Occurs throughout the Pilbara and adjacent upper Gascoyne regions of Western Australia. This species relies on underground roosts supporting warm, high humidity microclimates. Only relatively deep, complex caves and disused underground mines contain such conditions - these are relatively uncommon and limit the area of occupancy of this species.                                                                                                                                     | VU            | VU           |            | 2023        |                | 167  |                     | 19.85                | Known | 0                                | 1                      | 1                       | 1                           | 3           | Moderate              | Moderate               | Within species distribution and suitable habitat present in survey area.                              | TSSC, 2016. Conservation Advice Rhinonictoris aurantia (Pilbara form) (Pilbara Leaf-nosed Bat). Canberra: Department of the Environment.               |

# Appendix D

Flora Species by Family  
by Community Matrix

### Appendix D Flora Species by Family by Site

| Family         | Taxon                                                            | T2Q01 | T2Q02 | T2Q03 | T2Q04 | T2Q05 | T2Q06 | Opp |
|----------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-----|
| Amaranthaceae  |                                                                  |       |       |       |       |       |       |     |
|                | <i>Alternanthera nana</i>                                        | X     |       |       |       |       | X     |     |
|                | <i>Ptilotus calostachyus</i>                                     |       |       |       | X     | X     | X     |     |
|                | <i>Ptilotus exaltatus</i>                                        | X     | X     |       | X     | X     | X     |     |
|                | <i>Ptilotus gaudichaudii</i>                                     |       | X     | X     |       |       |       |     |
|                | <i>Ptilotus helipteroides</i>                                    |       |       |       | X     |       |       |     |
|                | <i>Ptilotus obovatus</i>                                         |       |       | X     |       |       | X     |     |
|                | <i>Ptilotus rotundifolius</i>                                    |       |       |       | X     | X     | X     |     |
| Apocynaceae    |                                                                  |       |       |       |       |       |       |     |
|                | <i>Leichhardtia australis</i>                                    |       |       |       |       | X     | X     |     |
| Asteraceae     |                                                                  |       |       |       |       |       |       |     |
|                | * <i>Bidens bipinnata</i>                                        | X     |       |       |       |       |       |     |
|                | <i>Brachyscome iberidifolia</i>                                  | X     |       |       |       |       |       |     |
|                | <i>Chrysocephalum pterochaetum</i>                               |       |       |       | X     |       |       |     |
|                | <i>Peripleura obovata</i>                                        | X     |       |       | X     | X     | X     | X   |
|                | <i>Peripleura virgata</i>                                        |       |       |       |       |       |       | X   |
|                | <i>Pterocaulon sphacelatum</i>                                   | X     |       |       |       |       |       |     |
|                | P3 <i>Vittadinia</i> sp. Coondewanna Flats (S. van Leeuwen 4684) |       |       |       |       |       |       | X   |
| Boraginaceae   |                                                                  |       |       |       |       |       |       |     |
|                | <i>Euploca inexplicita</i>                                       |       |       |       |       |       | X     |     |
|                | <i>Halgania erecta</i>                                           |       |       |       | X     |       |       |     |
|                | <i>Halgania gustafsenii</i> var. <i>gustafsenii</i>              |       |       |       | X     | X     | X     |     |
|                | <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>             | X     |       |       |       |       | X     |     |
| Brassicaceae   |                                                                  |       |       |       |       |       |       |     |
|                | <i>Lepidium echinatum</i>                                        |       | X     | X     |       |       |       |     |
| Campanulaceae  |                                                                  |       |       |       |       |       |       |     |
|                | <i>Wahlenbergia tumidifructa</i>                                 | X     |       |       |       |       |       |     |
| Chenopodiaceae |                                                                  |       |       |       |       |       |       |     |
|                | <i>Dysphania kalpari</i>                                         | X     | X     | X     |       |       |       |     |
|                | <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>     |       |       |       |       |       | X     |     |
|                | <i>Maireana planifolia</i>                                       |       | X     | X     |       |       |       |     |

| Family         | Taxon                                                | T2Q01 | T2Q02 | T2Q03 | T2Q04 | T2Q05 | T2Q06 | Opp |
|----------------|------------------------------------------------------|-------|-------|-------|-------|-------|-------|-----|
|                | <i>Maireana villosa</i>                              | X     | X     | X     |       |       | X     |     |
|                | <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)     |       | X     | X     |       |       |       |     |
|                | <i>Salsola australis</i>                             | X     | X     | X     |       |       | X     |     |
|                | <i>Sclerolaena cornishiana</i>                       | X     | X     | X     |       |       |       |     |
|                | <i>Sclerolaena tetragona</i>                         | X     | X     | X     |       |       |       |     |
| Cleomaceae     |                                                      |       |       |       |       |       |       |     |
|                | <i>Arivela viscosa</i>                               | X     |       |       |       |       |       |     |
| Convolvulaceae |                                                      |       |       |       |       |       |       |     |
|                | <i>Bonamia erecta</i>                                |       |       |       | X     | X     | X     |     |
|                | <i>Duperreya commixta</i>                            | X     | X     | X     | X     | X     | X     |     |
|                | <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> | X     | X     | X     |       | X     | X     |     |
| Cucurbitaceae  |                                                      |       |       |       |       |       |       |     |
|                | <i>Cucumis variabilis</i>                            |       |       | X     |       |       |       |     |
| Euphorbiaceae  |                                                      |       |       |       |       |       |       |     |
|                | <i>Euphorbia australis</i> var. <i>hispidula</i>     | X     |       |       | X     | X     | X     | X   |
|                | <i>Euphorbia australis</i> var. <i>subtomentosa</i>  |       |       |       |       |       |       | X   |
|                | <i>Euphorbia biconvexa</i>                           |       |       |       |       |       |       | X   |
|                | <i>Euphorbia drummondii</i>                          | X     | X     |       |       |       |       | X   |
|                | <i>Euphorbia ferdinandi</i> var. <i>ferdinandi</i>   |       |       | X     |       |       |       | X   |
|                | <i>Euphorbia tannensis</i> subsp. <i>eremophila</i>  |       |       |       |       | X     | X     |     |
| Fabaceae       |                                                      |       |       |       |       |       |       |     |
|                | <i>Acacia aptaneura</i>                              | X     | X     | X     |       |       |       |     |
|                | <i>Acacia bivenosa</i>                               |       |       |       |       |       | X     |     |
|                | <i>Acacia dictyophleba</i>                           |       |       |       | X     | X     | X     |     |
|                | <i>Acacia pachyacra</i>                              |       |       |       | X     |       | X     |     |
|                | <i>Acacia steedmanii</i> subsp. <i>borealis</i>      |       |       |       | X     | X     |       |     |
|                | <i>Glycine canescens</i>                             |       |       |       |       |       | X     |     |
|                | <i>Gompholobium oreophilum</i>                       |       |       |       |       | X     |       |     |
|                | <i>Indigofera monophylla</i>                         |       |       |       | X     | X     | X     |     |
|                | <i>Senna artemisioides</i> subsp. <i>helmsii</i>     |       |       |       |       | X     |       |     |
|                | <i>Senna artemisioides</i> subsp. <i>oligophylla</i> |       |       |       | X     | X     | X     |     |
|                | <i>Senna glutinosa</i> subsp. <i>glutinosa</i>       |       |       |       | X     | X     | X     |     |
|                | <i>Senna glutinosa</i> subsp. <i>pruinosa</i>        |       |       |       | X     |       |       |     |

| Family          | Taxon                                                 | T2Q01 | T2Q02 | T2Q03 | T2Q04 | T2Q05 | T2Q06 | Opp |
|-----------------|-------------------------------------------------------|-------|-------|-------|-------|-------|-------|-----|
|                 | <i>Senna notabilis</i>                                | X     |       | X     | X     | X     | X     |     |
|                 | <i>Senna pleurocarpa</i> var. <i>angustifolia</i>     |       |       |       | X     |       |       |     |
|                 | <i>Tephrosia oxalidea</i>                             | X     |       |       |       |       |       |     |
| Goodeniaceae    |                                                       |       |       |       |       |       |       |     |
|                 | <i>Brunonia</i> sp. long hairs (D.E. Symon 2440)      |       |       |       | X     |       |       |     |
|                 | <i>Goodenia microptera</i>                            | X     |       |       | X     | X     | X     |     |
|                 | <i>Goodenia prostrata</i>                             | X     |       | X     |       |       |       | X   |
|                 | <i>Goodenia stobbsiana</i>                            |       |       |       | X     | X     | X     |     |
|                 | <i>Scaevola amblyanthera</i>                          |       |       |       | X     |       |       |     |
|                 | <i>Scaevola parvifolia</i> ? subsp. <i>parvifolia</i> |       |       |       | X     | X     | X     |     |
| Gyrostemonaceae |                                                       |       |       |       |       |       |       |     |
|                 | <i>Codonocarpus cotinifolius</i>                      |       |       |       | X     | X     | X     |     |
| Malvaceae       |                                                       |       |       |       |       |       |       |     |
|                 | <i>Abutilon otocarpum</i>                             | X     | X     | X     |       | X     | X     |     |
|                 | <i>Corchorus</i> ? <i>lasiocarpus</i>                 | X     |       |       | X     | X     |       |     |
|                 | <i>Gossypium robinsonii</i>                           |       |       |       |       |       | X     |     |
|                 | <i>Hibiscus brachychlaenus</i>                        |       |       |       | X     | X     | X     |     |
|                 | <i>Hibiscus burtonii</i>                              |       |       | X     |       |       |       |     |
|                 | <i>Hibiscus coatesii</i>                              |       |       |       | X     | X     |       |     |
|                 | <i>Hibiscus sturtii</i>                               |       |       |       | X     |       |       |     |
|                 | * <i>Malvastrum americanum</i>                        |       |       |       |       |       |       | X   |
|                 | <i>Melhania oblongifolia</i>                          |       |       |       |       |       | X     |     |
|                 | <i>Seringia exastia</i>                               |       |       |       |       | X     |       |     |
|                 | <i>Sida arenicola</i>                                 |       |       |       | X     | X     | X     |     |
|                 | <i>Sida cardiophylla</i>                              |       |       |       | X     | X     | X     |     |
|                 | <i>Sida platycalyx</i>                                | X     | X     | X     |       |       |       |     |
|                 | <i>Sida</i> sp. L (A.M. Ashby 4202)                   | X     |       | X     |       |       | X     |     |
| Myrtaceae       |                                                       |       |       |       |       |       |       |     |
|                 | <i>Corymbia deserticola</i>                           |       |       |       | X     | X     | X     |     |
|                 | <i>Eucalyptus gamophylla</i>                          |       |       |       | X     | X     | X     |     |
| Nyctaginaceae   |                                                       |       |       |       |       |       |       |     |
|                 | <i>Boerhavia coccinea</i>                             | X     |       |       |       |       |       |     |
|                 | <i>Boerhavia repleta</i>                              | X     | X     | X     |       |       |       |     |

| Family         | Taxon                                           | T2Q01 | T2Q02 | T2Q03 | T2Q04 | T2Q05 | T2Q06 | Opp |
|----------------|-------------------------------------------------|-------|-------|-------|-------|-------|-------|-----|
| Oleaceae       |                                                 |       |       |       |       |       |       |     |
|                | <i>Jasminum didymum</i> subsp. <i>lineare</i>   |       |       |       | X     | X     | X     |     |
| Phyllanthaceae |                                                 |       |       |       |       |       |       |     |
|                | <i>Dendrophyllanthus erwinii</i>                |       |       |       |       | X     | X     |     |
| Poaceae        |                                                 |       |       |       |       |       |       |     |
|                | <i>Amphipogon sericeus</i>                      | X     |       |       | X     | X     | X     |     |
|                | <i>Aristida contorta</i>                        | X     | X     | X     |       | X     |       |     |
|                | <i>Aristida holathera</i> var. <i>holathera</i> |       |       |       | X     | X     | X     |     |
|                | <i>Aristida inaequiglumis</i>                   | X     | X     | X     | X     | X     | X     | X   |
|                | <i>Aristida pruinosa</i>                        |       |       |       |       |       |       | X   |
|                | <i>Aristida</i> sp. Indet                       |       |       | X     |       |       |       |     |
|                | * <i>Cenchrus ciliaris</i>                      |       |       |       |       |       |       | X   |
|                | <i>Chrysopogon fallax</i>                       | X     | X     | X     |       |       | X     |     |
|                | <i>Cymbopogon ambiguus</i>                      | X     | X     | X     | X     | X     | X     |     |
|                | <i>Digitaria ammophila</i>                      | X     | X     | X     |       |       |       |     |
|                | <i>Enneapogon polyphyllus</i>                   | X     | X     | X     |       |       | X     |     |
|                | <i>Eragrostis eriopoda</i>                      | X     |       |       | X     | X     | X     |     |
|                | <i>Eragrostis pergracilis</i>                   |       | X     | X     |       |       |       |     |
|                | <i>Eriachne mucronata</i>                       |       | X     | X     |       |       |       |     |
|                | <i>Eulalia aurea</i>                            | X     |       |       | X     | X     | X     |     |
|                | * <i>Melinis repens</i>                         |       |       |       |       |       | X     | X   |
|                | <i>Neurachne muelleri</i>                       |       |       |       | X     | X     | X     |     |
|                | <i>Panicum decompositum</i>                     | X     | X     | X     |       | X     | X     |     |
|                | <i>Paspalidium clementii</i>                    |       |       | X     |       |       |       |     |
|                | <i>Perotis rara</i>                             | X     | X     | X     |       |       |       |     |
|                | <i>Schizachyrium fragile</i>                    |       |       |       |       | X     |       |     |
|                | <i>Sporobolus australasicus</i>                 | X     | X     | X     |       |       |       |     |
|                | <i>Themeda triandra</i>                         | X     |       | X     | X     |       | X     | X   |
|                | <i>Triodia longiceps</i>                        | X     |       |       | X     | X     |       |     |
|                | <i>Triodia melvillei</i>                        | X     | X     | X     |       |       |       |     |
|                | <i>Triodia pungens</i>                          | X     |       | X     | X     | X     | X     |     |
| Polygalaceae   |                                                 |       |       |       |       |       |       |     |
|                | <i>Polygala isingii</i>                         |       |       | X     |       |       |       |     |

| Family           | Taxon                                               | T2Q01 | T2Q02 | T2Q03 | T2Q04 | T2Q05 | T2Q06 | Opp |
|------------------|-----------------------------------------------------|-------|-------|-------|-------|-------|-------|-----|
| Portulacaceae    |                                                     |       |       |       |       |       |       |     |
|                  | <i>Portulaca oleracea</i>                           | X     | X     | X     |       |       |       |     |
| Proteaceae       |                                                     |       |       |       |       |       |       |     |
|                  | <i>Hakea lorea</i>                                  | X     |       | X     | X     | X     |       |     |
| Pteridaceae      |                                                     |       |       |       |       |       |       |     |
|                  | <i>Cheilanthes sieberi</i>                          | X     | X     | X     |       |       |       |     |
| Santalaceae      |                                                     |       |       |       |       |       |       |     |
|                  | <i>Santalum lanceolatum</i>                         |       |       |       |       | X     |       |     |
| Scrophulariaceae |                                                     |       |       |       |       |       |       |     |
|                  | <i>Eremophila forrestii</i> subsp. <i>forrestii</i> |       | X     | X     |       |       |       |     |
|                  | <i>Eremophila lanceolata</i>                        | X     | X     | X     |       |       |       |     |
|                  | <i>Eremophila longifolia</i>                        | X     |       |       |       |       | X     |     |
| Solanaceae       |                                                     |       |       |       |       |       |       |     |
|                  | <i>Solanum lasiophyllum</i>                         |       |       |       |       | X     |       |     |
|                  | <i>Solanum piceum</i>                               |       |       |       |       | X     |       |     |
| Violaceae        |                                                     |       |       |       |       |       |       |     |
|                  | <i>Afrohybanthus aurantiacus</i>                    |       |       |       | X     |       |       |     |
| Zygophyllaceae   |                                                     |       |       |       |       |       |       |     |
|                  | <i>Tribulus astrocarpus</i>                         | X     | X     | X     |       |       |       |     |

# Appendix E

## Flora Site Data

## Appendix E Flora Site Data

**Site No:** T2Q01      **Date:** 08/04/2025      **Longitude:** 118.582364      **Latitude:** -22.86375

**Type:** Quadrat

**Size:** 50m x 50m

**Topography:** Clay plain

**Vegetation Type:** AaSaTm

**Fire:** 5-10 years

**Rock Type:** Ironstone

**Soil Types:** Red-brown sandy clay loam

**Effort:** Three people

**Surface:**

**Vegetation Condition:** Very Good

**Condition Notes:** Very old vehicle tracks, weeds

**Vegetation Community:** Low open woodland of *Acacia aptaneura* over scattered low shrubs of *Maireana villosa* and *Salsola australis* over scattered hummock grasses of *Triodia melvillei* over very open tussock grassland of *Aristida inaequiglumis*, *Eulalia aurea* and *Panicum decompositum*.



| Cons. Status | Taxon                         | Height (m) | % Cover | Comment     |
|--------------|-------------------------------|------------|---------|-------------|
|              | <i>Abutilon otocarpum</i>     | 0.4        | 0.1     | CM250408-07 |
|              | <i>Acacia aptaneura</i>       | 6          | 8       | CM250408-06 |
|              | <i>Alternanthera nana</i>     | 0.3        | 0.1     | CM250408-16 |
|              | <i>Amphipogon sericeus</i>    | 0.3        | 0.1     |             |
|              | <i>Aristida contorta</i>      | 0.3        | 0.1     |             |
|              | <i>Aristida inaequiglumis</i> | 1.2        | 7       | CM250408-11 |

| Cons. Status | Taxon                                                | Height (m) | % Cover | Comment     |
|--------------|------------------------------------------------------|------------|---------|-------------|
|              | <i>Arivela viscosa</i>                               | 0.6        | 0.1     |             |
| *            | <i>Bidens bipinnata</i>                              | 0.4        | 0.1     |             |
|              | <i>Boerhavia coccinea</i>                            | 0.2        | 0.1     | CM250408-24 |
|              | <i>Boerhavia repleta</i>                             | 0.2        | 0.1     | CM250408-23 |
|              | <i>Brachyscome iberidifolia</i>                      | 0.2        | 0.1     | CM250408-22 |
|              | <i>Cheilanthes sieberi</i>                           | 0.2        | 0.1     |             |
|              | <i>Chrysopogon fallax</i>                            | 0.6        | 0.1     |             |
|              | <i>Corchorus ?lasiocarpus</i>                        | 0.3        | 0.1     | CM250408-19 |
|              | <i>Cymbopogon ambiguus</i>                           | 0.5        | 0.1     |             |
|              | <i>Digitaria ammobila</i>                            | 0.4        | 0.1     |             |
|              | <i>Duperreya commixta</i>                            | 0          | 0.1     | CM250408-06 |
|              | <i>Dysphania kalpari</i>                             | 0.2        | 0.1     | CM250408-05 |
|              | <i>Enneapogon polyphyllus</i>                        | 0.3        | 0.1     | CM250408-08 |
|              | <i>Eragrostis eriopoda</i>                           | 0.4        | 0.1     | CM250408-31 |
|              | <i>Eremophila lanceolata</i>                         | 0.4        | 0.1     | CM250408-14 |
|              | <i>Eremophila longifolia</i>                         | 2.1        | 0.1     | CM250408-12 |
|              | <i>Eulalia aurea</i>                                 | 0.4        | 1       |             |
|              | <i>Euphorbia australis</i> var. <i>hispidula</i>     | 0.2        | 0.1     | CM250408-25 |
|              | <i>Euphorbia drummondii</i>                          | 0.1        | 0.1     | CM250408-04 |
|              | <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> | 0.2        | 0.1     |             |
|              | <i>Goodenia microptera</i>                           | 0.4        | 0.1     | CM250408-18 |
|              | <i>Goodenia prostrata</i>                            | 0.01       | 0.1     |             |
|              | <i>Hakea lorea</i>                                   | 1.1        | 0.1     |             |
|              | <i>Maireana villosa</i>                              | 0.5        | 0.5     | CM250408-02 |
|              | <i>Panicum decompositum</i>                          | 0.4        | 0.5     | CM250408-09 |
|              | <i>Peripleura obovata</i>                            | 0.4        | 0.1     | CM250408-10 |
|              | <i>Perotis rara</i>                                  | 0.2        | 0.1     |             |
|              | <i>Portulaca oleracea</i>                            | 0.1        | 0.1     |             |
|              | <i>Pterocaulon sphacelatum</i>                       | 0.5        | 0.1     | CM250408-17 |
|              | <i>Ptilotus exaltatus</i>                            | 0.4        | 0.1     |             |
|              | <i>Salsola australis</i>                             | 0.5        | 0.5     |             |
|              | <i>Sclerolaena cornishiana</i>                       | 0.6        | 0.1     | CM250408-21 |
|              | <i>Sclerolaena tetragona</i>                         | 0.3        | 0.1     | CM250408-15 |
|              | <i>Senna notabilis</i>                               | 0.5        | 0.1     |             |
|              | <i>Sida platycalyx</i>                               | 0.3        | 0.1     |             |
|              | <i>Sida</i> sp. L (A.M. Ashby 4202)                  | 0.1        | 0.1     | CM250408-27 |
|              | <i>Sporobolus australasicus</i>                      | 0.3        | 0.1     |             |

| Cons. Status | Taxon                                                | Height (m) | % Cover | Comment     |
|--------------|------------------------------------------------------|------------|---------|-------------|
|              | <i>Tephrosia oxalidea</i>                            | 0.2        | 0.1     | CM250408-28 |
|              | <i>Themeda triandra</i>                              | 0.8        | 0.1     | CM250408-13 |
|              | <i>Tribulus astrocarpus</i>                          | 0.01       | 0.1     |             |
|              | <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> | 1.1        | 0.1     |             |
|              | <i>Triodia longiceps</i>                             | 0.6        | 0.1     |             |
|              | <i>Triodia melvillei</i>                             | 0.7        | 0.5     | CM250408-30 |
|              | <i>Triodia pungens</i>                               | 0.5        | 0.1     | CM250408-29 |
|              | <i>Wahlenbergia tumidifructa</i>                     | 0.4        | 0.1     | CM250408-26 |

**Site No:** T2Q02      **Date:** 08/04/2025      **Longitude:** 118.584861066667      **Latitude:** -22.8636572

**Type:** Quadrat  
**Size:** 50m x 50m

**Topography:** Clay Plain

**Vegetation Type:** AaSaTm

**Fire:** 5-10 years

**Rock Type:** Ironstone

**Soil Types:** Red-brown sandy clay loam

**Effort:** Three people

**Surface:**

**Vegetation Condition:** Excellent

**Condition Notes:** N/A

**Vegetation Community:** Low woodland of *Acacia aptaneura* over low open shrubland of *Salsola australis*, *Sclerolaena tetragona* and *Sida platycalyx* over scattered hummock grasses of *Triodia melvillei* over very open tussock grassland of *Aristida inaequiglumis*, *Aristida contorta* and *Chrysopogon fallax*, over scattered herbs of *Lepidium echinatum*.



| Cons. Status | Taxon                         | Height (m) | % Cover | Comment |
|--------------|-------------------------------|------------|---------|---------|
|              | <i>Abutilon otocarpum</i>     | 0.4        | 0.1     |         |
|              | <i>Acacia aptaneura</i>       | 7          | 11      |         |
|              | <i>Aristida contorta</i>      | 0.3        | 1       |         |
|              | <i>Aristida inaequiglumis</i> | 1.3        | 6       |         |
|              | <i>Boerhavia repleta</i>      | 0.1        | 0.1     |         |
|              | <i>Cheilanthes sieberi</i>    | 0.1        | 0.1     |         |
|              | <i>Chrysopogon fallax</i>     | 0.7        | 0.5     |         |

| Cons. Status | Taxon                                                | Height (m) | % Cover | Comment     |
|--------------|------------------------------------------------------|------------|---------|-------------|
|              | <i>Cymbopogon ambiguus</i>                           | 0.5        | 0.1     |             |
|              | <i>Digitaria ammophila</i>                           | 0.3        | 0.1     |             |
|              | <i>Duperreya commixta</i>                            | 0          | 0.1     |             |
|              | <i>Dysphania kalpari</i>                             | 0.3        | 0.1     |             |
|              | <i>Enneapogon polyphyllus</i>                        | 0.3        | 0.1     |             |
|              | <i>Eragrostis pergracilis</i>                        | 0.2        | 0.1     | CM250408-33 |
|              | <i>Eremophila forrestii</i> subsp. <i>forrestii</i>  | 0.6        | 0.1     |             |
|              | <i>Eremophila lanceolata</i>                         | 0.5        | 0.1     |             |
|              | <i>Eriachne mucronata</i>                            | 0.5        | 0.1     | CM250408-35 |
|              | <i>Euphorbia drummondii</i>                          | 0.1        | 0.1     |             |
|              | <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> | 0.2        | 0.1     |             |
|              | <i>Lepidium echinatum</i>                            | 0.01       | 0.5     | CM250408-34 |
|              | <i>Maireana planifolia</i>                           | 0.3        | 0.1     | CM250408-36 |
|              | <i>Maireana villosa</i>                              | 0.6        | 0.1     |             |
|              | <i>Panicum decompositum</i>                          | 0.5        | 0.1     |             |
|              | <i>Perotis rara</i>                                  | 0.1        | 0.1     |             |
|              | <i>Portulaca oleracea</i>                            | 0.2        | 0.1     |             |
|              | <i>Ptilotus exaltatus</i>                            | 0.5        | 0.1     |             |
|              | <i>Ptilotus gaudichaudii</i>                         | 0.3        | 0.1     |             |
|              | <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)     | 1.2        | 0.1     |             |
|              | <i>Salsola australis</i>                             | 0.5        | 1       |             |
|              | <i>Sclerolaena cornishiana</i>                       | 0.3        | 0.1     |             |
|              | <i>Sclerolaena tetragona</i>                         | 0.4        | 1       | CM250408-32 |
|              | <i>Sida platycalyx</i>                               | 0.4        | 0.5     |             |
|              | <i>Sporobolus australasicus</i>                      | 0.3        | 0.1     |             |
|              | <i>Tribulus astrocarpus</i>                          | 0.01       | 0.1     |             |
|              | <i>Triodia melvillei</i>                             | 0.6        | 0.5     |             |

**Site No:** T2Q03      **Date:** 08/04/2025      **Longitude:** 118.587637466667      **Latitude:** -22.86265438333

**Type:** Quadrat

**Size:** 50m x 50m

**Topography:** Clay plain

**Vegetation Type:** AaSaTm

**Fire:** 5-10 years

**Rock Type:** Ironstone

**Soil Types:** Red-brown sandy clay loam

**Effort:** Three people

**Surface:**

**Vegetation Condition:** Excellent

**Condition Notes:** N/A

**Vegetation Community:** Low open woodland of *Acacia aptaneura* over scattered low shrubs of *Sclerolaena tetragona* and *Salsola australis* over scattered hummock grasses of *Triodia melvillei* and *Triodia pungens* over very open tussock grassland of *Aristida contorta*, *Aristida* spp and *Themeda triandra* over scattered herbs of *Lepidium echinatum* and *Ptilotus gaudichaudii*.



| Cons. Status | Taxon                         | Height (m) | % Cover | Comment     |
|--------------|-------------------------------|------------|---------|-------------|
|              | <i>Abutilon otocarpum</i>     | 0.3        | 0.1     |             |
|              | <i>Acacia aptaneura</i>       | 5.5        | 9       |             |
|              | <i>Aristida contorta</i>      | 0.3        | 4       |             |
|              | <i>Aristida inaequiglumis</i> | 0.6        | 0.1     |             |
|              | <i>Aristida</i> sp. Indet     | 0.6        | 1       | CM250408-44 |
|              | <i>Boerhavia repleta</i>      | 0.1        | 0.1     |             |
|              | <i>Cheilanthes sieberi</i>    | 0.1        | 0.1     |             |

| Cons. Status | Taxon                                                | Height (m) | % Cover | Comment     |
|--------------|------------------------------------------------------|------------|---------|-------------|
|              | <i>Chrysopogon fallax</i>                            | 0.7        | 0.1     |             |
|              | <i>Cucumis variabilis</i>                            | 0          | 0.1     |             |
|              | <i>Cymbopogon ambiguus</i>                           | 0.4        | 0.1     |             |
|              | <i>Digitaria ammophila</i>                           | 0.3        | 0.1     |             |
|              | <i>Duperreya commixta</i>                            | 0          | 0.1     |             |
|              | <i>Dysphania kalpari</i>                             | 0.1        | 0.1     |             |
|              | <i>Enneapogon polyphyllus</i>                        | 0.3        | 0.1     |             |
|              | <i>Eragrostis pergracilis</i>                        | 0.1        | 0.1     |             |
|              | <i>Eremophila forrestii</i> subsp. <i>forrestii</i>  | 0.8        | 0.1     | CM250408-37 |
|              | <i>Eremophila lanceolata</i>                         | 0.4        | 0.1     |             |
|              | <i>Eriachne mucronata</i>                            | 0.5        | 0.1     |             |
|              | <i>Euphorbia ferdinandi</i> var. <i>ferdinandi</i>   | 0.1        | 0.1     | CM250408-40 |
|              | <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> | 0.2        | 0.1     |             |
|              | <i>Goodenia prostrata</i>                            | 0.1        | 0.1     |             |
|              | <i>Hakea lorea</i>                                   | 3          | 0.1     |             |
|              | <i>Hibiscus burtonii</i>                             | 0.6        | 0.1     | CM250408-45 |
|              | <i>Lepidium echinatum</i>                            | 0.01       | 0.5     |             |
|              | <i>Maireana planifolia</i>                           | 0.4        | 0.1     | CM250408-43 |
|              | <i>Maireana villosa</i>                              | 0.5        | 0.1     |             |
|              | <i>Panicum decompositum</i>                          | 0.5        | 0.5     |             |
|              | <i>Paspalidium clementii</i>                         | 0.4        | 0.1     | CM250408-42 |
|              | <i>Perotis rara</i>                                  | 0.1        | 0.1     |             |
|              | <i>Polygala isingii</i>                              | 0.01       | 0.1     | CM250408-39 |
|              | <i>Portulaca oleracea</i>                            | 0.1        | 0.1     |             |
|              | <i>Ptilotus gaudichaudii</i>                         | 0.4        | 0.5     |             |
|              | <i>Ptilotus obovatus</i>                             | 0.5        | 0.1     |             |
|              | <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)     | 1.7        | 0.1     |             |
|              | <i>Salsola australis</i>                             | 0.5        | 0.5     |             |
|              | <i>Sclerolaena cornishiana</i>                       | 0.3        | 0.1     | CM250408-38 |
|              | <i>Sclerolaena tetragona</i>                         | 0.4        | 0.5     |             |
|              | <i>Senna notabilis</i>                               | 0.4        | 0.1     |             |
|              | <i>Sida platycalyx</i>                               | 0.3        | 0.1     |             |
|              | <i>Sida</i> sp. L (A.M. Ashby 4202)                  | 0.2        | 0.1     |             |
|              | <i>Sporobolus australasicus</i>                      | 0.3        | 0.1     |             |
|              | <i>Themeda triandra</i>                              | 0.7        | 1       |             |
|              | <i>Tribulus astrocarpus</i>                          | 0.01       | 0.1     |             |

| Cons. Status | Taxon                    | Height (m) | % Cover | Comment |
|--------------|--------------------------|------------|---------|---------|
|              | <i>Triodia melvillei</i> | 0.5        | 1       |         |
|              | <i>Triodia pungens</i>   | 0.5        | 1       |         |

**Site No:** T2Q04      **Date:** 09/04/2025      **Longitude:** 118.5804565333      **Latitude:** -22.85762916666

**Type:** Quadrat

**Size:** 50m x 50m

**Topography:** Clay plain

**Vegetation Type:** EgHgTp

**Fire:** 2-5 years

**Rock Type:** Ironstone

**Soil Types:** Red-brown sandy clay loam

**Effort:** Three people

**Surface:**

**Vegetation Condition:** Excellent

**Condition Notes:** N/A.

**Vegetation Community:** Scattered low trees of *Corymbia deserticola* over low open mallee woodland of *Eucalyptus gamophylla* over scattered low shrubs of *Halganina erecta* and *Scaevola parvifolia* ?subsp. *parvifolia* over very open hummock grassland of *Triodia pungens* and *T. longiceps* over scattered herbs of *Goodenia microptera*.



| Cons. Status | Taxon                                           | Height (m) | % Cover | Comment     |
|--------------|-------------------------------------------------|------------|---------|-------------|
|              | <i>Acacia dictyophleba</i>                      | 0.8        | 0.1     |             |
|              | <i>Acacia pachyacra</i>                         | 0.9        | 0.1     | CM250409-48 |
|              | <i>Acacia steedmanii</i> subsp. <i>borealis</i> | 1.3        | 0.1     | CM250409-46 |
|              | <i>Afrohybanthus aurantiacus</i>                | 0.4        | 0.1     | CM250409-53 |
|              | <i>Amphipogon sericeus</i>                      | 0.3        | 0.1     | CM250409-64 |
|              | <i>Aristida holathera</i> var. <i>holathera</i> | 0.6        | 0.1     | CM250409-67 |
|              | <i>Aristida inaequiglumis</i>                   | 0.7        | 0.1     |             |
|              | <i>Bonamia erecta</i>                           | 0.4        | 0.1     |             |

| Cons. Status | Taxon                                                | Height (m) | % Cover | Comment     |
|--------------|------------------------------------------------------|------------|---------|-------------|
|              | <i>Brunonia</i> sp. long hairs (D.E. Symon 2440)     | 0.3        | 0.1     | CM250409-52 |
|              | <i>Chrysocephalum pterochaetum</i>                   | 0.4        | 0.1     | CM250409-54 |
|              | <i>Codonocarpus cotinifolius</i>                     | 0.5        | 0.1     |             |
|              | <i>Corchorus ?lasiocarpus</i>                        | 0.2        | 0.1     |             |
|              | <i>Corymbia deserticola</i>                          | 6.5        | 0.5     |             |
|              | <i>Cymbopogon ambiguus</i>                           | 0.3        | 0.1     |             |
|              | <i>Duperreya commixta</i>                            | 0          | 0.1     |             |
|              | <i>Eragrostis eriopoda</i>                           | 0.3        | 0.1     | CM250409-61 |
|              | <i>Eucalyptus gamophylla</i>                         | 2.6        | 5       |             |
|              | <i>Eulalia aurea</i>                                 | 0.6        | 0.1     |             |
|              | <i>Euphorbia australis</i> var. <i>hispidula</i>     | 0.1        | 0.1     | CM250409-60 |
|              | <i>Goodenia microptera</i>                           | 0.4        | 0.5     |             |
|              | <i>Goodenia stobbsiana</i>                           | 0.2        | 0.1     |             |
|              | <i>Hakea lorea</i>                                   | 1.8        | 0.1     |             |
|              | <i>Halgania erecta</i>                               | 0.4        | 1       | CM250409-47 |
|              | <i>Halgania gustafsenii</i> var. <i>gustafsenii</i>  | 0.6        | 0.1     | CM250409-59 |
|              | <i>Hibiscus brachychlaenus</i>                       | 1.2        | 0.1     | CM250409-66 |
|              | <i>Hibiscus coatesii</i>                             | 0.4        | 0.1     | CM250409-65 |
|              | <i>Hibiscus sturtii</i>                              | 0.3        | 0.1     |             |
|              | <i>Indigofera monophylla</i>                         | 0.2        | 0.1     |             |
|              | <i>Jasminum didymum</i> subsp. <i>lineare</i>        | 1.2        | 0.1     |             |
|              | <i>Neurachne muelleri</i>                            | 0.6        | 0.1     |             |
|              | <i>Peripleura obovata</i>                            | 0.2        | 0.1     |             |
|              | <i>Ptilotus calostachyus</i>                         | 0.9        | 0.1     |             |
|              | <i>Ptilotus exaltatus</i>                            | 0.4        | 0.1     |             |
|              | <i>Ptilotus helipteroides</i>                        | 0.3        | 0.1     | CM250409-62 |
|              | <i>Ptilotus rotundifolius</i>                        | 0.5        | 0.1     |             |
|              | <i>Scaevola amblyanthera</i>                         | 0.3        | 0.1     |             |
|              | <i>Scaevola parvifolia</i> ?subsp. <i>parvifolia</i> | 0.4        | 0.5     | CM250409-50 |
|              | <i>Senna artemisioides</i> subsp. <i>oligophylla</i> | 0.5        | 0.1     | CM250409-51 |
|              | <i>Senna glutinosa</i> subsp. <i>glutinosa</i>       | 0.7        | 0.1     | CM250409-49 |
|              | <i>Senna glutinosa</i> subsp. <i>pruinosa</i>        | 0.5        | 0.1     |             |
|              | <i>Senna notabilis</i>                               | 0.4        | 0.1     |             |
|              | <i>Senna pleurocarpa</i> var. <i>angustifolia</i>    | 0.3        | 0.1     | CM250409-55 |
|              | <i>Sida arenicola</i>                                | 1.3        | 0.1     | CM250409-56 |
|              | <i>Sida cardiophylla</i>                             | 0.6        | 0.1     | CM250409-57 |

| Cons. Status | Taxon                    | Height (m) | % Cover | Comment |
|--------------|--------------------------|------------|---------|---------|
|              | <i>Themeda triandra</i>  | 0.7        | 0.1     |         |
|              | <i>Triodia longiceps</i> | 0.1        | 1.5     |         |
|              | <i>Triodia pungens</i>   | 0.2        | 1.5     |         |

**Site No:** T2Q05      **Date:** 09/04/2025      **Longitude:** 118.5832311833      **Latitude:** -22.8588719

**Type:** Quadrat

**Size:** 50m x 50m

**Topography:** Clay plain

**Vegetation Type:** EgHgTp

**Fire:** 2-5 years

**Rock Type:** Ironstone

**Soil Types:** Red-brown sandy clay loam

**Effort:** Three people

**Surface:**

**Vegetation Condition:** Excellent

**Condition Notes:** N/A

**Vegetation Community:** Scattered low trees of *Corymbia deserticola* over low open mallee woodland of *Eucalyptus gamophylla* over scattered tall shrubs of *Hakea lorea* over scattered low shrubs of *Halgania gustafsenii* var. *gustafsenii* and *Scaevola parvifolia* ?subsp. *parvifolia* over scattered hummock grasses of *Triodia pungens* over scattered tussock grasses of *Eulalia aurea*.



| Cons. Status | Taxon                                           | Height (m) | % Cover | Comment |
|--------------|-------------------------------------------------|------------|---------|---------|
|              | <i>Abutilon otocarpum</i>                       | 0.4        | 0.1     |         |
|              | <i>Acacia dictyophleba</i>                      | 0.5        | 0.1     |         |
|              | <i>Acacia steedmanii</i> subsp. <i>borealis</i> | 0.8        | 0.1     |         |
|              | <i>Amphipogon sericeus</i>                      | 0.3        | 0.1     |         |
|              | <i>Aristida contorta</i>                        | 0.3        | 0.1     |         |
|              | <i>Aristida holathera</i> var. <i>holathera</i> | 0.3        | 0.1     |         |
|              | <i>Aristida inaequiglumis</i>                   | 0.8        | 0.1     |         |
|              | <i>Bonamia erecta</i>                           | 0.4        | 0.1     |         |

| Cons. Status | Taxon                                                | Height (m) | % Cover | Comment     |
|--------------|------------------------------------------------------|------------|---------|-------------|
|              | <i>Codonocarpus cotinifolius</i>                     | 0.8        | 0.1     |             |
|              | <i>Corchorus ?lasiocarpus</i>                        | 0.3        | 0.1     |             |
|              | <i>Corymbia deserticola</i>                          | 7.5        | 1       |             |
|              | <i>Cymbopogon ambiguus</i>                           | 0.6        | 0.1     |             |
|              | <i>Dendrophyllanthus erwinii</i>                     | 0.1        | 0.1     | CM250409-69 |
|              | <i>Duperreya commixta</i>                            | 0.4        | 0.1     |             |
|              | <i>Eragrostis eriopoda</i>                           | 0.3        | 0.1     |             |
|              | <i>Eucalyptus gamophylla</i>                         | 2.8        | 3       |             |
|              | <i>Eulalia aurea</i>                                 | 0.4        | 1       |             |
|              | <i>Euphorbia australis</i> var. <i>hispidula</i>     | 0.1        | 0.1     |             |
|              | <i>Euphorbia tannensis</i> subsp. <i>eremophila</i>  | 0.5        | 0.1     | CM250409-70 |
|              | <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> | 0.3        | 0.1     |             |
|              | <i>Gompholobium oreophilum</i>                       | 0.6        | 0.1     |             |
|              | <i>Goodenia microptera</i>                           | 0.4        | 0.5     |             |
|              | <i>Goodenia stobbsiana</i>                           | 0.3        | 0.1     |             |
|              | <i>Hakea lorea</i>                                   | 3.5        | 0.5     |             |
|              | <i>Halgania gustafsenii</i> var. <i>gustafsenii</i>  | 0.4        | 0.5     |             |
|              | <i>Hibiscus brachychlaenus</i>                       | 0.7        | 0.1     |             |
|              | <i>Hibiscus coatesii</i>                             | 0.1        | 0.1     |             |
|              | <i>Indigofera monophylla</i>                         | 0.3        | 0.1     |             |
|              | <i>Jasminum didymum</i> subsp. <i>lineare</i>        | 0.8        | 0.1     |             |
|              | <i>Leichhardtia australis</i>                        | 0          | 0.1     |             |
|              | <i>Neurachne muelleri</i>                            | 0.6        | 0.1     |             |
|              | <i>Panicum decompositum</i>                          | 0.4        | 0.1     |             |
|              | <i>Peripleura obovata</i>                            | 0.4        | 0.1     |             |
|              | <i>Ptilotus calostachyus</i>                         | 0.8        | 0.1     |             |
|              | <i>Ptilotus exaltatus</i>                            | 0.01       | 0.1     |             |
|              | <i>Ptilotus rotundifolius</i>                        | 0.5        | 0.1     |             |
|              | <i>Santalum lanceolatum</i>                          | 1.3        | 0.1     |             |
|              | <i>Scaevola parvifolia</i> ?subsp. <i>parvifolia</i> | 0.3        | 0.5     |             |
|              | <i>Schizachyrium fragile</i>                         | 0.2        | 0.1     |             |
|              | <i>Senna artemisioides</i> subsp. <i>helmsii</i>     | 0.4        | 0.1     |             |
|              | <i>Senna artemisioides</i> subsp. <i>oligophylla</i> | 0.6        | 0.1     |             |
|              | <i>Senna glutinosa</i> subsp. <i>glutinosa</i>       | 1.2        | 0.1     |             |
|              | <i>Senna notabilis</i>                               | 0.2        | 0.1     |             |
|              | <i>Seringia exastia</i>                              | 0.5        | 0.1     |             |

| Cons. Status | Taxon                       | Height (m) | % Cover | Comment     |
|--------------|-----------------------------|------------|---------|-------------|
|              | <i>Sida arenicola</i>       | 1.1        | 0.1     |             |
|              | <i>Sida cardiophylla</i>    | 0.7        | 0.1     |             |
|              | <i>Solanum lasiophyllum</i> | 0.4        | 0.1     |             |
|              | <i>Solanum piceum</i>       | 0.7        | 0.1     | CM250409-68 |
|              | <i>Triodia longiceps</i>    | 0.2        | 0.1     |             |
|              | <i>Triodia pungens</i>      | 0.3        | 1       |             |

**Site No:** T2Q06      **Date:** 09/04/2025      **Longitude:** 118.5860445333      **Latitude:** -22.85874605

**Type:** Quadrat

**Size:** 50m x 50m

**Topography:** Clay plain

**Vegetation Type:** EgHgTp

**Fire:** 2-5 years

**Rock Type:** Ironstone

**Soil Types:** Red-brown sandy clay loam

**Effort:** Three people

**Surface:**

**Vegetation Condition:** Very Good

**Condition Notes:** Weeds present

**Vegetation Community:** Low open mallee woodland of *Eucalyptus gamophylla* over low open shrubland of *Eremophila longifolia*, *Ptilotus rotundifolius* and *Scaevola parvifolia* ?subsp. *parvifolia* over scattered hummock grasses of *Triodia pungens* over very open tussock grassland of *Eulalia aurea*, *Themeda triandra* and *Aristida holathera* var. *holathera*.



| Cons. Status | Taxon                                           | Height (m) | % Cover | Comment     |
|--------------|-------------------------------------------------|------------|---------|-------------|
|              | <i>Abutilon otocarpum</i>                       | 0.6        | 0.1     |             |
|              | <i>Acacia bivenosa</i>                          | 0.4        | 0.1     |             |
|              | <i>Acacia dictyophleba</i>                      | 0.6        | 0.1     |             |
|              | <i>Acacia pachyacra</i>                         | 0.5        | 0.1     |             |
|              | <i>Alternanthera nana</i>                       | 0.1        | 0.1     | CM250409-73 |
|              | <i>Amphipogon sericeus</i>                      | 0.3        | 0.1     |             |
|              | <i>Aristida holathera</i> var. <i>holathera</i> | 0.4        | 0.5     |             |
|              | <i>Aristida inaequiglumis</i>                   | 0.5        | 0.1     |             |

| Cons. Status | Taxon                                                        | Height (m) | % Cover | Comment     |
|--------------|--------------------------------------------------------------|------------|---------|-------------|
|              | <i>Bonamia erecta</i>                                        | 0.4        | 0.1     |             |
|              | <i>Chrysopogon fallax</i>                                    | 0.6        | 0.1     |             |
|              | <i>Codonocarpus cotinifolius</i>                             | 0.6        | 0.1     |             |
|              | <i>Corymbia deserticola</i>                                  | 4.3        | 0.1     |             |
|              | <i>Cymbopogon ambiguus</i>                                   | 0.3        | 0.1     |             |
|              | <i>Dendrophyllanthus erwinii</i>                             | 0.1        | 0.1     |             |
|              | <i>Duperreya commixta</i>                                    | 0          | 0.1     |             |
|              | <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> | 0.2        | 0.1     | CM250409-72 |
|              | <i>Enneapogon polyphyllus</i>                                | 0.2        | 0.1     |             |
|              | <i>Eragrostis eriopoda</i>                                   | 0.3        | 0.1     |             |
|              | <i>Eremophila longifolia</i>                                 | 0.5        | 2       |             |
|              | <i>Eucalyptus gamophylla</i>                                 | 3.6        | 6       |             |
|              | <i>Eulalia aurea</i>                                         | 0.6        | 2       |             |
|              | <i>Euphorbia australis</i> var. <i>hispidula</i>             | 0.1        | 0.1     |             |
|              | <i>Euphorbia tannensis</i> subsp. <i>eremophila</i>          | 0.3        | 0.1     |             |
|              | <i>Euploca inexplicita</i>                                   | 0.2        | 0.1     | CM250409-71 |
|              | <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>         | 0.2        | 0.1     |             |
|              | <i>Glycine canescens</i>                                     | 0          | 0.1     | CM250409-75 |
|              | <i>Goodenia microptera</i>                                   | 0.3        | 0.1     |             |
|              | <i>Goodenia stobbsiana</i>                                   | 0.2        | 0.1     |             |
|              | <i>Gossypium robinsonii</i>                                  | 0.5        | 0.1     |             |
|              | <i>Halgania gustafsenii</i> var. <i>gustafsenii</i>          | 0.4        | 0.1     |             |
|              | <i>Hibiscus brachychlaenus</i>                               | 0.4        | 0.1     |             |
|              | <i>Indigofera monophylla</i>                                 | 0.3        | 0.1     |             |
|              | <i>Jasminum didymum</i> subsp. <i>lineare</i>                | 0.4        | 0.1     |             |
|              | <i>Leichhardtia australis</i>                                | 0          | 0.1     |             |
|              | <i>Maireana villosa</i>                                      | 0.4        | 0.1     | CM250409-74 |
|              | <i>Melhanie oblongifolia</i>                                 | 0.3        | 0.1     |             |
| *            | <i>Melinis repens</i>                                        | 0.4        | 0.1     |             |
|              | <i>Neurachne muelleri</i>                                    | 0.4        | 0.1     |             |
|              | <i>Panicum decompositum</i>                                  | 0.4        | 0.1     |             |
|              | <i>Peripleura obovata</i>                                    | 0.3        | 0.1     |             |
|              | <i>Ptilotus calostachyus</i>                                 | 0.5        | 0.1     |             |
|              | <i>Ptilotus exaltatus</i>                                    | 0.5        | 0.1     |             |
|              | <i>Ptilotus obovatus</i>                                     | 0.3        | 0.1     |             |
|              | <i>Ptilotus rotundifolius</i>                                | 0.6        | 0.5     |             |

| Cons. Status | Taxon                                                | Height (m) | % Cover | Comment |
|--------------|------------------------------------------------------|------------|---------|---------|
|              | <i>Salsola australis</i>                             | 0.9        | 0.1     |         |
|              | <i>Scaevola parvifolia</i> ?subsp. <i>parvifolia</i> | 0.3        | 0.5     |         |
|              | <i>Senna artemisioides</i> subsp. <i>oligophylla</i> | 0.3        | 0.1     |         |
|              | <i>Senna glutinosa</i> subsp. <i>glutinosa</i>       | 0.6        | 0.1     |         |
|              | <i>Senna notabilis</i>                               | 0.4        | 0.1     |         |
|              | <i>Sida arenicola</i>                                | 0.7        | 0.1     |         |
|              | <i>Sida cardiophylla</i>                             | 0.4        | 0.1     |         |
|              | <i>Sida</i> sp. L (A.M. Ashby 4202)                  | 0.2        | 0.1     |         |
|              | <i>Themeda triandra</i>                              | 0.7        | 1       |         |
|              | <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> | 0.6        | 0.1     |         |
|              | <i>Triodia pungens</i>                               | 0.3        | 1       |         |

# Appendix F

## Fauna Species List

## Appendix F Fauna Species List

| Taxon                           | Common Name               | Listing   | Observation |
|---------------------------------|---------------------------|-----------|-------------|
| Bird                            |                           |           |             |
| <i>Gymnorhina tibicen</i>       | Australian Magpie         |           | Seen        |
| <i>Campephagidae coracina</i>   | Black-faced Cuckoo Shrike |           | Seen        |
| <i>Artamus cinereus</i>         | Black-faced Woodswallow   |           | Seen        |
| <i>Neopsephotus bourkii</i>     | Bourke's Parrot           |           | Seen        |
| <i>Lichmera indistincta</i>     | Brown Honeyeater          |           | Seen        |
| <i>Melopsittacus undulatus</i>  | Budgerigar                |           | Seen        |
| <i>Burhinus grallarius</i>      | Bush Stone-curlew         |           | Seen        |
| <i>Nymphicus hollandicus</i>    | Cockatiel                 |           | Seen        |
| <i>Phaps chalcoptera</i>        | Common bronzewing         |           | Seen        |
| <i>Oreoica gutturalis</i>       | Crested Bellbird          |           | Seen        |
| <i>Ocyphaps lophotes</i>        | Crested Pigeon            |           | Seen        |
| <i>Geopelia cuneata</i>         | Diamond Dove              |           | Seen        |
| <i>Petrochelidon ariel</i>      | Fairy Martin              |           | Seen        |
| <i>Eolophus roseicapilla</i>    | Galah                     |           | Seen        |
| <i>Cracticus torquatus</i>      | Grey Butcherbird          |           | Seen        |
| <i>Pomatostomus temporalis</i>  | Grey-crowned babbler      |           | Seen        |
| <i>Ptilotula keartlandi</i>     | Grey-headed Honeyeater    |           | Seen        |
| <i>Melanodryas cucullata</i>    | Hooded Robin              |           | Seen        |
| <i>Acanthiza apicalis</i>       | Inland Thornbill          |           | Seen        |
| <i>Turnix velox</i>             | Little Buttonquail        |           | Seen        |
| <i>Artamus personatus</i>       | Masked Woodswallow        |           | Seen        |
| <i>Cracticus nigrogularis</i>   | Pied Butcherbird          |           | Seen        |
| <i>Petroica goodenovii</i>      | Red-capped Robin          |           | Seen        |
| <i>Pachycephala rufiventris</i> | Rufous Whistler           |           | Seen        |
| <i>Gavicalis virescens</i>      | Singing Honeyeater        |           | Seen        |
| <i>Acanthagenys rufogularis</i> | Spiny-cheeked Honeyeater  |           | Seen        |
| <i>Corvus orru</i>              | Torresian Crow            |           | Seen        |
| <i>Malurus lamberti</i>         | Variegated fairy wren     |           | Seen        |
| <i>Chlamydera guttata</i>       | Western Bowerbird         |           | Seen        |
| <i>Gerygone fusca</i>           | Western Gerygone          |           | Seen        |
| <i>Haliastur sphenurus</i>      | Whistling Kite            | EPBC - MA | Seen        |
| <i>Rhipidura leucophrys</i>     | Willie Wagtail            |           | Seen        |
| <i>Acanthiza chrysorrhoa</i>    | Yellow-rumped Thornbill   |           | Seen        |

| Taxon                           | Common Name                   | Listing               | Observation     |
|---------------------------------|-------------------------------|-----------------------|-----------------|
| <i>Taeniopygia guttata</i>      | Zebra Finch                   |                       | Seen            |
| <b>Mammal</b>                   |                               |                       |                 |
| <i>Camelus dromedarius</i>      | Camel                         | Naturalised<br>Exotic | Skull and Seen  |
| <i>Bos taurus</i>               | Domestic Cattle               | Naturalised<br>Exotic | Seen            |
| <i>Pseudomys chapmani</i>       | Western Pebble-mound<br>Mouse | DBCA – P4             | Inactive mounds |
| <b>Reptile</b>                  |                               |                       |                 |
| <i>Ctenophorus caudicinctus</i> | Western Ring-tailed Dragon    |                       | Seen            |
| <i>Gowidon longirostris</i>     | Long-nose Dragon              |                       | Seen            |
| ? <i>Lerista</i> sp. Indet      | Skink                         |                       | Seen            |
| ? <i>Lerista</i> sp. Indet      | Skink                         |                       | Seen            |
| <i>Lacertilia</i> sp. indet     |                               |                       | Seen            |

## About AECOM

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