

CPS 6110/6 – Supporting Report

Desktop, Reconnaissance and Targeted Flora,
Vegetation and Fauna Habitat assessment –
Construction of Water and Monitoring Bores at
Paraburdoo

AR-23-17965

27 September 2023



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Document Status				Approved for issue	
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Executive Summary

Rio Tinto Iron Ore (Rio Tinto) proposes to install a bore to replace aging historical bores to ensure an ongoing and reliable water supply to Paraburdoo town. The works required under AR-23-17965 consist of the construction of a production bore and monitoring bore on the same pad (Study Area 3 (0.54 ha)).

Study Areas 1 and 2 were surveyed 29th-30th March 2023. The report results were submitted to the Department of Water and Environmental Regulation (DWER) to support an amendment application to Native Vegetation Clearing Permit (NVCP) Clearing Permit System 6110/6 (CPS 6110/6) on 16 June 2023. It was subsequently identified that Study Area 3 was required to be added to the CPS6110/6 amendment application.

This report is intended as a supporting document to amend CPS 6110/6 to include an additional area (Study Area 3 - 0.54 ha) to enable clearing of native vegetation, as required under Section 51A of the *Environmental Protection Act 1986* (EP Act). The report has been prepared on the basis of a review of existing information for the study area, and a targeted flora, vegetation and fauna habitat survey of the study area.

The study area was surveyed by Rio Tinto Ecologists on the 17th of July 2023. No conservation significant flora, vegetation or habitats of specific dependence to BC Act fauna were observed during the survey or are considered likely to occur within the study area.

Based on specialist assessment of the study area it is deemed that the proposed clearing will not be at variance with the 10 clearing principles a-j.

1. Introduction

1.1 Project background and study area location

Rio Tinto Iron Ore (Rio Tinto) proposes to install a bore to replace aging historical bores to ensure an ongoing and reliable water supply to Paraburdoo town. The works required under AR-23-17965 consist of the construction of a production bore and monitoring bore on the same pad (Study Area 3 (0.54 ha)).

Study Area 3 comprises of a single polygon totalling 0.54 ha of native vegetation as well as previously cleared tracks within close proximity to the township of Paraburdoo, Western Australia (Figure 1-1). Up to 0.54 hectares of native vegetation clearing is required to support the proposed activities at this location.

The purpose of the current report is as follows:

1. To present the results of the desktop study and targeted flora survey of Study Area 3 to support a Native Vegetation Clearing Permit (NVCP) amendment application for CPS 6110/6. In which Study Area 3 is proposed to be cleared and therefore required to be added to the NVCP application area.
2. To perform a 10 Clearing Principles assessment on Study Area 3 to amend the boundary of CPS 6110/6 to include the study area.

The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* has been transitioned under regulations 170, 171 and 172 of the Biodiversity Conservation Regulations 2018 to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016* (BC Act). For the purpose of having the most up to date information (i.e., accounting for any changes to species listings), this report concerns fauna listed under the BC Act in operation at the time of preparation of this report.

Study Areas 1 and 2 were surveyed 29th-30th March 2023. The report results were submitted to the Department of Water and Environmental Regulation (DWER) to support an amendment application to NVCP CPS 6110/6 on 16 June 2023. It was subsequently identified that Study Area 3 was required to be added to the CPS6110/6 amendment application.

1.2 Scope of survey

This report is intended as a supporting document to amend CPS 6110/6 to include an additional area (0.54 ha) to enable clearing of native vegetation, as required under Section 51A of the *Environmental Protection Act 1986* (EP Act). The report has been prepared on the basis of a review of existing information for the study area, and a targeted flora, vegetation and fauna habitat survey of the study area. This report includes a description of the:

- Local environment of the study area including flora, vegetation, geology, landforms, and hydrology;
- Methods employed during the desktop assessment and field survey;
- Locations and populations of conservation listed flora;
- Vegetation associations occurring in the study area, an assessment on their condition and conservation significance for the locality and sub-region;












- Fauna habitats present, assessment of their significance for the locality and sub-region, including mapping, and likelihood assessment of conservation listed fauna (BC Act); and
- Potential impacts of the proposal on the local environment through assessment of the ten clearing principles, as outlined in Schedule 5 of the *Environment Protection Act 1986* (EP Act).

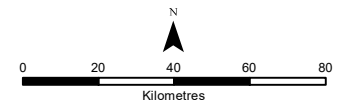
Figure 1-1
Location of the
Study Area

Drawn: GIS Team
Plan: RTIO0983486v3
Date: September 2023

Proj: GDA 1994 MGA Zone 50
Scale: 1:2,000,000 @A4
GIS.Team@riotinto.com

Legend

-  Town
-  Port
-  Rio Tinto Mine
-  Study Area 1
-  Study Area 2
-  Study Area 3
-  CPS 6110/6
-  National Park
-  Rio Tinto Railway
-  Highway
-  Major Road



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North West Coastal Highway

Great Northern Highway

INSET

Paraburdoo

Silvergrass

Nammuldi

Brockman 4

Western Turner Syncline

Mount Tom Price

Paraburdoo

Eastern Range

Channar

Tom Price

Marandoo

Karijini National Park

West Angelas

Newman

Gudai-Darri

Yandicoogina

Hope Downs 1

Hope Downs 4

Murujuga National Park

Millstream-Chichester National Park

Pannawonica

Mesa A

Mesa J

Cape Lambert

Wickham

Roebourne

Dampier

Port Hedland

1.3 Constraints and Limitations

Limitations of the current survey of the study area are summarised in Table 1-1.

Table 1-1: Constraints and limitations of the current study

Constraint	Limitation
Sources of information	Parts of the study area had been previously surveyed and relevant reports were available for literature review as part of the desktop assessment. RTIO internal data and external publicly available data were used to complete the remainder of the desktop assessment. Sources of information are not considered a limitation to this study.
Scope of works	The requirements of a fauna desktop assessment and targeted flora and vegetation survey for a clearing permit application were met. Flora, vegetation, and fauna habitat information was assessed and summarised from previous survey reports, available data and a field survey conducted on the 17 th July 2023.
Completeness of survey	The study area has been comprehensively surveyed to provide an adequate level of information for this assessment.
Intensity of survey	A targeted flora, vegetation and fauna habitat survey was completed over the entirety of the study area.
Timing, weather, season, cycle	The survey was conducted on the 17 th July, which is just outside recommended survey timing for the Eremaean Botanical Province (March – June) as per EPA Technical Guidelines (2016). Rainfall preceding the survey was below average. Therefore, timing, weather etc. could be considered a limitation.
Disturbances	A proportion of the study area (14.82%) has been disturbed by historical clearing for tracks. At the time of survey there was no evidence of fire within the study area.
Resources	The biologists undertaking the desktop assessment and reviews were suitably qualified (> 10 years combined experience conducting environmental surveys within Australia) and a sponsored taxonomist (Steve Dillon) was used to verify flora records following the survey. Resources were not considered to be a limitation in this study.
Accessibility / remoteness	The survey area was completely accessible via road and on foot. Accessibility/remoteness is not considered to be a limitation.

2. Methodology

2.1 Desktop assessment

A desktop assessment was undertaken to identify environmental information relevant to the study area. This desktop assessment included a review of:

- Overall site characteristics including:
 - A review of rainfall data from the closest reliable weather station (BoM 2023);
 - A review of major geological units based on 1:250,000 scale map sheet series (Department of Mines, Industry Regulation and Safety 2022);
 - Surface hydrology and groundwater;
 - Land systems mapping adapted by van Vreeswyk *et al.* (2004);
 - Bioregional assessments (including IBRA bioregion, Beard's regional vegetation mapping, pre-European vegetation mapping); and
 - Conservation areas and environmentally sensitive areas.
- Relevant reports previously prepared for Rio Tinto as outlined as Section 2.1.1
- Databases maintained by state and federal government and Rio Tinto as described at Section 2.1.2

2.1.1 Literature review

A literature review of the study area was conducted and found four flora and fauna related reports either intersecting or within a 2 km buffer of the study area (Figure 2-1).

These reports have been consulted as part of the literature review to determine conservation significant species that may occur within the study area, as well as flora, vegetation units, ecological communities and fauna habitats. A summary of the findings of each report utilised in the desktop review is presented in Table 2-1. The previous surveys in relation to the current survey area are shown in Figure 2-1.

Table 2-1: Summary of previous flora, vegetation and fauna reports utilised for the desktop assessment

Report and level of survey	Size (ha)	Number of taxa	Conservation listed flora / fauna recorded	Habitats identified	Weeds	Vegetation / Fauna Habitat of significance
RTIO (2004) Para Town expansion RTIO-HSE-0012841 (Targeted Flora Survey)	19	75	None.	NA	* <i>Aerva javanica</i> * <i>Cenchrus ciliaris</i> * <i>Malvastrum americanum</i>	None
RTIO (2006) Paraburdoo Regional Drilling Program GD_06_01350 RTIO-HSE-0015959 (Targeted Flora Survey)	8.6	99	None.	NA	* <i>Acetisa vesicaria</i> * <i>Aerva javanica</i> * <i>Cenchrus ciliaris</i> * <i>Cenchrus setigerus</i> * <i>Echinochloa colona</i> * <i>Malvastrum americanum</i> * <i>Setaria verticillata</i>	None
Mattiske Consulting (2011) Flora and Vegetation of the Turee Syncline RTIO-HSE-0135817 (Multiple-phase detailed survey)	9,197.5	230	None.	<ul style="list-style-type: none"> • Creeks • Stony Plain • Mulga Shrublands 	* <i>Acetosa vesicaria</i> * <i>Aerva javanica</i> * <i>Argemone ochroleuca</i> * <i>Bidens pinnata</i> * <i>Cenchrus ciliaris</i> * <i>Cynodon dactylon</i> * <i>Flaveria trinervia</i> * <i>Malvastrum Americanum</i> * <i>Portulaca oleracea</i> * <i>Solanum nigrum</i> * <i>Sonchus oleraceus</i>	None

RTIO (2012) Turee Creek Water Pipeline Upgrade and Paraburdoo Town Feeder One Line Replacement RTIO-HSE-0147662 (Single phase detailed survey)	203.1	195	Two priority flora were recorded: <ul style="list-style-type: none"> <i>Hibiscus campanulatus</i> (A.J. Perkins) (Priority 1) <i>Goodenia</i> sp. East Pilbara (A.A. Mitchell PRP 727) (Priority 3) 	<ul style="list-style-type: none"> Plain Hill slope Minor drainage line 	<i>*Aerva javanica</i> <i>*Cenchrus ciliaris</i> <i>*Cynodon dactylon</i> <i>*Portulaca oleracea</i> <i>*Tamarindus indica</i>	None
RTIO (2014) Metadata Statement – Paraburdoo Five Project AR-14-12276 RTIO-HSE-0240749 (Targeted Flora Survey)	4.1	NA	None	NA	None	None
RTIO (2014) Metadata Statement – Paraburdoo Town BMX Track AR-14-12823 RTIO-HSE-0240758 (Targeted Flora Survey)	5.3	NA	None	NA	None	None
RTIO (2017) Flora Vegetation and Fauna Habitat Assessment Paraburdoo Additional Water Pipeline – Native Vegetation Clearing Permit – Supporting Document RTIO-HSE-0317979 (NVCP-level survey)	3	NA	None.	<ul style="list-style-type: none"> Creeks Stony Plain 	<i>*Cenchrus ciliaris</i> <i>*Aerva javanica</i>	None.

RTIO (2019) Metadata Statement – Paraburdoo PTP2 Bore to Town Water Main Upgrade RTIO-HSE-0331992 (Targeted flora survey)	10.58	NA	None.	NA	* <i>Cenchrus</i> sp.	None.
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RTIO (2023) Desktop, Reconnaissance and Targeted Flora, Vegetation and Fauna Habitat assessment – Upgrades to the Water Bore and Powerlines in Paraburdoo AR-20-15923 and AR-21- 16545 (Targeted flora survey and NVCP-level survey)	10.3	34	None	<ul style="list-style-type: none"> Alluvial Plain 	<i>*Aerva javanica</i> <i>*Cenchrus ciliaris</i> <i>*Cynodon dactylon</i> <i>*Cenchrus setigerus</i> <i>*Malvastrum americanum</i>	None
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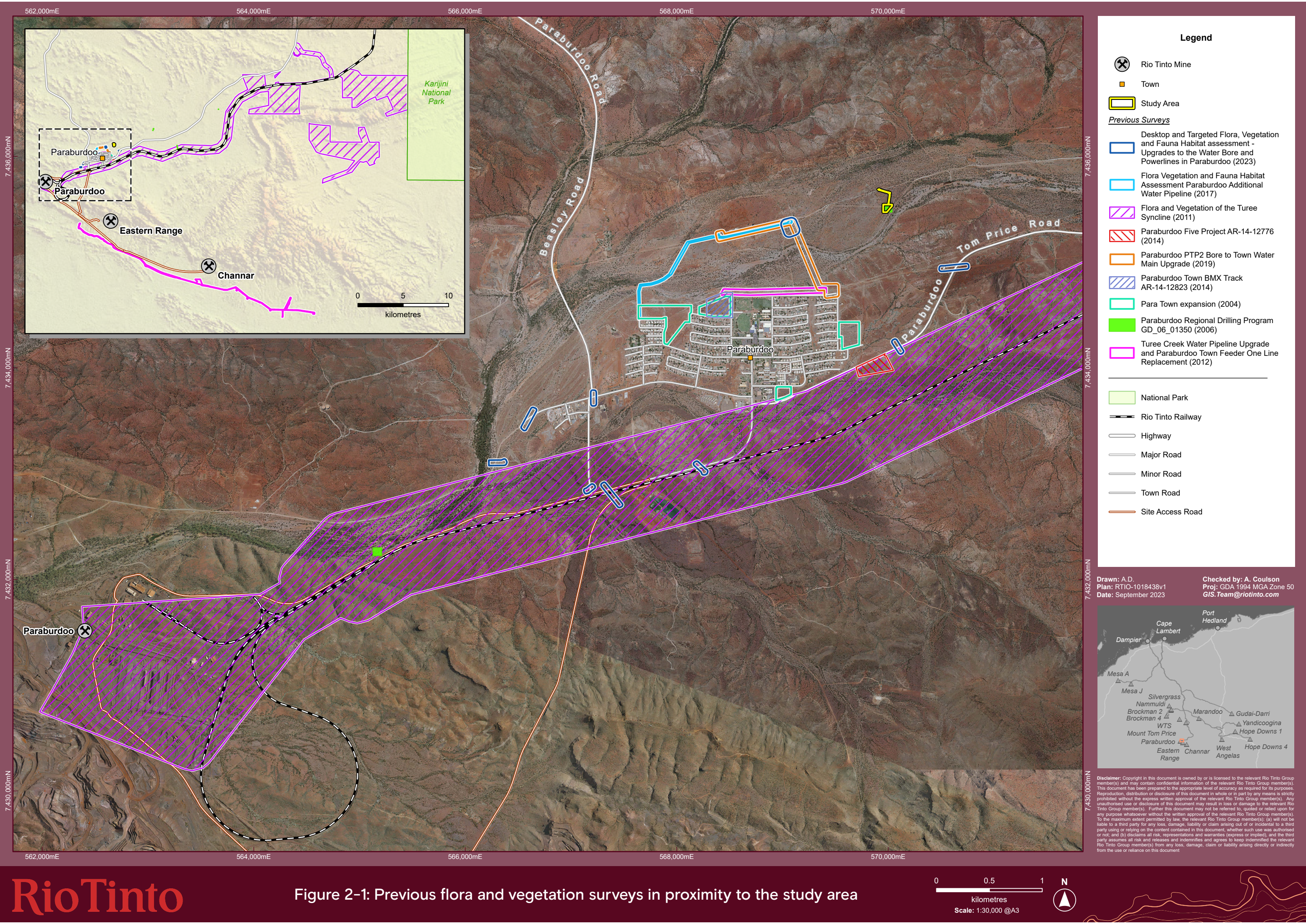


Figure 2-1: Previous flora and vegetation surveys in proximity to the study area

2.1.2 Database searches

The Department of Biodiversity, Conservation and Attractions (DBCA) and WA Museum's (WAM) NatureMap database was reviewed for Threatened and Priority Flora and Threatened and Priority Fauna (EPBC Act and BC Act) that have the potential to utilise the habitats present within the study area. The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) administered EPBC Act Protected Matters Search Tool (PMST) was also reviewed for Matters of National Environmental Significance (MNES) listed under the EPBC Act including Threatened flora and fauna and Threatened Ecological Communities (TECs) (DCCEEW 2023).

Spatial data for conservation significant flora and fauna held and maintained by Rio Tinto was also reviewed as part of the desktop study (Rio Tinto Flora and Fauna Database). Any Environmentally Sensitive Area (ESA), Reserves and/or conservation areas within or surrounding the study area were identified using relevant GIS layers held by Rio Tinto. A buffer of 20 km from the study area boundary was used for the NatureMap, Rio Tinto and Protected Matters search tool (PMST) database searches. Result outputs of NatureMap and PMST searches undertaken are presented in Appendix 1 and 2 and summarised in sections 3.9 and 3.10 .

2.2 Likelihood of occurrence assessment

2.2.1 Flora

The results of the database searches were used to create a list of conservation significant flora (BC Act and priority flora) previously recorded or with potential to occur within the study area. The likelihood of conservation significant flora occurring within the study area were assessed through consideration of available habitats in the study area and each species' ecology.

The likelihood of conservation significant flora species occurring within study areas were determined prior to the field survey based on the location of database records, availability of potentially suitable habitat and knowledge of the species ecology (section 3.9.2). This list was then updated following the field survey to better reflect the habitats observed.

2.2.2 Fauna

A likelihood of occurrence assessment was performed to identify habitats within the study area for which fauna listed under the current BC Act may have specific dependence (DBCA, 2018b). For the purpose of this study, 'specific dependence' is defined as core habitat including roosting, denning, shelter and breeding habitat.

The likelihood of conservation significant fauna species (BC Act) occurring within the study area was determined prior to the field survey based on the location of database records, availability of potentially suitable habitat and knowledge of the species ecology (section 3.10.2). This list was then updated following the field survey to better reflect the habitats. Exclusively marine fauna were excluded from the likelihood assessment as the study area does not contain marine habitat and is therefore not able to support these species.

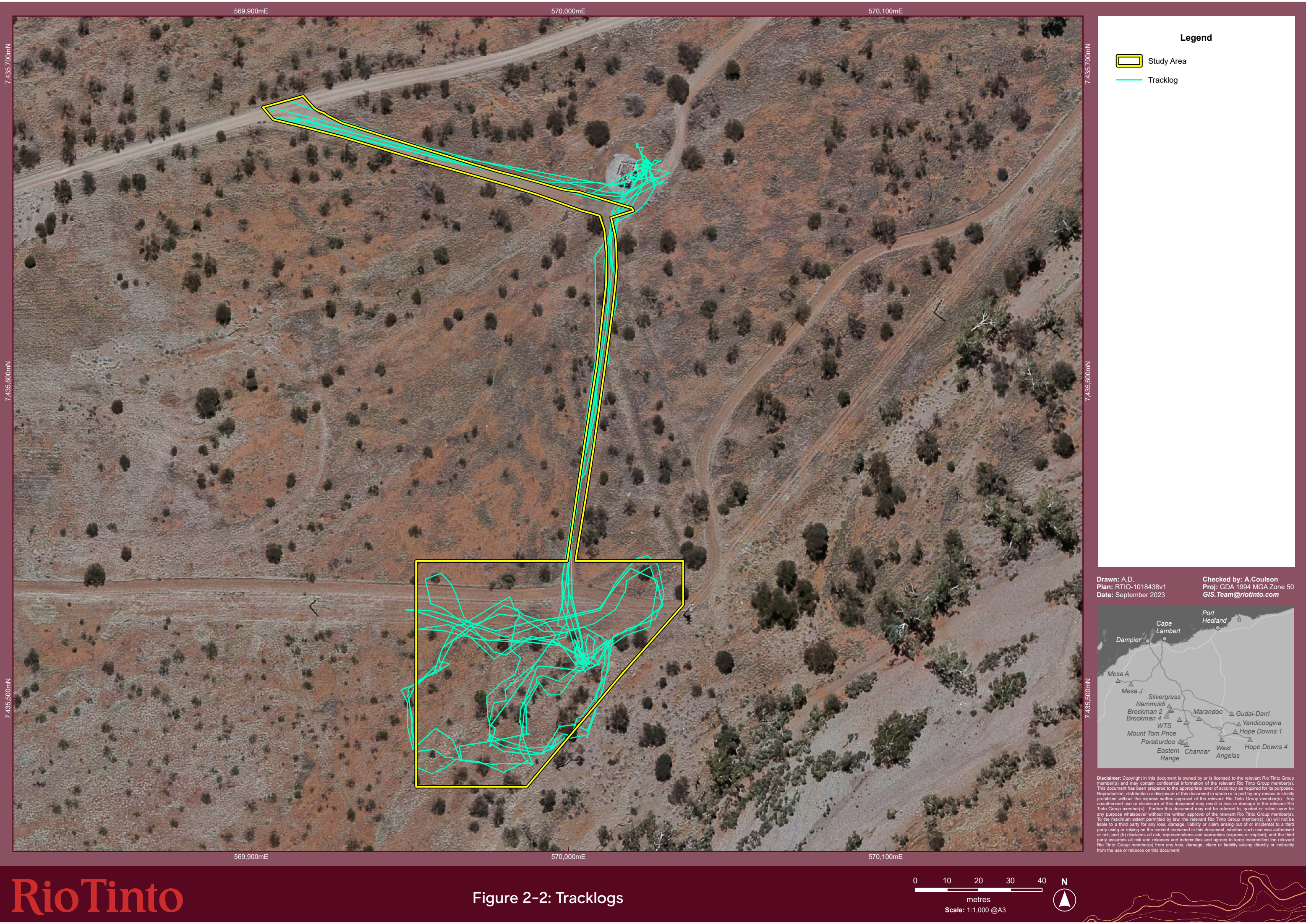
2.3 Field Survey

The study area was surveyed by Rio Tinto Ecologists Bridget Duncan, Juljianna Hantzis and Laura Parker on the 17th of July 2023.

The study area was assessed in accordance with the *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016a) and *Environmental Factor Guideline – Flora and Vegetation* (EPA 2016b). Fauna habitats were confirmed with reference to *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020) and *Environmental Factor Guideline – Terrestrial Fauna* (EPA 2016c).

Following the literature review and review of the desktop search output the study area was accessed by light vehicle and on foot for a targeted flora and vegetation assessment. An amendment was submitted to DWER to add on Study Areas 1 and 2 to the CPS 6110/6 application area, and now Study Area 3 is proposed to be added. An NVCP level survey (targeted and reconnaissance flora and vegetation, and targeted fauna habitat survey) was completed which included a single releve and targeted fauna habitat assessment to inform and amend the permit area. Data was collected on the flora species present, including percentage cover; average height of each vegetation stratum; site slope; topography; soil texture and colour; and landform type and habitat features. Tracklogs for the targeted flora and NVCP level survey are displayed on Figure 2-2.

The entire study area was systematically searched for the presence of priority and threatened flora. Where conservation significant flora or potential conservation significant flora was identified within the survey area, they were recorded using a hand-held GPS (GDA 94 Z50). Where populations of conservation significant flora were encountered; estimates of density or numbers of individuals, habitats and associated flora were recorded.



2.3.1 Vegetation descriptions, condition assessment and mapping

Vegetation descriptions for the study area was based on Specht (1970) with modification by Aplin (1979). Assessment of the overall condition of each vegetation association was made based on Trudgen (1988) (Appendix 4).

Vegetation types were mapped in the field and confirmed following data processing post-survey. The vegetation boundaries were digitised on-screen using ArcGIS Pro 3.0.0. The resulting polygons were attributed with the relevant information including the vegetation association, description of key components in each stratum and condition.

2.3.2 Flora identification

An interim species list was compiled in the field covering common species identified with confidence by the field personnel. Voucher samples of unknown and Priority flora were collected, pressed and dried in the field and assigned a unique reference number for each sample.

Flora samples collected in the field were taken to the Western Australian Herbarium (WAH) to be formally identified by Rio Tinto sponsored taxonomist Steve Dillon using relevant taxonomic publications and comparisons to collections at the WAH.

2.3.3 Fauna habitat assessment

Prior to survey, a desktop assessment was completed to identify areas of habitat on which fauna listed in the BC Act in operation at the time have specific dependence. This included a review of the landscape characteristics, literature review, database searches and likelihood of occurrence assessments.

Habitat assessments are used to identify fauna habitat types and quantify their extents within the study area. Habitat assessments incorporate information obtained through the desktop assessment (i.e. vegetation and geological information) as well as information obtained through the field survey (i.e. physical characteristics). Unique habitats can be identified based on their combinations of landforms, soil and vegetation which determine their ability to support specific fauna assemblages or significant fauna.

Significant habitats include rare or isolated habitats and habitat features, such as rock piles, caves, gullies, significant trees, drainage lines or waterholes, damplands and springs as well as those that are likely to provide special resources to fauna. Other important habitats include ecological linkages and migration pathways, refugia, islands, areas that support large or seasonal aggregations of fauna and areas that are important to significant fauna, e.g. for breeding, roosting or foraging.

Broad fauna habitats were identified and mapped based on information obtained through the desktop assessment and confirmed during the field survey. Following the desktop assessment and survey, habitats were assessed for their potential to be of specific dependence to conservation significant species, taking into account species habitat preferences and availability of habitat resources within the study area. Supporting evidence such as sightings, the presence of microhabitats including caves, water holes, tree hollows and burrows were recorded throughout the study area.

Fauna habitats were assessed and mapped as per *Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020).

3. Desktop assessment results

3.1 Climate

The closest meteorological station providing climate data is Paraburdoo Aero (station number: 007185), located approximately 8 km east of the study area (BOM, 2023). The Paraburdoo climate is generally semi-arid with warm to hot temperatures year-round. Annual rainfall is low with most rain falling in the late summer due to the influence of tropical cyclones and monsoons. A second peak in rainfall can occur in early winter due to cold fronts developed in the south. Rainfall varies in frequency and volume from year to year. The summer wet months extend January to March when temperatures can exceed 48°C. Winter temperature maximums stay in the mid to high 20°C and rarely drop below 10°C.

Rainfall for the three month period preceding the survey was 11.4 mm, which is 53.5 mm below the long-term average for this period (64.9 mm) (BOM 2023). Annual average climate statistics for Paraburdoo Aero are displayed in Figure 3-1.

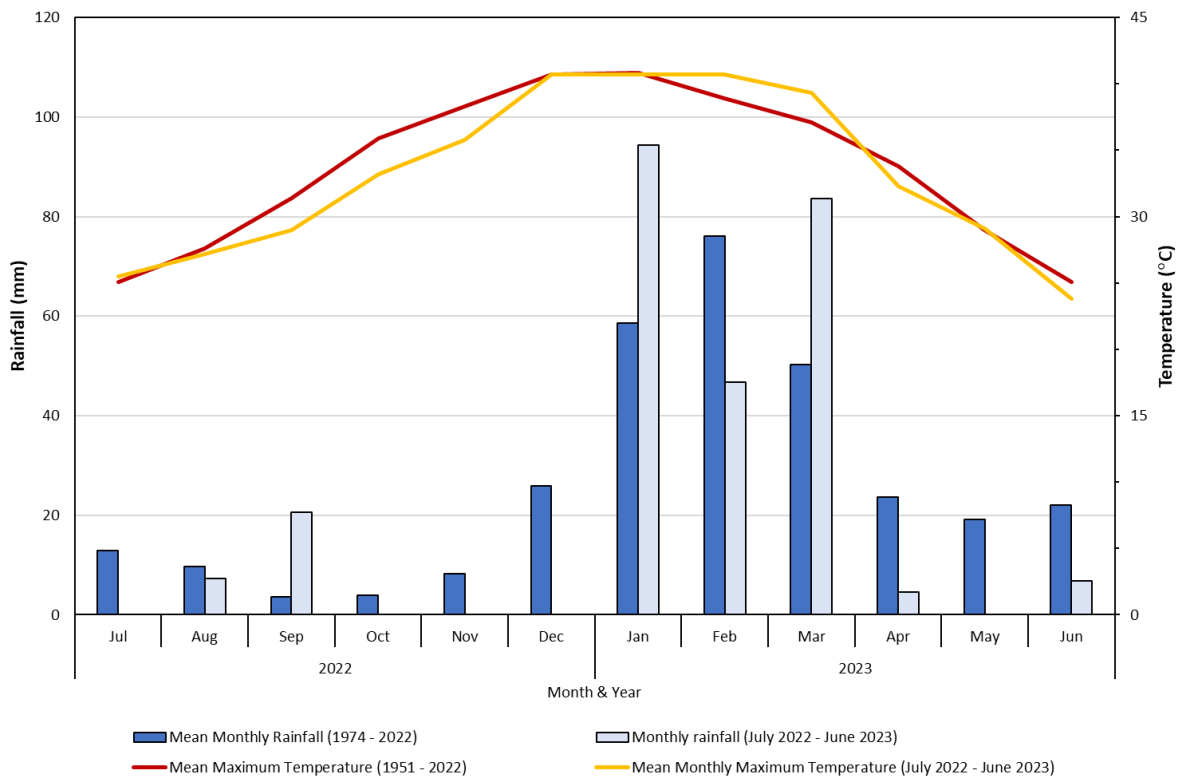


Figure 3-1: Annual average climate statistics for Paraburdoo Aero (Station No. 007185) (BOM, 2023).

3.2 Geology and soils

The study area is comprised of one major geological units based on 1:100,000 scale map sheet series (Figure 3-2, Stewart, *et al.* 2008). The geological units are:

- Qa: Alluvium – unconsolidated silt, sand and gravel

Land system (rangeland) mapping is based on regional patterns in topography, soils and vegetation (Christian & Stewart 1953). The most recent land system mapping of the Pilbara bioregion, in which the study area lies, was completed by Van Vreeswyk, *et al.* 2004. The mapping classifies the Pilbara region into 102 land systems. An assessment of land systems provides an indication of the occurrence and distribution of flora and vegetation types as well as fauna habitats present in the study areas.

The study area is comprised of a single land system: River Land (Figure 3-3). The River Land System is described as narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of Acacias and fringing communities of Eucalyptus sometimes with tussock grasses or spinifex.

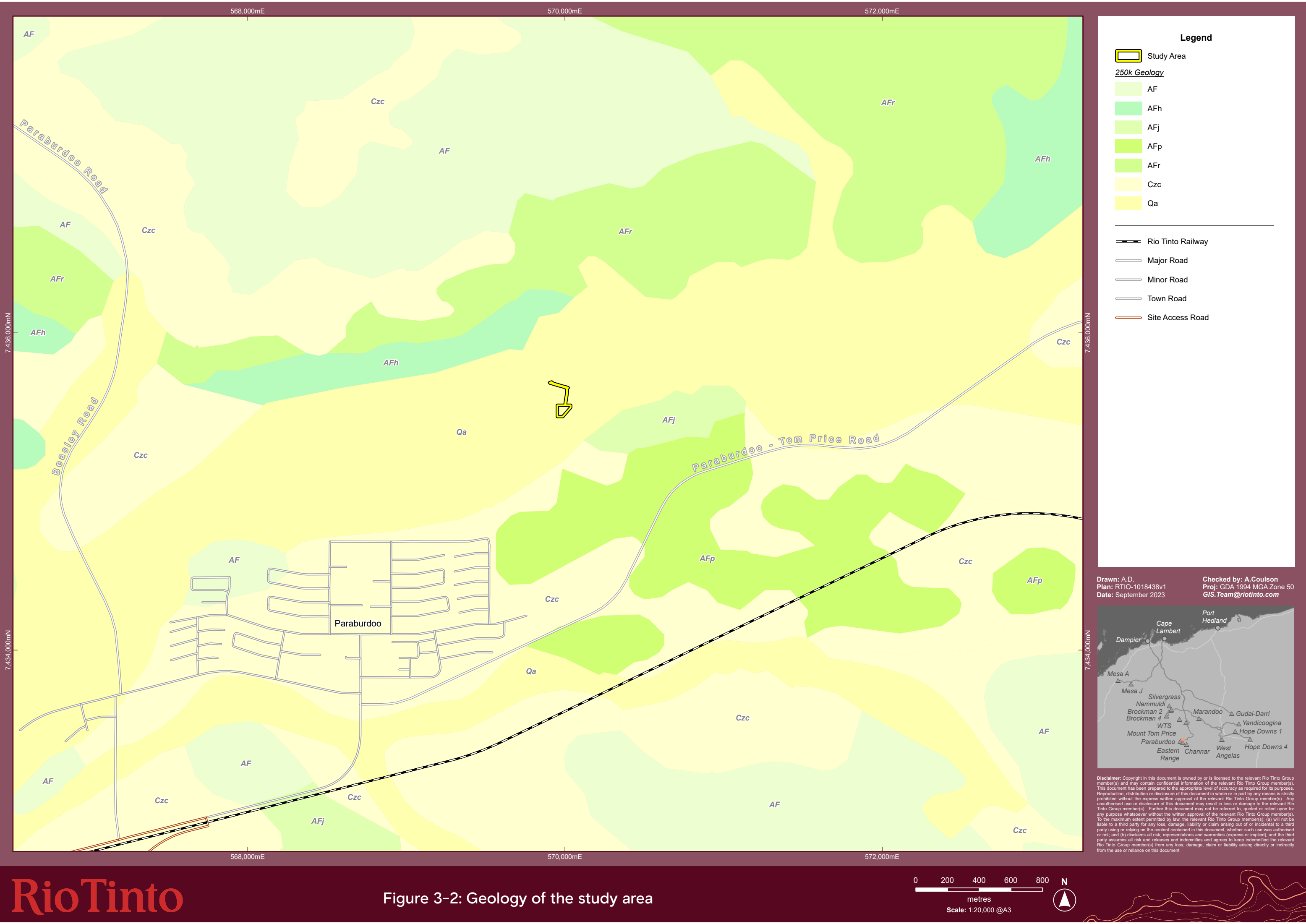
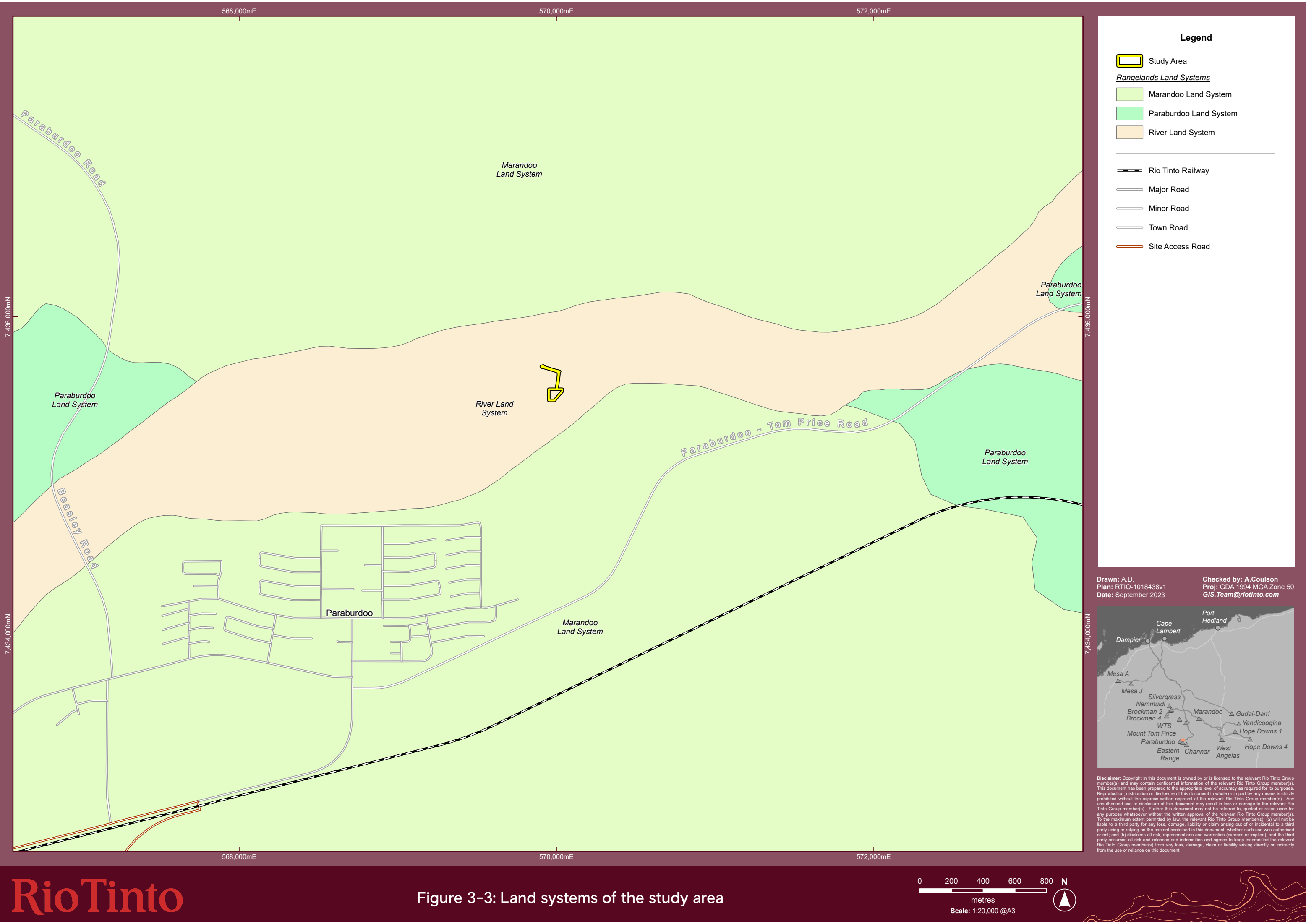


Figure 3-2: Geology of the study area



3.3 Surface hydrology and groundwater

The study area lies within the Pilbara Groundwater Area and the Roebourne/Ashburton Groundwater Subarea (DWER, 2021).

Topography is generally flat and surface water is expected to drain into Bellary Creek, which is located approximately 60m south-east. Surface hydrology and groundwater within the study area are presented in Figure 3-4.

3.4 Regional biogeography

The Interim Biogeographic Regionalisation of Australia (IBRA7) recognises 89 bioregions (DCCEEW, 2023a). The study area is located in the Pilbara (PIL) bioregion as defined by IBRA. The Pilbara bioregion has been further subdivided into four subregions: Chichester (PIL1); Fortescue Plains (PIL2); Hamersley (PIL3); and Roebourne (PIL4).

The study area falls within the Hamersley (PIL3) sub-region and is described by Kendrick & Stanley 2001 as:

- 'Southern section of the Pilbara Craton. Mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite). Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges. The climate is Semi-desert tropical, average 300mm rainfall, usually in summer cyclonic or thunderstorm events. Winter rain is not uncommon. Drainage into either the Fortescue (to the north), the Ashburton to the south, or the Robe to the west.'

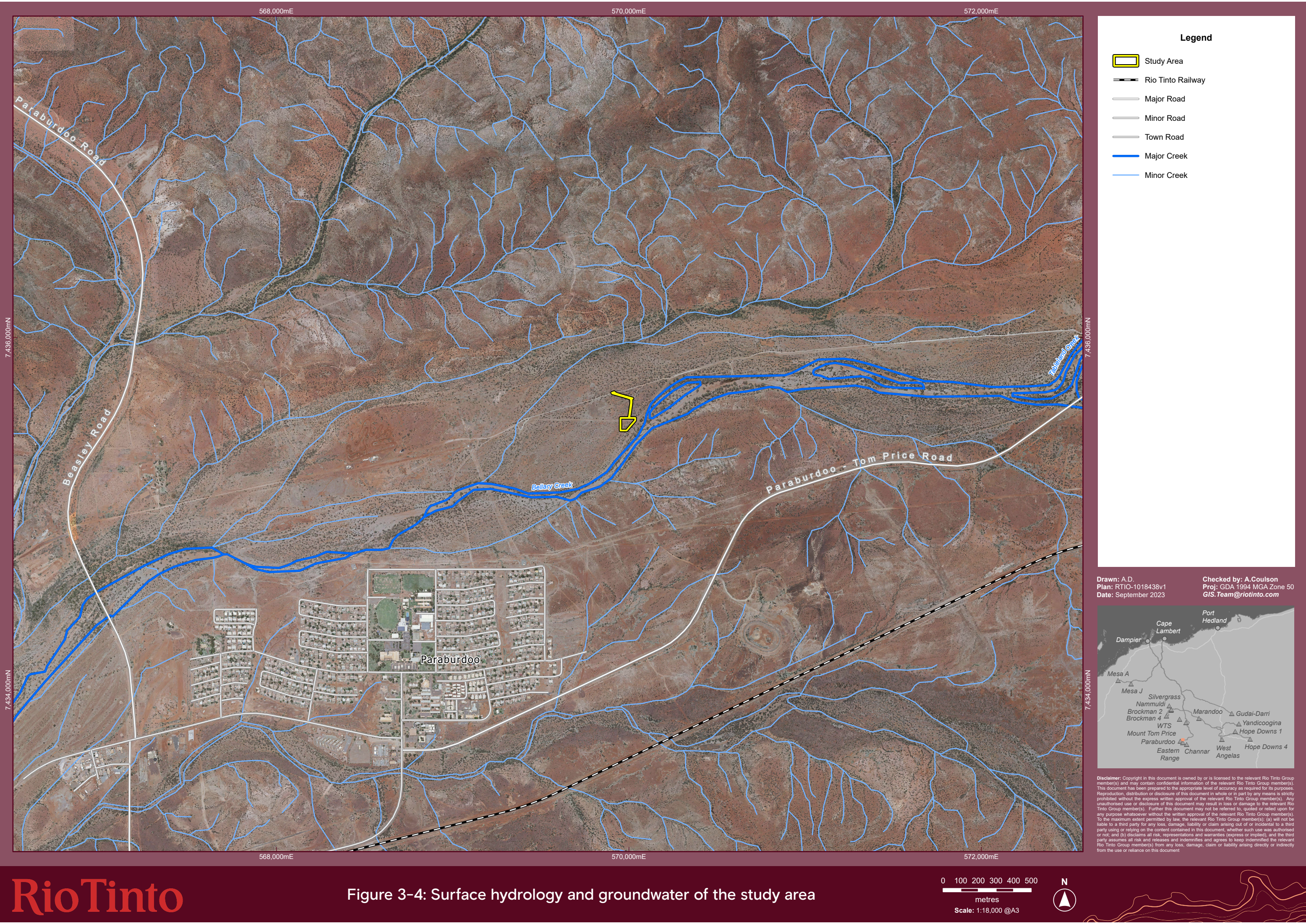


Figure 3-4: Surface hydrology and groundwater of the study area

3.5 Beard's regional vegetation mapping

Vegetation type and extent has been mapped at a regional scale by Beard (1975) who categorised vegetation into broad vegetation associations. Based on this mapping at a scale of 1:1,000,000, the Department of Primary Industries and Regional Development (DPIRD) has compiled a list of vegetation extent and types across WA (Shepherd, *et al.* 2002).

The study area falls within one vegetation unit:

- Hammersley (181): Shrublands: Mulga and snakewood scrub.

Given the broad nature of Beard's mapping; these vegetation associations are only broadly applicable to the vegetation types occurring in the study area.

3.6 Pre-European vegetation extent

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, *et al.* 2002).

Table 3-1 and Figure 3-5 present the pre-European and current extent of Beard's mapping units within the study area.

Table 3-1: Beard's mapping current and pre-European extent within the Pilbara bioregion and across the study area

Beard's mapping unit (Shepherd vegetation association)	Pre-European extent (ha) [^]	Current extent (ha) [^]	Percentage remaining (%)
Hammersley (181)	63,096.38	61,210.44	97.01

[^] Department of Biodiversity, Conservation and Attractions (2019)

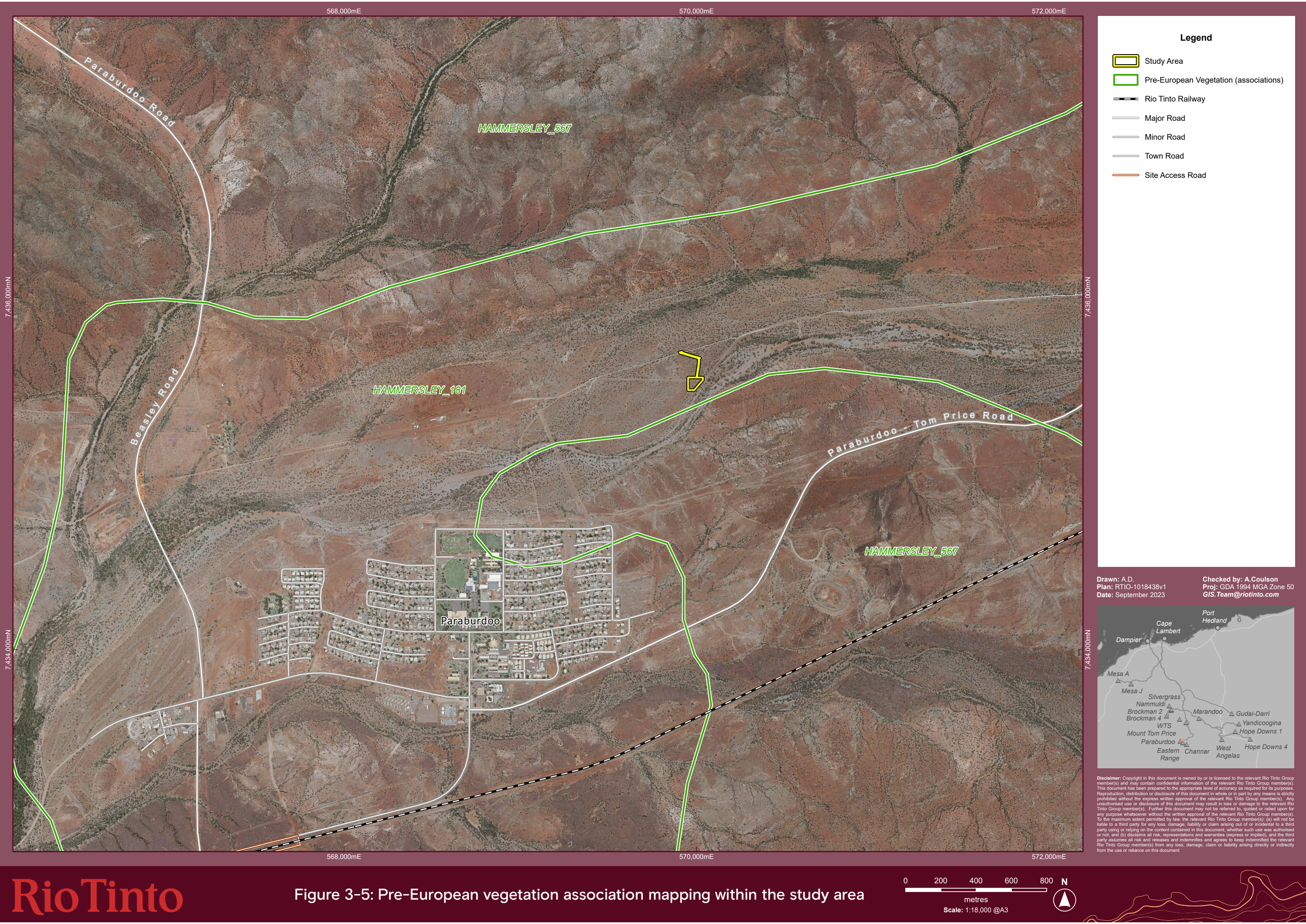


Figure 3-5: Pre-European vegetation association mapping within the study area

3.7 Conservation areas and Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are defined in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005* under section 51B of the WA State Environmental Protection Act 1986. ESAs include areas declared as: World Heritage; included on the Register of the National Estate; defined wetlands; vegetation containing rare (Threatened) flora; Threatened Ecological Communities (TEC); and Bush Forever sites.

The study area does not lie within any conservation areas or ESAs, nor are any within 20 km of the study area.

3.8 Priority Ecological Communities

Priority Ecological Communities (PECs) are possible TECs that do not meet survey criteria or are not adequately defined for the TEC list by the DBCA - Parks and Wildlife Service (Parks and Wildlife) (DBCA, 2018a, DBCA, 2022), they are ranked as Priorities 1, 2 and 3 (1 being the highest).

The study area does not lie within any PECs or their buffers, nor are any located within 20 km of the study area.

3.9 Flora

3.9.1 Flora diversity

The DBCA NatureMap database search results cover all species detected previously within 20 km of the study area. The DBCA NatureMap search returned a total of 430 species from 168 genera and 56 families (Table 3-2). The combined DBCA NatureMap and Rio Tinto databases returned a total of 19 conservation significant flora species (Table 3-4). The PMST database search did not return any listed flora species.

Table 3-2 Flora diversity of the study area based on desktop assessment (DBCA. 2007-)

Flora group	NatureMap database
Families	56
Genera	168
Species	430
Conservation listed	19
Weeds	5

3.9.2 Conservation significant flora likelihood of occurrence

Nineteen (19) conservation significant flora species were returned by the database searches (Table 3-3). Of these, one is listed as Threatened, two as Priority 1 (P1), two as Priority 2 (P2), 11 as Priority 3 (P3) and three as Priority 4 (P4). Six of these species are considered to potentially occur within the study area (Figure 3-3).

Table 3-3: Flora likelihood of occurrence assessment

Taxon	WA listing	NM	RT	Distance to nearest record (km)	Flowering period	Habitat	Likelihood of occurrence
<i>Aluta quadrata</i>	T	X	X	13	May – Jun	Edge of creek beds, in gullies, base of cliffs, in cracks on cliff faces, rocky crevices, near crest of ridge, as an emergent from spinifex.	Unlikely This taxon has been previously recorded within 15 km of the study area, however its preferred habitat of rocky crevices, bases of cliffs and gullies are unlikely to occur within the study area.
<i>Eremophila coacta</i>	P3	X	X	17	Jun – Jul or Sep	Laterite, shale soils. Ironstone or laterite hills, moderate to steep slopes, along ephemeral creeklines.	Unlikely The study area does not include suitable habitat for this taxon. This taxon has not been recorded within 15 km of the study area.
<i>Eremophila magnifica</i> subsp. <i>Magnifica</i>	P4	X		11	Jul – Sep	Skeletal soils over ironstone. Rocky screes and slopes..	Unlikely This taxon has been previously recorded within 15 km of the study area, however its preferred habitat of scree slopes and summits do not occur within the study area.
<i>Eremophila naaykensis</i>	P3	X	X	7.2	Aug – Sep	Hillslopes, scree slopes, gullies, rock faces of large hills and cliffs, ironstone outcrops. Brown-red soil, silty loam.	Unlikely This taxon has been previously recorded within 10 km of the study area, however its preferred habitat of hillslopes, scree slopes and gullies are unlikely to occur within the study area.
<i>Goodenia</i> sp. East Pilbara (A.A. Mitchell PRP 727)	P3	X	X	3.5	Aug – Sep	Red-brown clay soil, calcrete pebbles. Low undulating plain, swampy plains, major river systems.	Potential This taxon has been previously recorded within 5 km of the study area, however its preferred habitat of calcrete is unlikely to occur within the study area.
<i>Grevillea saxicola</i>	P3	X	X	5.9	Feb – Mar	Hillslopes, incised gully systems, steep cliffs, upper scree, breakaway slopes, crests. Orange-brown to red-brown loam soils. Banded iron formation.	Unlikely This taxon has been previously recorded within 10 km of the study area, however its preferred habitat of hillslopes, incised gully systems and steep slopes are unlikely to occur within the study area.

Taxon	WA listing	NM	RT	Distance to nearest record (km)	Flowering period	Habitat	Likelihood of occurrence
<i>Hibiscus campanulatus</i>	P1	X	X	5.7	Jul – Aug	Rocky gully, steep slopes, base of breakaways, minor drainage lines through ironstone hills. Brown sandy loam soils. Often in association with the Canga detrital formations.	Unlikely This taxon has been previously recorded within 10 km of the study area, however its preferred including rocky gully, steep slopes, base of breakaways and minor drainage lines are unlikely to occur within the study area.
<i>Hibiscus</i> sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	X	X	17	May – Jul	Rocky slopes, gullies, breakaways, scree slopes, creeks. Gravelly, red brown loam.	Unlikely The study area does not include suitable habitat for this taxon. This taxon has not been recorded within 15 km of the study area.
<i>Isotropis forrestii</i>	P1		X	7.1	Apr – Sep or Dec	Stony clay loam, sandy alluvium. Along drainage lines.	Potential This taxon was recorded within 10 km of the study area and its preferred habitat may occur within the study area.
<i>Olearia mucronata</i>	P3	X		>100	Aug – Jan	Schistose hills, along drainage channels, amongst ironstone boulders, margins of dry creek lines.	Unlikely The study area does not include suitable habitat for this taxon. This taxon has not been recorded within 20 km of the study area.
<i>Pilbara trudgenii</i>	P3	X	X	17	Sep – Oct	Skeletal, red stony soil over ironstone. Hill summits, steep slopes, screes, cliff faces.	Unlikely The study area does not include suitable habitat for this taxon. This taxon has not been recorded within 15 km of the study area.
<i>Ptilotus mollis</i>	P4		X	18	May or Sep	Stony hills, screes, steep rocky sites, often in full sun on massive ironstone formations.	Unlikely The study area does not include suitable habitat for this taxon. This taxon has not been recorded within 15 km of the study area.
<i>Ptilotus trichocephalus</i>	P4	X	X	11	Sep	Clay flats, sandy colluvial soils, gibber plains.	Potential This taxon has been previously recorded within 15 km of the study area and its preferred habitat may occur within the study area.

Taxon	WA listing	NM	RT	Distance to nearest record (km)	Flowering period	Habitat	Likelihood of occurrence
<i>Sida</i> sp. Barlee Range (S. van Leeuwen 1642)	P3	X	X	5.5	Jul – Aug	Skeletal red soils pockets. Steep slopes, rocky areas, scree slopes, rock piles in full sun to afternoon shade or in small ridges and gullies.	Potential This taxon was recorded within 10 km of the study area and its preferred habitat may occur within the study area.
<i>Sida</i> sp. Hamersley Range (K. Newbey 10692)	P3	X	X	14	Aug – Oct	Gullies, breakaways, in ironstone crevices, rocky outcrops, sometimes in flat areas between hills in shrubby grassland. Brown loamy sand.	Unlikely This taxon has been previously recorded within 15 km of the study area; however its preferred habitats of ironstone crevices, rocky outcrops and breakaways are unlikely to occur within the study area.
<i>Solanum kentrocaule</i>	P3		X	12	May or Jul – Oct	Rocky hills, steep slopes of ironstone hills, cliff faces, gullies, seasonal creeks, mountaintops. Stony soils, red-brown skeletal loam. Ironstone or basalt.	Potential This taxon has been previously recorded within 15 km of the study area and its preferred habitat may occur within the study area.
<i>Solanum octona</i>	P2		X	9.4		Gorge top, steep hillslopes, riverine areas, drainage channel in hardpan plains, seasonally inundated areas. Red sandy soil, skeletal soils, gritty sand, red-brown clay loam.	Potential This taxon has been previously recorded within 10 km of the study area and its preferred habitat may occur within the study area.
<i>Swainsona thompsoniana</i>	P3	X		>100	Mar or Aug – Sep	Floodplains, bank slopes, cracking clay plains, gibber plains, crabhole plains and gilgai, usually at some elevation. Red-brown clay loam. Ironstone pebbles and rocks.	Unlikely The study area does not include suitable habitat for this taxon. This taxon has not been recorded within 20 km of the study area.
<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)	P3	X		79	Aug	Red clay, dark self-mulching clays. Clay pan, grass plain, drainage lines, crabhole flats.	Unlikely The study area does not include suitable habitat for this taxon. This taxon has not been recorded within 20 km of the study area.

3.10 Fauna

3.10.1 Fauna diversity

A NatureMap search was performed for terrestrial vertebrate fauna species within a 20 km buffer of the study area. This includes conservation significant fauna, feral (introduced) fauna and fauna not considered rare, threatened or conservation dependent. A total of 254 terrestrial vertebrate fauna species have been previously recorded within the buffered study area. This comprises 147 bird species, 65 reptile species, 36 mammal species, three amphibian species and three fish species. Eleven (11) of these species are listed under the BC Act (Table 3-4).

Twelve (12) additional BC Act listed fauna were detected from the Rio Tinto database or PMST searches (Table 3-5).

Table 3-4 presents a summary of terrestrial vertebrate fauna species returned by the NatureMap database search.

Table 3-4: Summary of terrestrial vertebrate fauna species returned by NatureMap search

Fauna group	No. of species
Amphibians	3
Fish	3
Reptiles	65
Birds	147
Mammals	36
Total	254
BC Act listed	11

3.10.2 Conservation significant (BC Act) fauna likelihood of specific dependence

Twenty-three conservation significant (BC Act) fauna species were returned by the database searches (**Table 3-5**). Of these, two were listed as Critically Endangered, two as Endangered, six as Vulnerable, 10 as Migratory, two as Priority 4 and one as Other Specially Protected Species. The study area is not considered to contain habitat of specific dependence for any of these species (**Table 3-4**).

Table 3-5: Likelihood of study area containing habitat for which fauna listed in the BC Act have specific dependence

Species	Common name	BC Act	NM	RT	PMST	Distance to nearest record (km)	Habitat and discussion	Likelihood of study area containing habitat of specific dependence
Birds								
<i>Actitis hypoleucos</i>	Common Sandpiper	MI	X	X	MI/LM	10.2	This species has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The species generally forages in shallow water and on bare soft mud at the edges of wetlands. They sometimes venture into grassy areas adjoining wetlands (Higgins & Davies 1996).	Unlikely Although there is a record of the Common Sandpiper within 20km of the study area, the study area does not contain habitat on which this species is dependant.
<i>Aphelocephala leucopsis</i>	Southern Whiteface				VU		Southern Whitefaces live in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains (Higgins & Peter 2002). Southern Whitefaces occur across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range (Schodde & Mason 1999).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Apus pacificus</i>	Fork-tailed Swift	MI			MI/LM		The Fork-tailed Swift is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher. In Australia, they mostly occur over a wide range of habitats from inland plains, dry or open habitats, riparian woodland, tea-tree swamps, low scrub, heathland, saltmarsh, over cliffs, beaches, islands and well out to sea, above foothills or in coastal areas. They also occur over settled areas, including towns, urban areas and cities (DCCEEW, 2023c).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Bubulcus ibis</i>	Cattle Egret				LM		The Cattle Egret inhabits tropical and temperate grasslands and is occasionally found in arid and semi-arid regions. They commonly associate with the habitats of farm animals. The Cattle Egret has been found in disturbed areas including rubbish tips.	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	MI	X		MI/LM		In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, salt pans and hypersaline salt lakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry (DCCEEW, 2023c).	Unlikely The study area does not contain habitat on which this species is dependant.

Species	Common name	BC Act	NM	RT	PMST	Distance to nearest record (km)	Habitat and discussion	Likelihood of study area containing habitat of specific dependence
<i>Calidris ferruginea</i>	Curlew Sandpiper	CR			CE/LM		The Curlew Sandpiper prefers habitats such as tidal mudflats, saltmarsh, salt fields, fresh, brackish or saline wetlands and sewerage ponds. It is also found at lagoons and mangroves, as well as beaches, rocky shores and around lakes, dams and floodwaters. The Curlew Sandpiper does not breed in Australia (Pizzey & Knight 2012).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Calidris melanotos</i>	Pectoral Sandpiper	MI			MI/LM		In Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species can be found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. Although this species is usually found in coastal or near coastal habitat, it can occasionally be found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire (DCCEEW, 2023c).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Calidris subminuta</i>	Long-toed Stint	MI	X				In Australia, the preferred habitat of the Long-toed Stint includes tussocky, weedy margins of shallow coastal and inland wetlands, sewerage ponds and tidal mudflats (Pizzey & Knight 2012). They prefer shallow freshwater or brackish wetlands including lakes, swamps, river floodplains, streams, lagoons and sewage ponds. The species is also fond of areas of muddy shoreline, growths of short grass, weeds, sedges, low or floating aquatic vegetation, reeds, rushes and occasionally stunted samphire (DCCEEW, 2023c)	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Chalcites osculans</i>	Black-eared Cuckoo				LM		Found in dry open forests, mallee, mulga and scrublands. The Black-eared Cuckoo prefers low trees and shrubs over tall canopies. Occasionally, the species has been recorded in urban areas and farmlands.	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Charadrius veredus</i>	Oriental Plover	MI			MI/LM		Immediately after the Oriental Plover arrives in their non-breeding grounds in northern Australia, they spend a few weeks in coastal habitats such as estuarine mudflats and sandbanks, on sandy or rocky ocean beaches or nearby reefs, or in near-coastal grasslands, before dispersing further inland. Thereafter they usually inhabit flat, open, semi-arid or arid grasslands, where the grass is short and sparse, and interspersed with hard, bare ground, such as claypans, dry paddocks, playing fields, lawns and cattle camps, or open areas that have been recently burnt (DCCEEW, 2023c).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Erythroriorchis radiatus</i>	Red Goshawk	VU			EN		The Red Goshawk occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia (Marchant & Higgins 1993). Riverine forests are also used frequently. The Red Goshawk nests in large trees, frequently the tallest and most massive in a tall stand, and nest trees are invariably within one km of permanent water (DCCEEW, 2023c).	Unlikely The study area does not contain habitat on which this species is dependant.

Species	Common name	BC Act	NM	RT	PMST	Distance to nearest record (km)	Habitat and discussion	Likelihood of study area containing habitat of specific dependence
<i>Falco hypoleucos</i>	Grey Falcon	VU	X	X	VU	7.2	Grey Falcon is a wide roaming species and prefers habitats such as lightly treed inland plains, gibber deserts, sand ridges, pastoral lands, timbered watercourses. They are seldom in the driest deserts (Pizzey & Knight 2012).	Unlikely Although this taxon was recorded within 10 km of the study area, it is unlikely it will have a specific dependence on this habitat to support its survival. This species may overfly study area.
<i>Falco peregrinus</i>	Peregrine Falcon	OS		X		7.5	The Peregrine Falcon inhabits cliffs, gorges, timbered waterways, riverine environments, wetlands, plains and open woodlands. It also inhabits pylons, spires and buildings. Nesting habitat includes cliff edges or crevices, large tree hollows, other raptor or corvid nests and ledges of city buildings (Pizzey & Knight 2012).	Unlikely Although this taxon was recorded within 10 km of the study area, it is unlikely it will have a specific dependence on this habitat to support its survival. This species may overfly study area.
<i>Hirundo rustica</i>	Barn Swallow	MI			MI/LM		In Australia, the Barn Swallow is recorded in open country in coastal lowlands, often near water, towns and cities. Barn Swallows are often sighted perched on overhead wires and also in or over freshwater wetlands, paperbark Melaleuca woodland, mesophyll shrub thickets and tussock grassland (Schodde & Mason 1999).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Meropus ornatus</i>	Rainbow Bee-eater				LM		The Rainbow Bee-eater is distributed across the majority of mainland Australia but is thinly distributed in the arid regions of Western Australia. It occurs in open forest and woodlands, shrublands and in cleared/semi-cleared habitats. Often found in close proximity to permanent water. In arid areas, the species prefers riparian and floodplain assemblages.	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Motacilla cinerea</i>	Grey Wagtail	MI			MI/LM		The Grey Wagtail can be found in Australia near running water and in disused quarries. It is also found in sandy, rocky streams in escarpments and rainforests, sewage ponds, ploughed fields and airfields (Pizzey & Knight 2012).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Motacilla flava</i>	Yellow Wagtail	MI			MI/LM		The Yellow Wagtail is mostly found in open country near water. Little information is available on this species.	Unlikely The study area does not contain habitat on which this species is dependant.

Species	Common name	BC Act	NM	RT	PMST	Distance to nearest record (km)	Habitat and discussion	Likelihood of study area containing habitat of specific dependence
<i>Pezoporus occidentalis</i>	Night Parrot	CR			EN		The Night Parrot is a highly cryptic bird which was presumed extinct until its rediscovery in 2013. As such, habitat requirements are still being researched. At the time of this report Night Parrots are thought to roost and nest in clumps of dense vegetation, primarily old and large spinifex (<i>Triodia</i>) clumps, but sometimes other vegetation types are used. Little is known about foraging sites, but favoured sites are considered likely to vary across the range of the species. <i>Triodia</i> is also likely to provide a good food resource for night parrots, in times of mass flowering and seeding, but they also rely heavily on a range of other food species. <i>Sclerolaena</i> has been shown to be a source of food and moisture (Department of Biodiversity, Conservation and Attractions, 2017).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Polytelis alexandrae</i>	Princess Parrot	VU			VU		The Princess Parrot inhabits sand dunes and sand flats in the arid zone of western and central Australia. It occurs in open savanna woodlands and shrublands. It also frequents <i>Eucalyptus</i> or <i>Allocasuarina</i> trees in riverine or littoral areas (DCCEEW, 2023).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Rostratula australis</i>	Australian Painted Snipe	EN			EN/LM		The Australian Painted Snipe is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. Though some individuals are apparently resident in some areas, other individuals appear to be nomadic, temporarily occupying areas where suitable habitat exists (DCCEEW, 2023c).	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Tringa glareola</i>	Wood Sandpiper	MI	X				The Wood Sandpiper prefers well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes (Menkhorst et al., 2017). They also frequent inundated grasslands, short herbage or wooded floodplains, where floodwaters are temporary or receding, and irrigated crops (Pizzey & Knight 2012).	Unlikely The study area does not contain habitat on which this species is dependant.
Mammals								
<i>Dasyurus hallucatus</i>	Northern Quoll	EN	X	X	EN	9.0	Northern Quoll occupy a diverse range of habitats including rocky areas, eucalypt forest, woodlands, rainforests, sandy lowlands and beaches, shrubland, grasslands and desert (Threatened Species Scientific Committee, 2005). Habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal. Dens are made in rock crevices, tree holes or occasionally termite mounds. In the Pilbara region, the species appears to prefer the Rocklea, Macroy and Robe land systems. 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 (Biota, 2008).	Unlikely Although this taxon was recorded within 10 km of the study area, the study area does not contain suitable habitat to specifically support this species. The Northern Quoll is therefore unlikely to specifically depend on this habitat for survival and therefore be present within the survey area.

Species	Common name	BC Act	NM	RT	PMST	Distance to nearest record (km)	Habitat and discussion	Likelihood of study area containing habitat of specific dependence
<i>Macroderma gigas</i>	Ghost Bat	VU	X	X	VU	6.2	The Ghost Bat is patchily distributed across the northern half of Australia. This species requires undisturbed roost sites which are often complex and contain multiple entrances; it has been known to utilise old abandoned mine shafts (Menkhorst & Knight 2017).	Unlikely Although this taxon was recorded within 10 km of the study area and species may overfly the study area, the study area does not contain habitat of specific dependence to support this species.
<i>Pseudomys chapmani</i>	Western Pebble-mound Mouse	P4	X				The Western Pebble-mound Mouse is found on stony hillsides with hummock grassland (Menkhorst & Knight, 2021). This species favors scree and stony plains habitat where it constructs conspicuous, extensive mounds of small stones. The pebble-mounds are found on gently sloping hills where the ground is stony with continuous small pebbles.	Unlikely The study area does not contain habitat on which this species is dependant.
<i>Rhinioncteris aurantia</i>	Pilbara Leaf-nosed Bat	VU	X	X	VU	3.5	The Pilbara leaf-nosed bat (PLNB) inhabits abandoned mine shafts, granite rock pile terrain of the east Pilbara and caves formed in gorges that dissect sedimentary geology in the west. This species is more influenced by the availability of suitable roost caves than by habitat type and high humidity is particularly important to this species (Van Dyck & Strahan 2008).	Unlikely Although this taxon was recorded within 5 km of the study area and species may overfly the study area, the study area does not contain habitat of specific dependence to support this species.
<i>Sminthopsis longicaudata</i>	Long-tailed Dunnart	P4	X				The Long-tailed Dunnart inhabits exposed rock and stony soils with hummock grasses and shrubs. They can be found on flat-topped hills, lateritic plateaus, sandstone ranges and breakaways as well as sparse mulga over spinifex (Van Dyck, Gynther and Baker, 2013).	Unlikely The study area does not contain habitat on which this species is dependant.
Reptiles								

Species	Common name	BC Act	NM	RT	PMST	Distance to nearest record (km)	Habitat and discussion	Likelihood of study area containing habitat of specific dependence
<i>Liasis olivaceus</i> subsp. <i>barroni</i>	Pilbara Olive Python	VU	X	X	VU	10.1	Pilbara Olive Python habitat includes escarpments, gorges and water holes in the ranges of the Pilbara region (Wilson & Swan 2008). Individuals are usually recorded in close proximity to water and rock outcrops that attract suitably sized prey species (Pearson, 2003).	Unlikely Although this taxon was recorded within 15 km of the study area, the study area does not contain habitat of specific dependence to support this species.

NM – NatureMap; **RT** –Rio Tinto Priority Fauna Database; **PMST** – EPBC Act Protected Matters Search Tool. * Please note that due to NatureMap being taken offline indefinitely as of 17 December 2021, location of closest record has been derived from the Rio Tinto internal database.

4. Field results

4.1 Flora

4.1.1 Flora diversity

Flora diversity was recorded for the study area to inform the request to extend the area subject to CPS 6110/6. A total of 18 flora species from 10 families were identified during the survey. The most specious family was Poaceae (5), Fabaceae (3) and Chenopodiaceae (3). A full list of species is presented in Appendix 6.

4.1.2 Conservation significant flora

The study area was systematically searched for the presence of threatened and priority flora. No conservation significant flora was detected during the survey within the study area. As such it is considered unlikely that any threatened or priority flora species are present within the study area.

4.1.3 Introduced flora

Three (3) species of introduced flora were detected during the survey of the Study Area. These comprised:

- *Aerva javanica*
- *Cenchrus ciliaris*
- *Cenchrus setiger*

None of these species are listed as Weeds of National Significance (WONS).

4.2 Vegetation of the study area



The study area comprised one vegetation type: *Acacia citrinoviridis* tall shrubland over **Aerva javanica*, *Eremophila fraseri* and *Corchorus crozophorifolius* open shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* closed tussock grassland. This vegetation type covers 85.18% of the study area (0.46 ha), the remaining 0.08 ha (14.82%) of the study area had been cleared for tracks and infrastructure.

The vegetation within the study area was assessed as being in Poor condition with disturbances from weeds, tracks, cattle, litter, previous clearing and infrastructure (Table 4-1)(Figure 4-1).

4.3 Vegetation of conservation significance

The vegetation within the study area is considered to be common within the region and did not represent a potential PEC or TEC.

Table 4-1 Vegetation types within the study area

Vegetation code	Description	Extent (ha) within study area	Proportion (%) within study area	Photo
AcAjEfCcrocCsCcil (Fauna habitat = Alluvial Plain)	<p><i>Acacia citrinoviridis</i> tall shrubland over <i>*Aerva javanica</i>, <i>Eremophila fraseri</i> and <i>Corchorus crozophorifolius</i> open shrubland over <i>*Cenchrus ciliaris</i> and <i>*Cenchrus setiger</i> closed tussock grassland.</p> <p>This vegetation type had disturbances from weeds, tracks, cattle, litter, previous clearing and infrastructure and overall was in Poor condition.</p>	0.46	85.18	
HD	<p>Highly modified</p> <p>Areas that are heavily disturbed, degraded, weed infested or cleared.</p>	0.08	14.82	
Total		0.54	100	



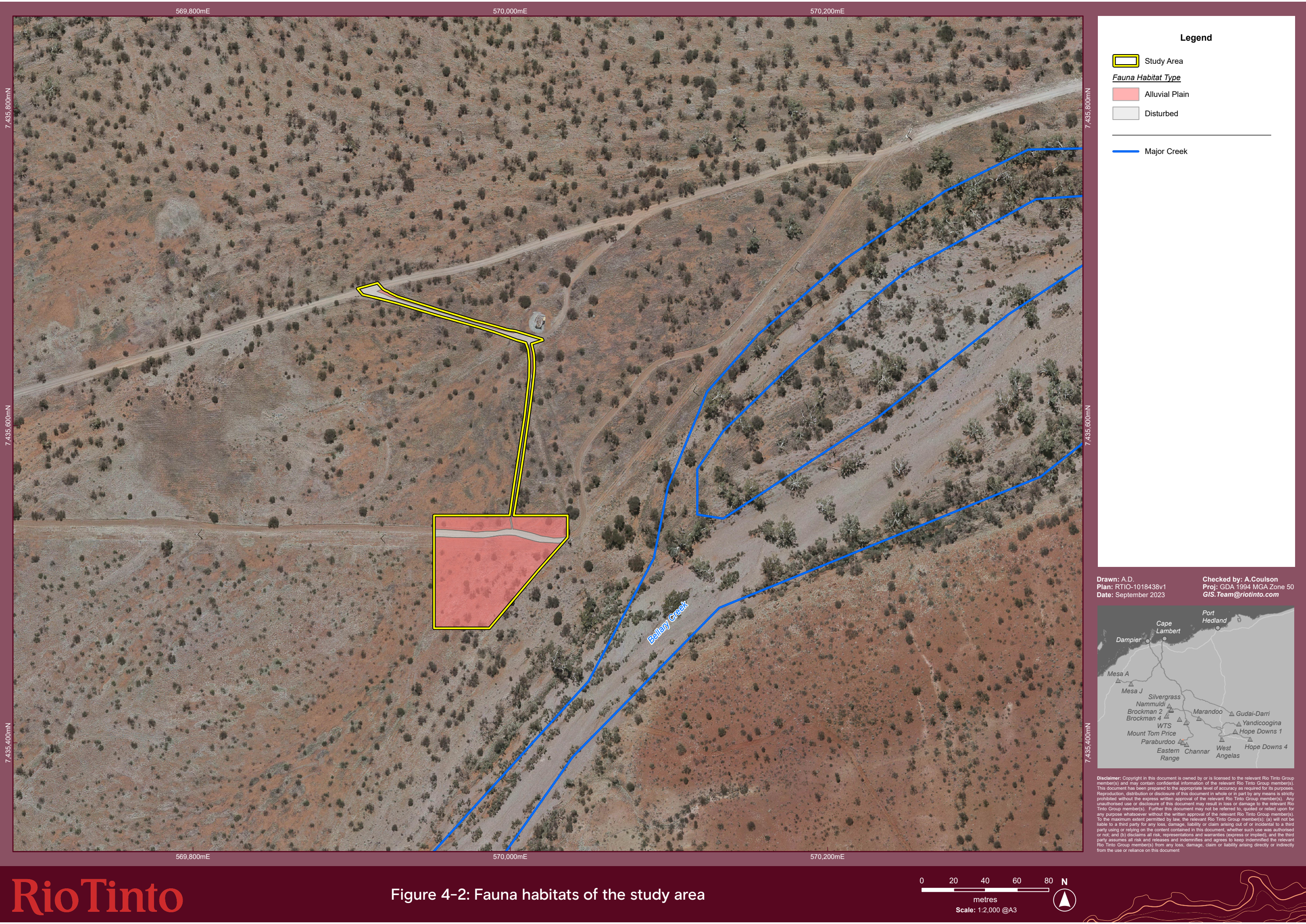
4.4 Fauna habitat

The majority of the study area is Alluvial Plain habitat, which comprises of alluvial, silt, clay or loams associated with floodplains adjacent to drainage lines, accounting for 0.46 ha (85.18%). The other 0.08 ha (14.82%) of the study area is disturbed habitat with no complex vegetation. Portions of the habitats within the study area have been cleared/disturbed and the remaining vegetation is in poor condition. Due to the low vegetation complexity and heavily disturbed nature of the habitats (which lie along roads and powerline corridors), the habitats are considered to have little value to most fauna, including BC Act listed fauna.

The fauna habitat types are described below, accompanied by mapping of the habitat types (Table 4-2, Figure 4-2).

Table 4-2: Fauna habitats within the study area

Habitat	Fauna habitat description	Significant microhabitat	Extent (ha) within study area	Proportion (%) within study area
Alluvial Plain	<p>This habitat is comprised of low lying, vegetation including tussock grasses. The landscape is generally low lying with very slight to no gradient. Some areas may be seasonally inundated with water but do not provide a permanent water source for fauna. Typical substrate of this habitat includes alluvial, silt and/or loamy/clay.</p> <p>Microhabitats generally include increased vegetation cover compared to other plains habitat, leaf litter, soft substrate for burrowing species, logs, and hollows. However, given the disturbed nature of the study area, very few of these microhabitats exist.</p> <p>Habitat connectivity is considered good.</p> <p>Conservation significant fauna with specific dependence on the habitat within the Study Area:</p> <p>None of the 23 listed species above that may occur within the Study Area are likely to have a specific dependence on this habitat.</p>	None.	0.46	85.18
Disturbed	<p>Areas where the natural vegetation and microhabitats have been disturbed (tracks, laydown areas etc.). This habitat also contains previously disturbed areas with some natural vegetation regrowth.</p> <p>Where natural regrowth has occurred, the habitat appears to be in degraded or completely degraded condition.</p>	None.	0.08	14.82
TOTAL			0.54	100



Drawn: A.D.
Plan: RTIO-1018438v1
Date: September 2023

Checked by: A.Coulson
Proj: GDA 1994 MGA Zone 50
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5. Conclusion

The study area has been subject to a flora, vegetation and fauna desktop assessment, and a targeted flora, vegetation and fauna habitat survey. No conservation significant flora, vegetation or habitats of specific dependence to BC Act fauna were observed during the survey or are considered likely to occur within the study area.

6. Statement addressing the 10 Clearing Principles

Rio Tinto proposes to install a bore to replace two historical bores to supply water for Paraburdoo, Western Australia. The study area (0.54 ha) comprises 0.46 ha of native vegetation and 0.08 ha previously cleared tracks.

Based on specialist assessment of the survey area and discussion below, it is deemed that:

- Principles a-j are not at variance;

6.1 Principle a: Comprises high level of biological diversity

Native vegetation should not be cleared if it comprises a high level of biological diversity.

The Pilbara is one of Australia's 15 National Biodiversity Hotspots (DotEE 2018a) and is a secondary centre of endemism and species richness for *Acacia*, *Triodia*, *Corymbia* and *Sida* in Western Australia (Maslin 2001, Kendrick 2001 and Maslin and van Leeuwen 2008). The Hamersley sub-region of the Pilbara has been identified by the Threatened Species Scientific Committee for the Australian Government Biodiversity Hotspots as it provides habitat for a number of threatened, endemic and fire-sensitive species and communities.

The study area occurs within the Hamersley sub-region of the Pilbara bioregion. The Hamersley sub-region is described as: 'Mountainous area of Proterozoic sedimentary ranges and plateaux, supporting Mulga (*Acacia aneura*) low woodland over bunch grasses on fine textured soils, and *Eucalyptus leucophloia* woodlands over *Triodia brizoides* hummock grasslands on skeletal sandy soils' (Kendrick 2001).

Special features of the Hamersley sub-region include rare features such as gorges, centres of endemism including calcrete deposits, refugia and the *Themeda* grasslands TEC (Kendrick 2001).

One vegetation unit was described from the study area; *Acacia citrinoviridis* tall shrubland over *Aerva javanica*, *Eremophila fraseri* and *Corchorus crozophorifolius* open shrubland over *Cenchrus ciliaris* and *Cenchrus setiger* closed tussock grassland. This vegetation unit does not represent a TEC under either the EPBC Act or under the State listing maintained by DBCA and does not represent a PEC under the State listing maintained by DBCA (DBCA, 2018a, DBCA, 2022). The vegetation unit identified within the study area is considered to be of low conservation value and widely distributed both locally and throughout the Hamersley sub-region.

A total of 18 flora species from 16 genera representing 10 families were recorded during the current survey. The number of species recorded during the current survey is reflective of the small survey area, low landscape diversity and heavily disturbed nature of the study area.

No conservation significant flora species were detected during the survey, however three weed species were recorded. None of the weed species recorded are listed WONS.

One broad fauna habitat was recorded within the study area; Alluvial Plain. This fauna habitat is not considered to be restricted at a local or regional level.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.2 Principle b: Potential impact to any significant habitat for fauna indigenous to Western Australia

Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

One broad fauna habitat was detected during the survey; Alluvial Plain. This habitat is not considered to be of specific dependence to conservation significance fauna. Due to the small size of clearing within this habitat, it is considered unlikely the Proposal will negatively impact on the conservation status of any species, on either a local or regional scale.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.3 Principle c: Potential impact to any rare flora

Native vegetation should not be cleared if it includes, or is necessary for the continued existence of rare flora.

No Declared Rare / Threatened flora species were recorded, nor were any EPBC Act listed Threatened flora observed. It is considered highly unlikely that any Threatened flora species would have been overlooked, nor is any preferred landforms/habitat present that is likely to support Threatened flora.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.4 Principle d: Presence of any threatened ecological communities

Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a threatened ecological community (TEC).

There are no State or Commonwealth listed TECs within or adjacent to the study area.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.5 Principle e: Significance as a remnant of native vegetation in the area that has been extensively cleared

Native vegetation should not be cleared if it is significant as remnant vegetation in an area that has been extensively cleared.

The majority of the Pilbara region has not been extensively cleared. However, grazing, inappropriate fire regimes and weed invasion have greatly altered the vegetation in some areas. The study area lies within two of Beard's mapping units - Hamersley 181 and Hamersley 567.

The current extent of the Beard (1975) mapping units Hamersley 181 and Hamersley 567 has been estimated to be over 97% of their pre-European extent remaining and are considered to be of 'least concern'. Vegetation types within the study area would not represent remnant stands of extensively cleared vegetation.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.6 Principle f: Impact on any watercourse and / or wetlands

Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

No flow lines are evident within the study area and the study area is not considered to be associated with watercourses or wetlands.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.7 Principle g: Potential to cause appreciable land degradation

Native vegetation should not be cleared if the clearing of vegetation is likely to cause appreciable land degradation.

The study area lies within vegetation considered to be of low conservation value which has been partly disturbed and is in Poor condition. The Proposal is not expected to result in soil erosion, nutrient export, water-logging/flooding, acidification, salinization or deep subsoil compaction.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.8 Principle h: Potential to impact on the environmental values of adjacent or nearby conservation areas

Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

There are no nearby conservation areas.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.9 Principle i: Potential deterioration in the quality of surface or underground water

Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

No permanent or semi-permanent water features occur in or adjacent to the study area. The study area lies within the Pilbara Groundwater Area and the Roebourne/Ashburton Groundwater Subarea. Due to the small size of the study area, it is considered unlikely the Proposal will negatively impact on this Water Reserve.

The study area is located within the Paraburdoo Priority 1 (P1) Public Drinking Water Supply Area (PDWSA). The proposed clearing of 0.54 ha for the replacement of an existing town water supply bore to secure drinking water for the Paraburdoo township is considered compatible with Water Quality Protection Note 25: land use compatibility tables for public drinking water source areas (DWER 2021). The groundwater within the PDSWA and CPS 6110 intersection area ranges from 10-15mbgl; the proposed clearing of native vegetation is at surface only, and therefore unlikely to have impacts on groundwater quality at such depths. Additionally, there will be no land use intensification as a result of the proposed clearing.

Based on specialist assessment, the proposal is considered not at variance to this principle.

6.10 Principle j: Potential of clearing to cause, or exacerbate, the incidence or intensity of flooding

Native vegetation should not be cleared if the clearing of vegetation is likely to cause, or exacerbate, the incidence of flooding.

Local flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorm activity. The small scale of cleared proposed is not expected to exacerbate the incidence or intensity of flooding in the area.

Based on specialist assessment, the proposal is considered not at variance to this principle.

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8. Appendices

Appendix 1: Results of NatureMap and EPBC Protected Matters database searches

TAXON	CLASS	CONS	KINGDOM
<i>Acanthagenys rufogularis</i>	BIRD		Animalia
<i>Acanthiza apicalis</i>	BIRD		Animalia
<i>Acanthiza robustirostris</i>	BIRD		Animalia
<i>Acanthiza uropygialis</i>	BIRD		Animalia
<i>Accipiter cirrocephalus</i>	BIRD		Animalia
<i>Accipiter cirrocephalus subsp. cirrocephalus</i>	BIRD		Animalia
<i>Accipiter fasciatus</i>	BIRD		Animalia
<i>Accipiter fasciatus subsp. fasciatus</i>	BIRD		Animalia
<i>Acrocephalus australis</i>	BIRD		Animalia
<i>Acrocephalus australis subsp. gouldi</i>	BIRD		Animalia
<i>Actitis hypoleucos</i>	BIRD	MI	Animalia
<i>Actitis hypoleucos (Tringa hypoleucos)</i>	BIRD		Animalia
<i>Aegotheles cristatus</i>	BIRD		Animalia
<i>Amytornis striatus</i>	BIRD		Animalia
<i>Anas gracilis</i>	BIRD		Animalia
<i>Anas superciliosa</i>	BIRD		Animalia
<i>Anhinga novaehollandiae</i>	BIRD		Animalia
<i>Anthus novaeseelandiae</i>	BIRD		Animalia
<i>Aquila audax</i>	BIRD		Animalia
<i>Ardea modesta</i>	BIRD		Animalia
<i>Ardea novaehollandiae</i>	BIRD		Animalia
<i>Ardea pacifica</i>	BIRD		Animalia
<i>Ardeotis australis</i>	BIRD		Animalia
<i>Artamus cinereus</i>	BIRD		Animalia
<i>Artamus cinereus subsp. melanops</i>	BIRD		Animalia
<i>Artamus minor</i>	BIRD		Animalia
<i>Aythya australis</i>	BIRD		Animalia
<i>Barnardius zonarius</i>	BIRD		Animalia
<i>Cacatua roseicapilla</i>	BIRD		Animalia
<i>Cacatua roseicapilla subsp. roseicapilla</i>	BIRD		Animalia
<i>Cacatua sanguinea</i>	BIRD		Animalia
<i>Cacomantis pallidus</i>	BIRD		Animalia
<i>Calidris acuminata</i>	BIRD	MI	Animalia
<i>Calidris subminuta</i>	BIRD	MI	Animalia
<i>Centropus phasianinus</i>	BIRD		Animalia
<i>Certhionyx variegatus</i>	BIRD		Animalia
<i>Chrysococcyx basalis</i>	BIRD		Animalia
<i>Cincloramphus cruralis</i>	BIRD		Animalia
<i>Cinclosoma castaneothorax</i>	BIRD		Animalia
<i>Circus approximans</i>	BIRD		Animalia
<i>Circus assimilis</i>	BIRD		Animalia

TAXON	CLASS	CONS	KINGDOM
<i>Colluricincla harmonica</i>	BIRD		Animalia
<i>Coracina novaehollandiae</i>	BIRD		Animalia
<i>Coracina novaehollandiae subsp. subpallida</i>	BIRD		Animalia
<i>Corvus bennetti</i>	BIRD		Animalia
<i>Corvus orru</i>	BIRD		Animalia
<i>Corvus orru subsp. ceciliae</i>	BIRD		Animalia
<i>Cracticus nigrogularis</i>	BIRD		Animalia
<i>Cracticus tibicen</i>	BIRD		Animalia
<i>Cracticus torquatus</i>	BIRD		Animalia
<i>Cygnus atratus</i>	BIRD		Animalia
<i>Dacelo leachii</i>	BIRD		Animalia
<i>Dacelo leachii subsp. leachii</i>	BIRD		Animalia
<i>Dicaeum hirundinaceum</i>	BIRD		Animalia
<i>Dicrurus bracteatus</i>	BIRD		Animalia
<i>Egretta novaehollandiae</i>	BIRD		Animalia
<i>Elanus caeruleus</i>	BIRD		Animalia
<i>Elseya melanops</i>	BIRD		Animalia
<i>Emblema pictum</i>	BIRD		Animalia
<i>Eolophus roseicapillus</i>	BIRD		Animalia
<i>Epthianura tricolor</i>	BIRD		Animalia
<i>Eremiornis carteri</i>	BIRD		Animalia
<i>Erythrogonyx cinctus</i>	BIRD		Animalia
<i>Eurostopodus argus</i>	BIRD		Animalia
<i>Falco berigora</i>	BIRD		Animalia
<i>Falco cenchroides</i>	BIRD		Animalia
<i>Falco hypoleucos</i>	BIRD	VU	Animalia
<i>Falco longipennis</i>	BIRD		Animalia
<i>Falco longipennis subsp. longipennis</i>	BIRD		Animalia
<i>Fulica atra</i>	BIRD		Animalia
<i>Gavialis virescens</i>	BIRD		Animalia
<i>Geopelia cuneata</i>	BIRD		Animalia
<i>Geopelia striata</i>	BIRD		Animalia
<i>Geopelia striata subsp. placida</i>	BIRD		Animalia
<i>Geophaps plumifera</i>	BIRD		Animalia
<i>Gerygone fusca</i>	BIRD		Animalia
<i>Gerygone fusca subsp. mungi</i>	BIRD		Animalia
<i>Grallina cyanoleuca</i>	BIRD		Animalia
<i>Haliastur sphenurus</i>	BIRD		Animalia
<i>Hamirostra melanosternon</i>	BIRD		Animalia
<i>Hieraaetus morphnoides</i>	BIRD		Animalia
<i>Himantopus himantopus</i>	BIRD		Animalia
<i>Lalage tricolor</i>	BIRD		Animalia
<i>Lichenostomus penicillatus</i>	BIRD		Animalia
<i>Lichenostomus virescens</i>	BIRD		Animalia

TAXON	CLASS	CONS	KINGDOM
<i>Lichmera indistincta</i>	BIRD		Animalia
<i>Malacorhynchus membranaceus</i>	BIRD		Animalia
<i>Malurus lamberti</i>	BIRD		Animalia
<i>Malurus lamberti subsp. assimilis</i>	BIRD		Animalia
<i>Malurus leucopterus</i>	BIRD		Animalia
<i>Manorina flavigula</i>	BIRD		Animalia
<i>Megalurus cruralis</i>	BIRD		Animalia
<i>Melanodryas cucullata</i>	BIRD		Animalia
<i>Melopsittacus undulatus</i>	BIRD		Animalia
<i>Merops ornatus</i>	BIRD		Animalia
<i>Microcarbo melanoleucos</i>	BIRD		Animalia
<i>Milvus migrans</i>	BIRD		Animalia
<i>Neochmia ruficauda</i>	BIRD		Animalia
<i>Ninox boobook</i>	BIRD		Animalia
<i>Ninox boobook boobook</i>	BIRD		Animalia
<i>Ninox novaeseelandiae</i>	BIRD		Animalia
<i>Ninox novaeseelandiae subsp. boobook</i>	BIRD		Animalia
<i>Nycticorax caledonicus</i>	BIRD		Animalia
<i>Nymphicus hollandicus</i>	BIRD		Animalia
<i>Ocyphaps lophotes</i>	BIRD		Animalia
<i>Oreica gutturalis</i>	BIRD		Animalia
<i>Pachycephala rufiventris</i>	BIRD		Animalia
<i>Pachycephala rufiventris subsp. rufiventris</i>	BIRD		Animalia
<i>Pardalotus rubricatus</i>	BIRD		Animalia
<i>Petrochelidon ariel</i>	BIRD		Animalia
<i>Petrochelidon nigricans</i>	BIRD		Animalia
<i>Petroica cucullata</i>	BIRD		Animalia
<i>Petroica goodenovii</i>	BIRD		Animalia
<i>Phaps chalcoptera</i>	BIRD		Animalia
<i>Platycercus zonarius</i>	BIRD		Animalia
<i>Platycercus zonarius subsp. zonarius</i>	BIRD		Animalia
<i>Podargus strigoides</i>	BIRD		Animalia
<i>Poliiocephalus poliocephalus</i>	BIRD		Animalia
<i>Pomatostomus superciliosus</i>	BIRD		Animalia
<i>Pomatostomus temporalis</i>	BIRD		Animalia
<i>Pomatostomus temporalis subsp. rubeculus</i>	BIRD		Animalia
<i>Porphyrio porphyrio</i>	BIRD		Animalia
<i>Psophodes occidentalis</i>	BIRD		Animalia
<i>Ptilonorhynchus guttatus</i>	BIRD		Animalia
<i>Ptilonorhynchus maculatus guttatus</i>	BIRD		Animalia
<i>Ptilotula keartlandi</i>	BIRD		Animalia
<i>Ptilotula penicillata</i>	BIRD		Animalia
<i>Purnella albifrons</i>	BIRD		Animalia
<i>Pyrrholaemus brunneus</i>	BIRD		Animalia

TAXON	CLASS	CONS	KINGDOM
<i>Recurvirostra novaehollandiae</i>	BIRD		Animalia
<i>Rhipidura albiscapa</i>	BIRD		Animalia
<i>Rhipidura fuliginosa</i>	BIRD		Animalia
<i>Rhipidura leucophrys</i>	BIRD		Animalia
<i>Rhipidura leucophrys subsp. leucophrys</i>	BIRD		Animalia
<i>Smicrornis brevirostris</i>	BIRD		Animalia
<i>Stipiturus ruficeps</i>	BIRD		Animalia
<i>Tachybaptus novaehollandiae</i>	BIRD		Animalia
<i>Tachybaptus novaehollandiae novaehollandiae</i>	BIRD		Animalia
<i>Tachybaptus ruficollis tricolor</i>	BIRD		Animalia
<i>Taeniopygia guttata</i>	BIRD		Animalia
<i>Taeniopygia guttata subsp. castanotis</i>	BIRD		Animalia
<i>Threskiornis molucca</i>	BIRD		Animalia
<i>Threskiornis spinicollis</i>	BIRD		Animalia
<i>Todiramphus pyrrhopygius</i>	BIRD		Animalia
<i>Todiramphus sanctus</i>	BIRD		Animalia
<i>Tringa glareola</i>	BIRD	MI	Animalia
<i>Turnix velox</i>	BIRD		Animalia
<i>Abutilon amplum</i>	DICOT		Plantae
<i>Abutilon cryptopetalum</i>	DICOT		Plantae
<i>Abutilon fraseri</i>	DICOT		Plantae
<i>Abutilon fraseri subsp. fraseri</i>	DICOT		Plantae
<i>Abutilon lepidum</i>	DICOT		Plantae
<i>Abutilon otocarpum</i>	DICOT		Plantae
<i>Abutilon sp. (3) Channar Survey)</i>	DICOT		Plantae
<i>Abutilon sp. (4) Channar Survey)</i>	DICOT		Plantae
<i>Abutilon sp. (5) Channar Survey)</i>	DICOT		Plantae
<i>Abutilon sp. (6) aff. lepidium B)</i>	DICOT		Plantae
<i>Abutilon sp. (6) Channar Survey)</i>	DICOT		Plantae
<i>Abutilon sp. 1 (Channar Survey)</i>	DICOT		Plantae
<i>Abutilon sp. 5 (= aff. lepidum A)</i>	DICOT		Plantae
<i>Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)</i>	DICOT		Plantae
<i>Acacia ampliceps</i>	DICOT		Plantae
<i>Acacia ampliceps x sclerosperma subsp. sclerosperma</i>	DICOT		Plantae
<i>Acacia aptaneura</i>	DICOT		Plantae
<i>Acacia atkinsiana</i>	DICOT		Plantae
<i>Acacia ayersiana</i>	DICOT		Plantae
<i>Acacia ayersiana x incurvaneura</i>	DICOT		Plantae
<i>Acacia bivenosa</i>	DICOT		Plantae
<i>Acacia bivenosa x sclerosperma subsp. sclerosperma</i>	DICOT		Plantae
<i>Acacia citrinoviridis</i>	DICOT		Plantae
<i>Acacia coriacea subsp. pendens</i>	DICOT		Plantae
<i>Acacia cuspidifolia</i>	DICOT		Plantae
<i>Acacia fuscaneura</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Acacia hamersleyensis</i>	DICOT		Plantae
<i>Acacia incurvaneura</i>	DICOT		Plantae
<i>Acacia maitlandii</i>	DICOT		Plantae
<i>Acacia marramamba</i>	DICOT		Plantae
<i>Acacia pruinocarpa</i>	DICOT		Plantae
<i>Acacia pyrifolia</i> var. <i>morrisonii</i>	DICOT		Plantae
<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>	DICOT		Plantae
<i>Acacia rhodophloia</i>	DICOT		Plantae
<i>Acacia rhodophloia</i> x <i>sibirica</i>	DICOT		Plantae
<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>	DICOT		Plantae
<i>Acacia sibirica</i>	DICOT		Plantae
<i>Acacia spondylophylla</i>	DICOT		Plantae
<i>Acacia synchronicia</i>	DICOT		Plantae
<i>Acacia tetanophylla</i>	DICOT		Plantae
<i>Acacia tetragonophylla</i>	DICOT		Plantae
<i>Acacia thoma</i>	DICOT		Plantae
<i>Acacia wanyu</i>	DICOT		Plantae
<i>Acacia xiphophylla</i>	DICOT		Plantae
<i>Adriana tomentosa</i> var. <i>tomentosa</i>	DICOT		Plantae
<i>Aerva javanica</i>	DICOT		Plantae
<i>Aluta quadrata</i>	DICOT	EN	Plantae
<i>Amaranthus cuspidifolius</i>	DICOT		Plantae
<i>Amaranthus undulatus</i>	DICOT		Plantae
<i>Ammannia multiflora</i>	DICOT		Plantae
<i>Amyema fitzgeraldii</i>	DICOT		Plantae
<i>Amyema gibberula</i> var. <i>gibberula</i>	DICOT		Plantae
<i>Amyema sanguinea</i> var. <i>sanguinea</i>	DICOT		Plantae
<i>Amyema</i> sp. <i>Fortescue</i> (M.E. Trudgen 5358)	DICOT		Plantae
<i>Androcalva luteiflora</i>	DICOT		Plantae
<i>Angianthus tomentosus</i>	DICOT		Plantae
<i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	DICOT		Plantae
<i>Astrotricha hamptonii</i>	DICOT		Plantae
<i>Atriplex codonocarpa</i>	DICOT		Plantae
<i>Atriplex quadrivalvata</i>	DICOT		Plantae
<i>Boerhavia coccinea</i>	DICOT		Plantae
<i>Boerhavia</i> sp.	DICOT		Plantae
<i>Bonamia pilbarensis</i>	DICOT		Plantae
<i>Calandrinia holtumii</i>	DICOT		Plantae
<i>Calandrinia schistorhiza</i>	DICOT		Plantae
<i>Calandrinia</i> sp. <i>The Pink Hills</i> (F. Obbens FO 19/06)	DICOT		Plantae
<i>Calocephalus knappii</i>	DICOT		Plantae
<i>Calocephalus multiflorus</i>	DICOT		Plantae
<i>Calotis multicaulis</i>	DICOT		Plantae
<i>Capparis spinosa</i> subsp. <i>nummularia</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Carissa lanceolata</i>	DICOT		Plantae
<i>Chrysocephalum gilesii</i>	DICOT		Plantae
<i>Cleome oxalidea</i>	DICOT		Plantae
<i>Cleome viscosa</i>	DICOT		Plantae
<i>Clerodendrum tomentosum</i> var. <i>lanceolatum</i>	DICOT		Plantae
<i>Commicarpus australis</i>	DICOT		Plantae
<i>Convolvulus clementii</i>	DICOT		Plantae
<i>Corchorus crozophorifolius</i>	DICOT		Plantae
<i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>	DICOT		Plantae
<i>Corchorus lasiocarpus</i> subsp. <i>parvus</i>	DICOT		Plantae
<i>Corchorus tridens</i>	DICOT		Plantae
<i>Corymbia candida</i>	DICOT		Plantae
<i>Corymbia ferriticola</i>	DICOT		Plantae
<i>Corymbia hamersleyana</i>	DICOT		Plantae
<i>Corymbia opaca</i>	DICOT		Plantae
<i>Crotalaria cunninghamii</i> subsp. <i>sturtii</i>	DICOT		Plantae
<i>Crotalaria medicaginea</i>	DICOT		Plantae
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	DICOT		Plantae
<i>Cryptandra monticola</i>	DICOT		Plantae
<i>Cucumis variabilis</i>	DICOT		Plantae
<i>Cullen leucanthum</i>	DICOT		Plantae
<i>Cullen leucochaetes</i>	DICOT		Plantae
<i>Datura leichhardtii</i> subsp. <i>leichhardtii</i>	DICOT		Plantae
<i>Dicladanthera forrestii</i>	DICOT		Plantae
<i>Diplopeltis stuartii</i> var. <i>stuartii</i>	DICOT		Plantae
<i>Dipteracanthus australasicus</i> subsp. <i>australasicus</i>	DICOT		Plantae
<i>Dissocarpus paradoxus</i>	DICOT		Plantae
<i>Dodonaea lanceolata</i> var. <i>lanceolata</i>	DICOT		Plantae
<i>Dodonaea pachyneura</i>	DICOT		Plantae
<i>Dodonaea petiolaris</i>	DICOT		Plantae
<i>Dodonaea viscosa</i>	DICOT		Plantae
<i>Duperreya commixta</i>	DICOT		Plantae
<i>Dysphania kalpari</i>	DICOT		Plantae
<i>Dysphania plantaginella</i>	DICOT		Plantae
<i>Dysphania rhadinostachya</i>	DICOT		Plantae
<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>	DICOT		Plantae
<i>Enchylaena tomentosa</i>	DICOT		Plantae
<i>Eremophea spinosa</i>	DICOT		Plantae
<i>Eremophila accrescens</i>	DICOT		Plantae
<i>Eremophila canaliculata</i>	DICOT		Plantae
<i>Eremophila coacta</i>	DICOT	P3	Plantae
<i>Eremophila cryptothrix</i>	DICOT		Plantae
<i>Eremophila cuneifolia</i>	DICOT		Plantae
<i>Eremophila exilifolia</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Eremophila forrestii</i> subsp. <i>forrestii</i>	DICOT		Plantae
<i>Eremophila forrestii</i> subsp. <i>hastieana</i>	DICOT		Plantae
<i>Eremophila fraseri</i> subsp. <i>fraseri</i>	DICOT		Plantae
<i>Eremophila jucunda</i> subsp. <i>pulcherrima</i>	DICOT		Plantae
<i>Eremophila lachnocalyx</i>	DICOT		Plantae
<i>Eremophila latrobei</i>	DICOT		Plantae
<i>Eremophila latrobei</i> subsp. <i>filiformis</i>	DICOT		Plantae
<i>Eremophila latrobei</i> subsp. <i>glabra</i>	DICOT		Plantae
<i>Eremophila latrobei</i> subsp. <i>latrobei</i>	DICOT		Plantae
<i>Eremophila longifolia</i>	DICOT		Plantae
<i>Eremophila magnifica</i> subsp. <i>magnifica</i>	DICOT	P4	Plantae
<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	DICOT		Plantae
<i>Eremophila petrophila</i> subsp. <i>petrophila</i>	DICOT		Plantae
<i>Eremophila phyllopoda</i> subsp. <i>obliqua</i>	DICOT		Plantae
<i>Eremophila platycalyx</i> subsp. <i>pardalota</i>	DICOT		Plantae
<i>Eremophila reticulata</i>	DICOT		Plantae
<i>Eremophila</i> sp.	DICOT		Plantae
<i>Eremophila</i> sp. Hamersley Range (K. Walker KW 136)	DICOT	P3	Plantae
<i>Erodium cygnorum</i>	DICOT		Plantae
<i>Eucalyptus camaldulensis</i> subsp. <i>obtus</i>	DICOT		Plantae
<i>Eucalyptus gamophylla</i>	DICOT		Plantae
<i>Eucalyptus kingsmillii</i>	DICOT		Plantae
<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>	DICOT		Plantae
<i>Eucalyptus repullulans</i>	DICOT		Plantae
<i>Euphorbia australis</i>	DICOT		Plantae
<i>Euphorbia australis</i> var. <i>hispidula</i>	DICOT		Plantae
<i>Euphorbia australis</i> var. <i>subtomentosa</i>	DICOT		Plantae
<i>Euphorbia boophthona</i>	DICOT		Plantae
<i>Euphorbia careyi</i>	DICOT		Plantae
<i>Euphorbia coghlanii</i>	DICOT		Plantae
<i>Euphorbia</i> sp.	DICOT		Plantae
<i>Euphorbia tannensis</i>	DICOT		Plantae
<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>	DICOT		Plantae
<i>Euphorbia trigonosperma</i>	DICOT		Plantae
<i>Evolvulus alsinoides</i>	DICOT		Plantae
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	DICOT		Plantae
<i>Ficus brachypoda</i>	DICOT		Plantae
<i>Flaveria trinervia</i>	DICOT		Plantae
<i>Frankenia hispidula</i>	DICOT		Plantae
<i>Frankenia magnifica</i>	DICOT		Plantae
<i>Glycine tabacina</i>	DICOT		Plantae
<i>Gnephosis arachnoidea</i>	DICOT		Plantae
<i>Gomphrena affinis</i> subsp. <i>pilbarensis</i>	DICOT		Plantae
<i>Gomphrena canescens</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Gomphrena cunninghamii</i>	DICOT		Plantae
<i>Gomphrena kanisii</i>	DICOT		Plantae
<i>Goodenia cusackiana</i>	DICOT		Plantae
<i>Goodenia forrestii</i>	DICOT		Plantae
<i>Goodenia microptera</i>	DICOT		Plantae
<i>Goodenia muelleriana</i>	DICOT		Plantae
<i>Goodenia pascua</i>	DICOT		Plantae
<i>Goodenia scaevolina</i>	DICOT		Plantae
<i>Goodenia sp.</i>	DICOT		Plantae
<i>Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)</i>	DICOT	P3	Plantae
<i>Goodenia stobbsiana</i>	DICOT		Plantae
<i>Goodenia tenuiloba</i>	DICOT		Plantae
<i>Gossypium robinsonii</i>	DICOT		Plantae
<i>Grevillea berryana</i>	DICOT		Plantae
<i>Grevillea saxicola</i>	DICOT	P3	Plantae
<i>Grevillea striata</i>	DICOT		Plantae
<i>Hakea lorea subsp. lorea</i>	DICOT		Plantae
<i>Hakea lorea subsp. suberea</i>	DICOT		Plantae
<i>Harnieria kempeana</i>	DICOT		Plantae
<i>Heliotropium chrysocarpum</i>	DICOT		Plantae
<i>Heliotropium conocarpum</i>	DICOT		Plantae
<i>Heliotropium crispatum</i>	DICOT		Plantae
<i>Heliotropium heteranthum</i>	DICOT		Plantae
<i>Heliotropium inexplicitum</i>	DICOT		Plantae
<i>Heliotropium ovalifolium</i>	DICOT		Plantae
<i>Heliotropium pachyphyllum</i>	DICOT		Plantae
<i>Heliotropium tenuifolium</i>	DICOT		Plantae
<i>Hibiscus burtonii</i>	DICOT		Plantae
<i>Hibiscus campanulatus</i>	DICOT	P1	Plantae
<i>Hibiscus coatesii</i>	DICOT		Plantae
<i>Hibiscus goldsworthii</i>	DICOT		Plantae
<i>Hibiscus sp.</i>	DICOT		Plantae
<i>Hibiscus sp. Gardneri (A.L. Payne PRP 1435)</i>	DICOT		Plantae
<i>Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)</i>	DICOT	P2	Plantae
<i>Hibiscus sturtii</i>	DICOT		Plantae
<i>Hibiscus sturtii var. campylochlamys</i>	DICOT		Plantae
<i>Hibiscus sturtii var. platychlamys</i>	DICOT		Plantae
<i>Hybanthus aurantiacus</i>	DICOT		Plantae
<i>Indigofera colutea</i>	DICOT		Plantae
<i>Indigofera decipiens</i>	DICOT		Plantae
<i>Indigofera monophylla</i>	DICOT		Plantae
<i>Indigofera rugosa</i>	DICOT		Plantae
<i>Ipomoea muelleri</i>	DICOT		Plantae
<i>Ixiochlamys cuneifolia</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Jasminum didymum</i>	DICOT		Plantae
<i>Jasminum didymum subsp. lineare</i>	DICOT		Plantae
<i>Lawrenzia densiflora</i>	DICOT		Plantae
<i>Lawrenzia glomerata</i>	DICOT		Plantae
<i>Lawrenzia sp. Mulein Station (Setter 317)</i>	DICOT		Plantae
<i>Lepidium muelleri-ferdinandii</i>	DICOT		Plantae
<i>Lepidium oxytrichum</i>	DICOT		Plantae
<i>Lepidium pedicellosum</i>	DICOT		Plantae
<i>Lepidium phlebopetalum</i>	DICOT		Plantae
<i>Lepidium platypetalum</i>	DICOT		Plantae
<i>Lobelia arnhemiaca</i>	DICOT		Plantae
<i>Lobelia heterophylla subsp. pilbarensis</i>	DICOT		Plantae
<i>Lotus cruentus</i>	DICOT		Plantae
<i>Lysiana casuarinae</i>	DICOT		Plantae
<i>Maireana eriosphaera</i>	DICOT		Plantae
<i>Maireana georgei</i>	DICOT		Plantae
<i>Maireana melanocoma</i>	DICOT		Plantae
<i>Maireana planifolia</i>	DICOT		Plantae
<i>Maireana planifolia x villosa</i>	DICOT		Plantae
<i>Maireana suaedifolia</i>	DICOT		Plantae
<i>Maireana thesioides</i>	DICOT		Plantae
<i>Maireana tomentosa</i>	DICOT		Plantae
<i>Maireana tomentosa subsp. tomentosa</i>	DICOT		Plantae
<i>Maireana villosa</i>	DICOT		Plantae
<i>Malvastrum americanum</i>	DICOT		Plantae
<i>Melaleuca bracteata</i>	DICOT		Plantae
<i>Melaleuca glomerata</i>	DICOT		Plantae
<i>Melaleuca linophylla</i>	DICOT		Plantae
<i>Melhania oblongifolia</i>	DICOT		Plantae
<i>Neptunia dimorphantha</i>	DICOT		Plantae
<i>Nicotiana benthamiana</i>	DICOT		Plantae
<i>Nicotiana karijini</i>	DICOT		Plantae
<i>Nicotiana occidentalis</i>	DICOT		Plantae
<i>Nicotiana occidentalis subsp. occidentalis</i>	DICOT		Plantae
<i>Notoleptopus decaisnei</i>	DICOT		Plantae
<i>Oldenlandia crouchiana</i>	DICOT		Plantae
<i>Olearia mucronata</i>	DICOT	P3	Plantae
<i>Olearia xerophila</i>	DICOT		Plantae
<i>Operculina aequisejala</i>	DICOT		Plantae
<i>Petalostylis labicheoides</i>	DICOT		Plantae
<i>Phyllanthus maderaspatensis</i>	DICOT		Plantae
<i>Pilbara trudgenii</i>	DICOT	P3	Plantae
<i>Pimelea microcephala subsp. microcephala</i>	DICOT		Plantae
<i>Pittosporum sp.</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Pluchea rubelliflora</i>	DICOT		Plantae
<i>Polycarpaea longiflora</i>	DICOT		Plantae
<i>Polygala longifolia</i>	DICOT		Plantae
<i>Polymeria ambigua</i>	DICOT		Plantae
<i>Portulaca intraterranea</i>	DICOT		Plantae
<i>Portulaca oleracea</i>	DICOT		Plantae
<i>Prostanthera albiflora</i>	DICOT		Plantae
<i>Pseudognaphalium luteoalbum</i>	DICOT		Plantae
<i>Psydrax latifolia</i>	DICOT		Plantae
<i>Psydrax suaveolens</i>	DICOT		Plantae
<i>Pterocaulon sphacelatum</i>	DICOT		Plantae
<i>Ptilotus aervoides</i>	DICOT		Plantae
<i>Ptilotus astrolasius</i>	DICOT		Plantae
<i>Ptilotus auriculifolius</i>	DICOT		Plantae
<i>Ptilotus calostachyus</i>	DICOT		Plantae
<i>Ptilotus carinatus</i>	DICOT		Plantae
<i>Ptilotus clementii</i>	DICOT		Plantae
<i>Ptilotus drummondii</i>	DICOT		Plantae
<i>Ptilotus exaltatus</i>	DICOT		Plantae
<i>Ptilotus gomphrenoides</i>	DICOT		Plantae
<i>Ptilotus helipteroides</i>	DICOT		Plantae
<i>Ptilotus macrocephalus</i>	DICOT		Plantae
<i>Ptilotus nobilis</i>	DICOT		Plantae
<i>Ptilotus obovatus</i>	DICOT		Plantae
<i>Ptilotus polystachyus</i>	DICOT		Plantae
<i>Ptilotus schwartzii</i>	DICOT		Plantae
<i>Ptilotus trichocephalus</i>	DICOT	P4	Plantae
<i>Rhagodia eremaea</i>	DICOT		Plantae
<i>Rhodanthe floribunda</i>	DICOT		Plantae
<i>Rhodanthe margarethae</i>	DICOT		Plantae
<i>Rhodanthe maryonii</i>	DICOT		Plantae
<i>Rhynchosia australis</i>	DICOT		Plantae
<i>Rhynchosia minima</i>	DICOT		Plantae
<i>Roebuckiella cuneata</i>	DICOT		Plantae
<i>Roepera kochii</i>	DICOT		Plantae
<i>Rumex vesicarius</i>	DICOT		Plantae
<i>Salsola australis</i>	DICOT		Plantae
<i>Samolus sp.</i>	DICOT		Plantae
<i>Santalum lanceolatum</i>	DICOT		Plantae
<i>Sauropus crassifolius</i>	DICOT		Plantae
<i>Scaevola acacioides</i>	DICOT		Plantae
<i>Scaevola spinescens</i>	DICOT		Plantae
<i>Schenkia clementii</i>	DICOT		Plantae
<i>Schoenia ayersii</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Sclerolaena bicornis</i>	DICOT		Plantae
<i>Sclerolaena cornishiana</i>	DICOT		Plantae
<i>Sclerolaena cuneata</i>	DICOT		Plantae
<i>Sclerolaena densiflora</i>	DICOT		Plantae
<i>Sclerolaena eriacantha</i>	DICOT		Plantae
<i>Sclerolaena lanicuspis</i>	DICOT		Plantae
<i>Senecio magnificus</i>	DICOT		Plantae
<i>Senna artemisioides</i>	DICOT		Plantae
<i>Senna artemisioides subsp. artemisioides</i>	DICOT		Plantae
<i>Senna artemisioides subsp. helmsii</i>	DICOT		Plantae
<i>Senna artemisioides subsp. helmsii x artemisioides subsp. oligophylla</i>	DICOT		Plantae
<i>Senna artemisioides subsp. oligophylla</i>	DICOT		Plantae
<i>Senna glutinosa subsp. chatelainiana</i>	DICOT		Plantae
<i>Senna glutinosa subsp. glutinosa</i>	DICOT		Plantae
<i>Senna glutinosa subsp. pruinosa</i>	DICOT		Plantae
<i>Senna glutinosa subsp. x luerksenii</i>	DICOT		Plantae
<i>Senna notabilis</i>	DICOT		Plantae
<i>Senna sp.</i>	DICOT		Plantae
<i>Senna sp. Karijini (M.E. Trudgen 10392)</i>	DICOT		Plantae
<i>Senna sp. Meekatharra (E. Bailey 1-26)</i>	DICOT		Plantae
<i>Senna stricta</i>	DICOT		Plantae
<i>Seringia elliptica</i>	DICOT		Plantae
<i>Seringia nephrosperma</i>	DICOT		Plantae
<i>Sesbania cannabina</i>	DICOT		Plantae
<i>Sesbania formosa</i>	DICOT		Plantae
<i>Sida brownii</i>	DICOT		Plantae
<i>Sida calyxhymenia</i>	DICOT		Plantae
<i>Sida echinocarpa</i>	DICOT		Plantae
<i>Sida fibulifera</i>	DICOT		Plantae
<i>Sida laevis</i>	DICOT		Plantae
<i>Sida sp. Barlee Range (S. van Leeuwen 1642)</i>	DICOT	4	Plantae
<i>Sida sp. dark green fruits (S. van Leeuwen 2260)</i>	DICOT		Plantae
<i>Sida sp. Excedentifolia (J.L. Egan 1925)</i>	DICOT		Plantae
<i>Sida sp. Hamersley Range (K. Newbey 10692)</i>	DICOT	P3	Plantae
<i>Sida sp. Pilbara (A.A. Mitchell PRP 1543)</i>	DICOT		Plantae
<i>Sida sp. Shovelanna Hill (S. van Leeuwen 3842)</i>	DICOT		Plantae
<i>Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)</i>	DICOT		Plantae
<i>Sida spinosa</i>	DICOT		Plantae
<i>Sisymbrium orientale</i>	DICOT		Plantae
<i>Solanum gabrielae</i>	DICOT		Plantae
<i>Solanum horridum</i>	DICOT		Plantae
<i>Solanum lasiophyllum</i>	DICOT		Plantae
<i>Solanum nigrum</i>	DICOT		Plantae
<i>Solanum octonum</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Solanum phlomoides</i>	DICOT		Plantae
<i>Solanum piceum</i>	DICOT		Plantae
<i>Solanum sp.</i>	DICOT		Animalia
<i>Solanum sturtianum</i>	DICOT		Plantae
<i>Sonchus oleraceus</i>	DICOT		Plantae
<i>Stenopetalum anfractum</i>	DICOT		Plantae
<i>Streptoglossa adscendens</i>	DICOT		Plantae
<i>Streptoglossa decurrens</i>	DICOT		Plantae
<i>Streptoglossa liatroides</i>	DICOT		Plantae
<i>Streptoglossa sp.</i>	DICOT		Plantae
<i>Stylobasium spathulatum</i>	DICOT		Plantae
<i>Swainsona forrestii</i>	DICOT		Plantae
<i>Swainsona incei</i>	DICOT		Plantae
<i>Swainsona leeana</i>	DICOT		Plantae
<i>Swainsona maccullochiana</i>	DICOT		Plantae
<i>Swainsona thompsoniana</i>	DICOT	P3	Plantae
<i>Synaptantha tillaeacea</i> var. <i>tillaeacea</i>	DICOT		Plantae
<i>Taplinia saxatilis</i>	DICOT		Plantae
<i>Taraxacum khatoonae</i>	DICOT		Plantae
<i>Tecticornia disarticulata</i>	DICOT		Plantae
<i>Tecticornia sp.</i>	DICOT		Plantae
<i>Tephrosia densa</i>	DICOT		Plantae
<i>Tephrosia rosea</i> var. <i>Fortescue creeks</i> (M.I.H. Brooker 2186)	DICOT		Plantae
<i>Tephrosia sp. clay soils</i> (S. van Leeuwen et al. PBS 0273)	DICOT		Plantae
<i>Tephrosia sp. NW Eremaean</i> (S. van Leeuwen et al. PBS 0356)	DICOT		Plantae
<i>Thespesia sp.</i>	DICOT		Plantae
<i>Trachymene pilbarensis</i>	DICOT		Plantae
<i>Trianthema glossostigma</i>	DICOT		Plantae
<i>Trianthema pilosum</i>	DICOT		Plantae
<i>Trianthema triquetrum</i>	DICOT		Plantae
<i>Tribulus astrocarpus</i>	DICOT		Plantae
<i>Tribulus hirsutus</i>	DICOT		Plantae
<i>Tribulus occidentalis</i>	DICOT		Plantae
<i>Tribulus suberosus</i>	DICOT		Plantae
<i>Trichodesma zeylanicum</i>	DICOT		Plantae
<i>Trigastrotheca molluginea</i>	DICOT		Plantae
<i>Triumfetta chaetocarpa</i>	DICOT		Plantae
<i>Triumfetta clementii</i>	DICOT		Plantae
<i>Vachellia farnesiana</i>	DICOT		Plantae
<i>Ventilago viminalis</i>	DICOT		Plantae
<i>Vigna lanceolata</i>	DICOT		Plantae
<i>Vincetoxicum flexuosum</i>	DICOT		Plantae
<i>Vincetoxicum lineare</i>	DICOT		Plantae
<i>Wahlenbergia tumidifructa</i>	DICOT		Plantae

TAXON	CLASS	CONS	KINGDOM
<i>Waltheria indica</i>	DICOT		Plantae
<i>Waltheria virgata</i>	DICOT		Plantae
<i>Zaleya galericulata</i> subsp. <i>galericulata</i>	DICOT		Plantae
<i>Zygophyllum iodocarpum</i>	DICOT		Plantae
<i>Cheilanthes brownii</i>	FERN		Plantae
<i>Cheilanthes lasiophylla</i>	FERN		Plantae
<i>Cheilanthes tenuifolia</i>	FERN		Plantae
<i>Marsilea hirsuta</i>	FERN		Plantae
<i>Neosilurus hyrtlui</i>	FISH		Animalia
<i>Leiopotherapon unicolor</i>	FISH		Animalia
<i>Melanotaenia australis</i>	FISH		Animalia
<i>Abnitocrella halsei</i>	INVERT		Animalia
<i>Acariformes</i> sp.	INVERT		Animalia
<i>Aeolosoma</i> sp. 1 (PSS)	INVERT		Animalia
<i>Aeolosoma</i> sp. 4 (cf <i>travancorensis</i>) (PSS)	INVERT		Animalia
<i>amphipod</i> sp. 2 (PSS)	INVERT		Animalia
<i>Amphipoda</i> sp.	INVERT		Animalia
<i>ant</i> sp.	INVERT		Animalia
<i>Apocyclops dengizicus</i>	INVERT		Animalia
<i>Areacandona 'scanlonii'</i> (PSS)	INVERT		Animalia
<i>Areacandona</i> sp.	INVERT		Animalia
<i>Areacandona</i> sp. 5' (PSS)	INVERT		Animalia
<i>Arrenuridae</i> sp.	INVERT		Animalia
<i>Arrenurus</i> sp. S3 (PSS)	INVERT		Animalia
<i>Arrenurus</i> sp. S4 (PSS)	INVERT		Animalia
<i>Asadipus</i> sp.4	INVERT		Animalia
<i>Atopobathynella</i> sp. A	INVERT		Animalia
<i>Bdelloidea</i> sp.	INVERT		Animalia
<i>beetle</i> sp.	INVERT		Animalia
<i>Bogidiellidae</i> sp.	INVERT		Animalia
<i>Bolborhachium inclinatum</i>	INVERT		Animalia
<i>Boreosaragus</i> sp1	INVERT		Animalia
<i>Bothriembryon 'pilbara'</i>	INVERT		Animalia
<i>Buddelundia</i> sp.	INVERT		Animalia
<i>Buddelundia</i> sp. nov. 10 (= sp. B25)	INVERT		Animalia
<i>Buddelundia</i> sp. nov. 13 (= sp. B27)	INVERT		Animalia
<i>Buddelundia</i> sp. nov. 14 (= sp. B22)	INVERT		Animalia
<i>Buddelundia</i> sp. nov. 16 (= sp. B24)	INVERT		Animalia
<i>Buddelundia</i> sp. nov. 48 (= sp. B21)	INVERT		Animalia
<i>Buddelundia</i> sp. nov. 50 (= sp. B20)	INVERT		Animalia
<i>Calosoma schayeri</i>	INVERT		Animalia
<i>Camponotus discors</i> Forel	INVERT		Animalia
<i>Camponotus novaehollandiae</i> Mayr	INVERT		Animalia
<i>Candonid</i> Genus 2 sp. 1 (PSS)	INVERT		Animalia

TAXON	CLASS	CONS	KINGDOM
<i>Candonid Genus 5 sp. 1</i>	INVERT		Animalia
<i>Chlaenius australis</i>	INVERT		Animalia
<i>Cryptoerithrus sp.6</i>	INVERT		Animalia
<i>Deminutiocandona cf. 'quasimica' (PSS)</i>	INVERT		Animalia
<i>Deminutiocandona sp. 1' (PSS)</i>	INVERT		Animalia
<i>Deminutiocandona 'stomachosa' (PSS)</i>	INVERT		Animalia
<i>Diacyclops cockingi</i>	INVERT		Animalia
<i>Diacyclops humphreysi humphreysi</i>	INVERT		Animalia
<i>Diacyclops sobeprolatus</i>	INVERT		Animalia
<i>earthworm sp.</i>	INVERT		Animalia
<i>Euasteron sp.1</i>	INVERT		Animalia
<i>fly sp.</i>	INVERT		Animalia
<i>Gangus sp. 2</i>	INVERT		Animalia
<i>Gnathaphanus aridus</i>	INVERT		Animalia
<i>Gomphodella cf. sp. 5 (PSS)</i>	INVERT		Animalia
<i>Gomphodella sp. 5 (PSS)</i>	INVERT		Animalia
<i>Grymeus sp.7</i>	INVERT		Animalia
<i>Halacaridae sp. 1 (PSS)</i>	INVERT		Animalia
<i>Halacaridae sp. S3 (PSS)</i>	INVERT		Animalia
<i>Heteropoda hermitis</i>	INVERT		Animalia
<i>Indolpium sp. B08 (=Phoenix sp. 1)</i>	INVERT		Animalia
<i>Iridomyrmex chasei concolor Forel</i>	INVERT		Animalia
<i>Iridomyrmex hartmeyeri Forel</i>	INVERT		Animalia
<i>Iridomyrmex hartmeyeri gp sp. JDM 327</i>	INVERT		Animalia
<i>Iridomyrmex sp. JDM 843</i>	INVERT		Animalia
<i>Karaops martamarta</i>	INVERT		Animalia
<i>'Leicacandona' 'carinata' (PSS)</i>	INVERT		Animalia
<i>Lychas annulatus</i>	INVERT		Animalia
<i>Lychas bituberculatus</i>	INVERT		Animalia
<i>Lychas 'bituberculatus' ms</i>	INVERT		Animalia
<i>Lychas 'hairy tail group'</i>	INVERT		Animalia
<i>Lychas mjobergi</i>	INVERT		Animalia
<i>Lychas sp.</i>	INVERT		Animalia
<i>Lychas sp. 2</i>	INVERT		Animalia
<i>Melitidae sp. 1 (PSS)</i>	INVERT		Animalia
<i>Melophorus sp. JDM 176</i>	INVERT		Animalia
<i>Melophorus turneri Forel</i>	INVERT		Animalia
<i>Meranoplus cf. dimidiatus F. Smith</i>	INVERT		Animalia
<i>Mesocyclops brooksi</i>	INVERT		Animalia
<i>Mesocyclops sp.</i>	INVERT		Animalia
<i>Metistete sp1</i>	INVERT		Animalia
<i>Microcyclops varicans</i>	INVERT		Animalia
<i>Monomorium disetigerum Heterick</i>	INVERT		Animalia
<i>Monomorium laeve Mayr</i>	INVERT		Animalia

TAXON	CLASS	CONS	KINGDOM
<i>Monomorium rothsteini</i> Forel	INVERT		Animalia
<i>Myrmopopaea</i> sp.18	INVERT		Animalia
<i>Nedsia nr hurlberti</i>	INVERT		Animalia
<i>Nedsia nr</i> sp. 24 (PSS)	INVERT		Animalia
<i>Nedsia</i> sp.	INVERT		Animalia
<i>Nedsia</i> sp. 24 (PSS)	INVERT		Animalia
<i>Nematoda</i> sp. 10 (PSS)	INVERT		Animalia
<i>Nocticola</i> sp.	INVERT		Animalia
<i>Onthophagus consentaneus</i>	INVERT		Animalia
<i>Opopaea</i> sp.17	INVERT		Animalia
<i>Opopaea</i> sp.4	INVERT		Animalia
<i>Oribatida</i> group 1 (PSS)	INVERT		Animalia
<i>Origocandona inanitas</i>	INVERT		Animalia
<i>Ostracoda</i> (unident.)	INVERT		Animalia
<i>Paramelitidae</i> sp.	INVERT		Animalia
<i>Paramelitidae</i> sp. 2 (PSS)	INVERT		Animalia
<i>Parastenocarididae</i> sp.	INVERT		Animalia
<i>Parastenocaris jane</i>	INVERT		Animalia
<i>Phorticosomus gularis</i>	INVERT		Animalia
<i>Phreodrilid</i> with dissimilar ventral chaetae	INVERT		Animalia
<i>Phreodrilid</i> with similar ventral chaetae	INVERT		Animalia
<i>Phreodrilidae</i> sp.	INVERT		Animalia
<i>Pilbaracandona</i> 'sp. 3' (PSS)	INVERT		Animalia
<i>Pilbaracandona</i> 'sp. 4' (PSS)	INVERT		Animalia
<i>Pilbarus millsii</i>	INVERT		Animalia
<i>Planorbidae</i> sp.	INVERT		Animalia
<i>planthopper</i> sp.	INVERT		Animalia
<i>Pristina longiseta</i>	INVERT		Animalia
<i>Pygolabis paraburdoo</i>	INVERT		Animalia
<i>Pygolabis</i> sp.	INVERT		Animalia
<i>Recifella</i> sp P1 (nr umala) (PSW)	INVERT		Animalia
<i>Rhagada</i> 'small banded'	INVERT		Animalia
'Rockleanitocrella' sp. 1 (PSS)	INVERT		Animalia
<i>Rotifera</i> sp.	INVERT		Animalia
<i>Schizopera roberiverensis</i>	INVERT		Animalia
<i>spider</i> sp.	INVERT		Animalia
<i>springtail</i> sp.	INVERT		Animalia
<i>Tetramorium striolatum</i> Viehmeyer	INVERT		Animalia
<i>Thereuopoda lesueurii</i>	INVERT		Animalia
<i>Tiramideopsis lictus</i>	INVERT		Animalia
<i>Tiramideopsis</i> sp.	INVERT		Animalia
<i>Trichocyclus warianga</i>	INVERT		Animalia
<i>Trombidioidea</i> sp. C (PSS)	INVERT		Animalia
<i>white ant</i> sp.	INVERT		Animalia

TAXON	CLASS	CONS	KINGDOM
<i>Collema coccophorum</i>	LICHEN		Fungi
<i>Xanthoparmelia reptans</i>	LICHEN		Fungi
<i>Austronomus australis</i>	MAMMAL		
<i>Bos taurus</i>	MAMMAL		
<i>Canis dingo</i>	MAMMAL		
<i>Canis lupus</i>	MAMMAL		
<i>Chaerephon jobensis</i>	MAMMAL		
<i>Chalinolobus gouldii</i>	MAMMAL		
<i>Dasyurus hallucatus</i>	MAMMAL		EN
<i>Felis catus</i>	MAMMAL		Animalia
<i>Macroderma gigas</i>	MAMMAL		VU
<i>Macropus rufus</i>	MAMMAL		Animalia
<i>Mus musculus</i>	MAMMAL		
<i>Ningauia timealeyi</i>	MAMMAL		
<i>Nyctophilus geoffroyi</i>	MAMMAL		
<i>Osphranter robustus</i>	MAMMAL		
<i>Osphranter robustus erubescens</i>	MAMMAL		
<i>Osphranter rufus</i>	MAMMAL		
<i>Ozimops lumsdenae</i>	MAMMAL		
<i>Petrogale rothschildi</i>	MAMMAL		
<i>Planigale ingrami</i>	MAMMAL		
<i>Planigale species 1'</i>	MAMMAL		
<i>Pseudantechinus woolleyae</i>	MAMMAL		
<i>Pseudomys chapmani</i>	MAMMAL		P4
<i>Pseudomys desertor</i>	MAMMAL		Animalia
<i>Pseudomys hermannsburgensis</i>	MAMMAL		
<i>Pseudomys hermannsburgensis</i>	MAMMAL		
<i>Rhinonictes aurantia</i>	MAMMAL		P4
<i>Rhinonictes aurantia (Pilbara)</i>	MAMMAL	VU	Animalia
<i>Rhinonictes aurantius</i>	MAMMAL		Animalia
<i>Saccolaimus flaviventris</i>	MAMMAL		
<i>Scotorepens greyii</i>	MAMMAL		
<i>Sminthopsis longicaudata</i>	MAMMAL		P4
<i>Sminthopsis macroura</i>	MAMMAL		Animalia
<i>Taphozous georgianus</i>	MAMMAL		
<i>Taphozous hilli</i>	MAMMAL		
<i>Vespadelus finlaysoni</i>	MAMMAL		
<i>Zyomys argurus</i>	MAMMAL		
<i>Amphipogon sericeus</i>	MONOCOT		
<i>Aristida burbridgeae</i>	MONOCOT		
<i>Aristida contorta</i>	MONOCOT		
<i>Asphodelus fistulosus</i>	MONOCOT		
<i>Astrebla pectinata</i>	MONOCOT		
<i>Brachyachne prostrata</i>	MONOCOT		

TAXON	CLASS	CONS	KINGDOM
<i>Cenchrus ciliaris</i>	MONOCOT		
<i>Chloris virgata</i>	MONOCOT		
<i>Cymbopogon ambiguus</i>	MONOCOT		
<i>Cynodon prostratus</i>	MONOCOT		
<i>Cyperus bifax</i>	MONOCOT		
<i>Cyperus cunninghamii</i>	MONOCOT		
<i>Cyperus involucratus</i>	MONOCOT		
<i>Cyperus vaginatus</i>	MONOCOT		
<i>Digitaria ciliaris</i>	MONOCOT		
<i>Diplachne fusca subsp. fusca</i>	MONOCOT		
<i>Enneapogon caerulescens</i>	MONOCOT		
<i>Enneapogon lindleyanus</i>	MONOCOT		
<i>Enneapogon pallidus</i>	MONOCOT		
<i>Enneapogon polyphyllus</i>	MONOCOT		
<i>Eragrostis dielsii</i>	MONOCOT		
<i>Eragrostis eriopoda</i>	MONOCOT		
<i>Eragrostis setifolia</i>	MONOCOT		
<i>Eragrostis sp.</i>	MONOCOT		
<i>Eriachne aristidea</i>	MONOCOT		
<i>Eriachne mucronata</i>	MONOCOT		
<i>Eriachne pulchella</i>	MONOCOT		
<i>Eriachne tenuiculmis</i>	MONOCOT		
<i>Iseilema dolichotrichum</i>	MONOCOT		
<i>Iseilema vaginiflorum</i>	MONOCOT		
<i>Panicum decompositum</i>	MONOCOT		
<i>Paraneurachne muelleri</i>	MONOCOT		
<i>Paspalidium basicladum</i>	MONOCOT		
<i>Paspalidium clementii</i>	MONOCOT		
<i>Paspalidium constrictum</i>	MONOCOT		
<i>Potamogeton tepperi</i>	MONOCOT		
<i>Schoenoplectus subulatus</i>	MONOCOT		
<i>Sporobolus australasicus</i>	MONOCOT		
<i>Themeda sp.</i>	MONOCOT		
<i>Themeda sp. Hamersley Station (M.E. Trudgen 11431)</i>	MONOCOT		P3
<i>Themeda triandra</i>	MONOCOT		
<i>Triodia brizoides</i>	MONOCOT		
<i>Triodia epactia</i>	MONOCOT		
<i>Triraphis mollis</i>	MONOCOT		
<i>Typha domingensis</i>	MONOCOT		
<i>Amphibolurus longirostris</i>	REPTILE		
<i>Anilius gryp</i>	REPTILE		Animalia
<i>Antaresia perthensis</i>	REPTILE		
<i>Antaresia stimsoni</i>	REPTILE		
<i>Brachyurophis approximans</i>	REPTILE		

TAXON	CLASS	CONS	KINGDOM
<i>Cryptoblepharus ustulatus</i>	REPTILE		
<i>Ctenophorus caudicinctus</i>	REPTILE		
<i>Ctenophorus caudicinctus subsp. caudicinctus</i>	REPTILE		
<i>Ctenophorus nuchalis</i>	REPTILE		
<i>Ctenophorus reticulatus</i>	REPTILE		Animalia
<i>Ctenotus duricola</i>	REPTILE		Animalia
<i>Ctenotus helenae</i>	REPTILE		Animalia
<i>Ctenotus pantherinus subsp. ocellifer</i>	REPTILE		Animalia
<i>Ctenotus rubicundus</i>	REPTILE		Animalia
<i>Ctenotus saxatilis</i>	REPTILE		Animalia
<i>Ctenotus serventyi</i>	REPTILE		Animalia
<i>Ctenotus uber subsp. uber</i>	REPTILE		Animalia
<i>Cyclodomorphus melanops subsp. elongatus</i>	REPTILE		Animalia
<i>Delma elegans</i>	REPTILE		Animalia
<i>Delma nasuta</i>	REPTILE		Animalia
<i>Delma pax</i>	REPTILE		Animalia
<i>Demansia rufescens</i>	REPTILE		Animalia
<i>Diplodactylus savagei</i>	REPTILE		Animalia
<i>Furina ornata</i>	REPTILE		Animalia
<i>Gehyra punctata</i>	REPTILE		Animalia
<i>Gehyra purpurascens</i>	REPTILE		Animalia
<i>Gehyra variegata</i>	REPTILE		Animalia
<i>Heteronotia binoei</i>	REPTILE		Animalia
<i>Heteronotia spelea</i>	REPTILE		Animalia
<i>Lerista bipes</i>	REPTILE		Animalia
<i>Lerista clara</i>	REPTILE		Animalia
<i>Lerista flammicauda</i>	REPTILE		Animalia
<i>Lerista neander</i>	REPTILE		Animalia
<i>Lerista rolfei</i>	REPTILE		Animalia
<i>Lerista verhmens</i>	REPTILE		Animalia
<i>Lialis burtonis</i>	REPTILE		Animalia
<i>Liasis olivaceus subsp. barroni</i>	REPTILE	VU	Animalia
<i>Lucasium stenodactylum</i>	REPTILE		Animalia
<i>Lucasium wombeyi</i>	REPTILE		Animalia
<i>Menetia greyii</i>	REPTILE		Animalia
<i>Menetia surda</i>	REPTILE		Animalia
<i>Menetia surda subsp. surda</i>	REPTILE		Animalia
<i>Morethia ruficauda</i>	REPTILE		Animalia
<i>Morethia ruficauda subsp. exquisita</i>	REPTILE		Animalia
<i>Nephurus levis subsp. pilbarensis</i>	REPTILE		Animalia
<i>Nephurus wheeleri</i>	REPTILE		Animalia
<i>Nephurus wheeleri subsp. cinctus</i>	REPTILE		Animalia
<i>Notoscincus ornatus subsp. ornatus</i>	REPTILE		Animalia
<i>Oedura fimbria</i>	REPTILE		Animalia

TAXON	CLASS	CONS	KINGDOM
<i>Oedura marmorata</i>	REPTILE		Animalia
<i>Pseudechis australis</i>	REPTILE		Animalia
<i>Pseudonaja mengdeni</i>	REPTILE		Animalia
<i>Pseudonaja modesta</i>	REPTILE		Animalia
<i>Pseudonaja nuchalis</i>	REPTILE		Animalia
<i>Ramphotyphlops ammodytes</i>	REPTILE		Animalia
<i>Ramphotyphlops grypup</i>	REPTILE		Animalia
<i>Simoselaps bertholdi</i>	REPTILE		Animalia
<i>Suta fasciata</i>	REPTILE		Animalia
<i>Tympanocryptis cephal</i>	REPTILE		Animalia
<i>Varanus acanthurus</i>	REPTILE		Animalia
<i>Varanus caudolineatus</i>	REPTILE		Animalia
<i>Varanus giganteus</i>	REPTILE		Animalia
<i>Varanus tristis</i>	REPTILE		Animalia
<i>Varanus tristis tristis</i>	REPTILE		Animalia
<i>Vermicella snelli</i>	REPTILE		Animalia

Appendix 2: Results of PMST search

Appendix 3: Likelihood of occurrence criteria for flora and fauna species

Likelihood of occurrence criteria for flora and fauna species:

- Likelihood: Previously recorded
 - The species has previously been recorded within study area from DEC database search results and/or from previous surveys of the study area, and/or the species has been confirmed through a current vouchered specimen at WA Herbarium.
- Likelihood: Likely
 - The species has not previously been recorded from within the study area. However:
 - The species has been recorded in proximity (<10 km) to the study area and occurs in similar habitat to that which occurs within the study area.
 - Core habitat and suitable landforms for the species occurs within the study area either year-round or seasonally. In relation to fauna species, this could be that a host plant is seasonally present on site, or habitat features such as caves are present that may be used during particular times during its life cycle e.g. for breeding. In relation to both flora and fauna species, it may be there are seasonal wetlands present.
 - There is a medium to high probability that a species uses the study area.
- Likelihood: Potential
 - The species has not previously been recorded from within the study area. However:
 - Targeted surveys may locate the species based on records occurring in proximity to the study area (10-20 km) and suitable habitat occurring in the study area.
 - The study area has been assessed as having potentially suitable habitat through habitat modelling.
 - The species is known to be cryptic and may not have been detected despite extensive surveys.
 - The species is highly mobile and has an extensive foraging range so may not have been detected during previous surveys.
 - The species has been recorded in the study area by a previous consultant survey or there is historic evidence of species occurrence within the study area. However:
 - Doubt remains over taxonomic identification, or the majority of habitat does not appear suitable (although presence cannot be ruled out due to factors such as species ecology or distribution).
 - Coordinates are doubtful.
- Likelihood: Unlikely
 - The species has been recorded locally through DBCA database searches. However, it has not been recorded within the study area and:
 - It is unlikely to occur due to the site lacking critical habitat, having at best marginally suitable habitat, and/or being severely degraded.
 - It is unlikely to occur due to few historic record/s and no other current collections in the local area.

- The species has been recorded within the bioregion based on literature review but has not been recorded locally or within the study area through DBCA database searches.
- The species has not been recorded in the study area despite adequate survey efforts, such as a standardised methodology or targeted searching within potentially suitable habitat.

Appendix 4: Vegetation structural classification and condition rating scale

Vegetation structural classification[^]

Stratum	70 - 100%	30 – 70%	10 – 30%	2 – 10%	< 2%
Trees over 30 m	Tall closed forest	Tall open forest	Tall woodland	Tall open woodland	Scattered tall trees
Trees 10-30 m	Closed forest	Open forest	Woodland	Open woodland	Scattered trees
Trees under 10 m	Low closed forest	Low open forest	Low woodland	Low open woodland	Scattered low trees
Shrubs over 2 m	Tall closed scrub	Tall open scrub	Tall shrubland	Tall open shrubland	Scattered tall shrubs
Shrubs 1-2 m	Closed heath	Open heath	Shrubland	Open shrubland	Scattered shrubs
Shrubs under 1 m	Low closed heath	Low open heath	Low shrubland	Low open shrubland	Scattered low shrubs
Hummock grasses	Closed hummock grassland	Hummock grassland	Open hummock grassland	Very open hummock grassland	Scattered hummock grasses
Grasses, Sedges, Herbs	Closed tussock grassland / sedgeland / herbland	Tussock grassland / sedgeland / herbland	Open tussock grassland / sedgeland / herbland	Very open tussock grassland / sedgeland / herbland	Scattered tussock grasses / sedges / herbs

[^]Based on Muir (1977) and Aplin's (1979) modification of the vegetation classification system of Specht (1970).

Vegetation condition scale rating for use on Pilbara surveys[^]

Rating	Description
Excellent	Pristine or nearly so; no obvious signs of damage caused by human activities since European settlement.
Very Good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activities since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of activities of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

[^]Based on Trudgen (1998) as presented in EPA Technical Guidance (EPA 2016a).



Appendix 5: Field site – Relevé

SITE ID	EASTING	NORTHING	DATE	SITE TYPE	SITE DIMENSIONS	LANDFORM	SOIL TYPE	TIME SINCE FIRE	VEG DESC. UPPER STRATUM	VEG DESC. MIDDLE STATUM	VEG DESC. LOWER STRATUM	VEG CONDITION	DISTURBANCE TYPES
PR01	569978	7435501	17/07/2023	Relevé	50x50m	PLAIN	Loamy Clay	8-12 YRS	<i>Acacia citrinoviridis</i> tall shrubland	* <i>Aerva jervanica</i> , <i>Eremophilla fraseri</i> & <i>Corchorus crozophorifolius</i> open shrubland	* <i>Cenchrus ciliaris</i> and * <i>Cenchrus setiger</i> closed tussock grassland	Poor	Weeds, tracks, cattle, litter, previous clearing, infrastructure (powerlines and water bore)

Appendix 6: Field survey flora results

FAMILY	GENUS	SPECIES	INFRA INFRA RANK NAME	FULL NAME	COVER HEIGHT	
<i>Amaranthaceae</i>	<i>Aerva</i>	<i>javanica</i>		<i>Aerva javanica</i>	3	1
<i>Amaranthaceae</i>	<i>Ptilotus</i>	<i>obovatus</i>		<i>Ptilotus obovatus</i>	0.1	0.8
<i>Caryophyllaceae</i>	<i>Polycarpaea</i>	<i>longiflora</i>		<i>Polycarpaea longiflora</i>	0.1	0.2
<i>Chenopodiaceae</i>	<i>Enchylaena</i>	<i>tomentosa</i>		<i>Enchylaena tomentosa</i>	0.1	0.4
<i>Chenopodiaceae</i>	<i>Maireana</i>	<i>sp.</i>		<i>Maireana sp.</i>	0.1	0.3
<i>Chenopodiaceae</i>	<i>Salsola</i>	<i>australis</i>		<i>Salsola australis</i>	0.1	0.2
<i>Fabaceae</i>	<i>Acacia</i>	<i>citrinoviridis</i>		<i>Acacia citrinoviridis</i>	12	5.5
<i>Fabaceae</i>	<i>Acacia</i>	<i>tetragonophylla</i>		<i>Acacia tetragonophylla</i>	0.1	1.6
<i>Fabaceae</i>	<i>Senna</i>	<i>artemisioides</i>	subsp. <i>oligophylla</i>	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	0.1	0.3
<i>Malvaceae</i>	<i>Corchorus</i>	<i>crozophorifolius</i>		<i>Corchorus crozophorifolius</i>	1	1.2
<i>Nyctaginaceae</i>	<i>Boerhavia</i>	<i>coccinea</i>		<i>Boerhavia coccinea</i>	0.1	0.1
<i>Poaceae</i>	<i>Cenchrus</i>	<i>ciliaris</i>		<i>Cenchrus ciliaris</i>	65	0.4
<i>Poaceae</i>	<i>Cenchrus</i>	<i>setiger</i>		<i>Cenchrus setiger</i>	10	0.4
<i>Poaceae</i>	<i>Enneapogon</i>	<i>caerulescens</i>		<i>Enneapogon caerulescens</i>	0.1	0.2
<i>Poaceae</i>	<i>Eriachne</i>	<i>pulchella</i>	subsp. <i>pulchella</i>	<i>Eriachne pulchella</i> subsp. <i>pulchella</i>	0.1	0.2
<i>Poaceae</i>	<i>Eriachne</i>	<i>pulchella</i>		<i>Eriachne pulchella</i>	0.1	0.1
<i>Scrophulariaceae</i>	<i>Eremophila</i>	<i>fraseri</i>	subsp. <i>fraseri</i>	<i>Eremophila fraseri</i> subsp. <i>fraseri</i>	1	3.5
<i>Violaceae</i>	<i>Afrohybanthus</i>	<i>aurantiacus</i>		<i>Afrohybanthus aurantiacus</i>	0.1	0.1
<i>Zygophyllaceae</i>	<i>Tribulus</i>	<i>suberosus</i>		<i>Tribulus suberosus</i>	0.1	0.4