

Attachment 2



Supporting Documentation

Native Vegetation Clearing Permit

Geode Valley and Channar Tracks – ML252SA

16 December 2022

EX-AP-EN-0127 Rev 1

This document is protected by copyright, no part of this document may be reproduced or adapted without the consent of the originator/company owner, all rights are reserved. This document is "uncontrolled when printed".

Native Vegetation Clearing Permit: Geode Valley and Channar Tracks – ML252SA		
Document & Revision Number	EX-AP-EN-0127	Rev 1
Status	IFR - Issued for Review	
Author	Briana Diopenes	3/11/2022
Access to this document:	Public Use (Access to all)	

TABLE OF CONTENTS

1.	INTRODUCTION	7
1.1	Summary of Proposal	8
1.2	Proponent Details.....	8
1.3	Proposed Clearing Activities.....	8
1.4	Relevant Approvals.....	9
2.	BASELINE ENVIRONMENTAL DATA	10
2.1	Climate	10
2.2	Existing Land Use	11
2.2.1	Land Tenure.....	11
2.2.2	Native Title and Aboriginal Heritage	11
2.3	Soil Landscapes	12
2.4	Flora and Vegetation.....	14
2.4.1	Interim Biogeographic Regionalisation for Australia.....	14
2.4.2	Regional Vegetation Mapping.....	15
2.4.3	Conservation Significant Vegetation Communities	16
2.4.4	Groundwater Dependent Ecosystems	16
2.4.5	Flora and Vegetation Surveys	16
2.4.6	Flora of Conservation Significance	16
2.5	Vertebrate Fauna	18
2.5.1	Vertebrate Fauna Surveys.....	18
2.5.2	Conservation Significant Fauna.....	18
2.5.2.1	Northern Quoll (<i>Dasyurus hallucatus</i>).....	19
2.5.2.2	Ghost Bat (<i>Macroderma gigas</i>) and Pilbara Leaf-nosed Bat (<i>Rhinonictis aurantia</i>).....	20
2.5.2.3	Western Pebble Mound Mouse (<i>Pseudomys chapmani</i>)	20
2.5.2.4	Long-tailed Dunnart (<i>Sminthopsis longicaudata</i>)	20
2.5.2.5	Pilbara Olive Python (<i>Liasis olivaceus barroni</i>).....	21
2.5.2.6	Gane's Blind Snake (<i>Anilius ganei</i>).....	21
2.5.3	Migratory and Marine Bird Species.....	21
2.6	Hydrology and Hydrogeology	23
3.	ENVIRONMENTAL IMPACTS AND MANAGEMENT.....	24
3.1	Flora and Vegetation.....	24

3.1.1	Potential Risk Pathways and Impacts.....	24
3.1.2	Direct Loss of Vegetation	24
3.1.3	Direct Loss of Flora of Conservation Significance.....	24
3.1.4	Degradation of Vegetation.....	25
3.1.5	Management Measures.....	25
3.2	Terrestrial Fauna	27
3.2.1	Potential Risk Pathways and Impacts.....	27
3.2.2	Direct Loss of Fauna	27
3.2.3	Direct Loss of Fauna Habitat	28
3.2.4	Habitat Degradation and Fragmentation.....	28
3.2.5	Management Measures for Fauna.....	28
3.3	Hydrology and Hydrogeology	30
3.3.1	Potential Risk Pathways and Impacts.....	30
3.3.2	Degradation to the Quality of Surface Water and Groundwater	30
3.3.3	Changes to Surface Water Flows	30
3.3.4	Management Measures for Surface Water and Groundwater	31
4.	ASSESSMENT AGAINST THE 10 CLEARING PRINCIPLES.....	32
5.	CONCLUSION.....	33
6.	REFERENCES	34

List of Tables

Table 1	Key Details of the Proposed Clearing	8
Table 2	Key Details of the Proponent	8
Table 3	Hierarchy of Soil-landscapes Intersecting the PPE	13
Table 4	Beard Vegetation Units Intersecting the PPE	15
Table 5	Conservation Significant Flora Identified within 20km of the PPE	17
Table 6	Conservation Significant Fauna Identified within 20km of the PPE	19
Table 7	Risk Pathway, Impacts & Management Measures for Flora and Vegetation ..	25
Table 8	Risk Pathway, Impacts & Management Measures for Fauna	29
Table 9	Risk Pathway, Impacts & Management Measures for Fauna	31
Table 10	Assessment against the 10 Clearing Principles	32

List of Figures

Figure 1	General location of the Geode Valley & Mt Channar Prospects	7
Figure 2	Purpose Permit Envelopes (PPE) of CPS 7672/1	9
Figure 3	Climate Averages Paraburdoo Aero Station 7185	10
Figure 4	Heritage Sites and Survey Areas	12
Figure 5	Location of PPE within the Newman System of the Hamersley Plateaux Zone	14
Figure 6	Location of the PPE within the Hamersley IBRA Subregion and the Vegetation Association Unit	15
Figure 7	Conservation Significant Flora Identified within 20km of the PPE	18
Figure 8	Conservation Significant Fauna Identified within 20km of the PPE	22

LIST OF APPENDICES

Appendix 1:	Rio Tinto Access Agreement
Appendix 2:	Protected Matters Search Tool Results

ABBREVIATIONS

The following table described various abbreviations and acronyms used throughout this report.

Abbreviation	Meaning
ASRIS	Australian Soil Resource Information System
BC Act	<i>Biodiversity Conservation Act 2016</i>
The Bureau	Bureau of Meteorology
Coffey	Coffey Environments Pty Ltd
CPS	Clearing Permit System
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DMIRS	Department of Mines, Industry Regulation and Safety
DPIRD	Department of Primary Industries and Regional Development's
DPLH	Department of Planning Lands and Heritage
DWER	Department of Water and Environment Regulations
Ecologia	Ecologia Environment Pty Ltd
EP Act	<i>Environmental Protection Act 1986</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESA	Environmental Sensitive Area
Fortescue	Fortescue Metals Group Limited
GDE	Groundwater Dependent Ecosystem
IBRA	Biogeographic Regionalisation for Australia
IDE	Indicative Disturbance Envelope
MBM	Mount Bruce Mining Pty Ltd
NVCP	Native Vegetation Clearing Permit
PEC	Priority Ecological Community
PMST	Protected Matters Search Tool
PPE	Purpose Permit Envelope
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i>
TEC	Threatened Ecological Community
UCL	Unallocated Crown Land

1. INTRODUCTION

Fortescue Metals Group Limited (Fortescue) proposes to renew Native Vegetation Clearing Permit (NVCP) CPS 7672/1, to allow ongoing use and maintenance of previously cleared tracks and to allow further clearing of new access tracks as required. These tracks will provide safe access to the Geode Valley and Mt Channar Prospects. The Purpose Permit Envelope (PPE) is provided in two separate areas, of which occur in close proximity to each other. The Geode Valley and Mt Channar Prospects are located approximately 20km south-east of the Township of Paraburdoo within the Pilbara bioregion of Western Australia (Figure 1)

This report and its appendices provide all the relevant information required under Part V, Section 51E of the *Environmental Protection Act 1986* (EP Act), to assess the proposed renewal. This includes current baseline environmental data, a digital PPE (shapefile) and assessment against the 10 Clearing Principles.

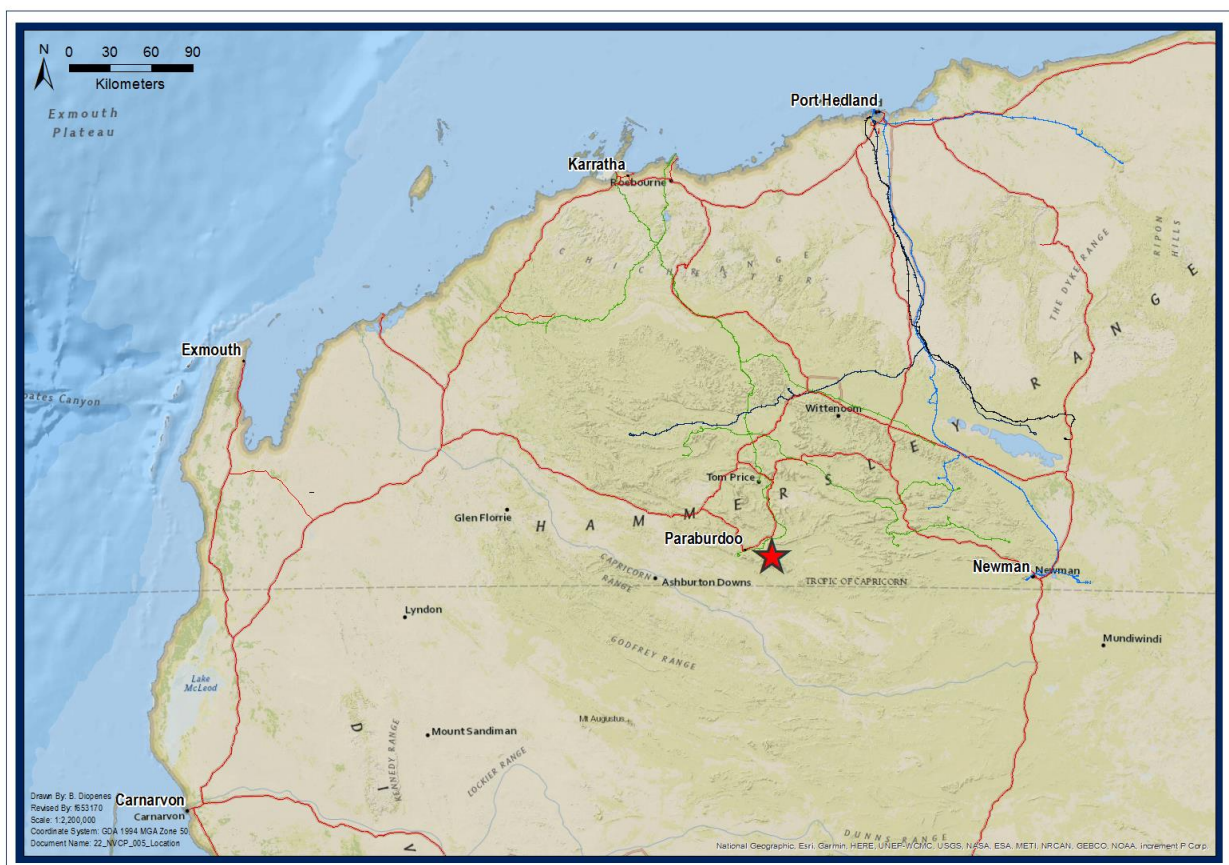


Figure 1 General location of the Geode Valley & Mt Channar Prospects

1.1 Summary of Proposal

The key details of the Prospect and the proposed clearing are represented in Table 1.

Table 1 Key Details of the Proposed Clearing

Site Details			
Prospect Name	Geode Valley and Mt Channar		
Description of Operation	Fortescue Metals Group Limited (Fortescue) proposes to clear and maintain access tracks to support its exploration activities across the Geode Valley and Channar Prospects		
Total Clearing Proposed	Indicative disturbance footprint of 5.42ha, within a purpose permit envelope of 26.6ha		
Tenement Details	Tenement	Tenement Holder	Status
	ML252SA	Mount Bruce Mining Pty Ltd	Live
Clearing Method	Clearing will be conducted mechanically using earth moving equipment		
Purpose of Clearing	The clearing is to allow for a proposed track to be constructed for access to the Geode Valley and Channar Prospects		

1.2 Proponent Details

Details of the relevant proponent are contained in Table 2 below.

Table 2 Key Details of the Proponent

Proponent Details				
Company Name	Fortescue Metals Group (FMG) Limited			
ACN	57 002 594 872			
Postal Address	Level 2, 87 Adelaide Terrace, East Perth WA 6004			
Key Contact	Name	Briana Diopenes	Phone	08 6218 8888
	Position	Project Approvals Geologist	Email	briana.diopenes@fmgl.com.au

1.3 Proposed Clearing Activities

Access to the Geode Valley and Mt Channar areas are via exploration tracks constructed by both Fortescue and other tenement holders in the area. To allow Fortescue to access its tenements in the area subject to this application, it is required to traverse Rio Tinto's State Agreement tenure.

Fortescue is applying for a renewal of CPS 7672/1, authorised to disturb a 5.42ha Indicative Disturbance Footprint (IDF) within a PPE of 26.6ha. A total of 1.61ha has been cleared within the PPE to provide track access in support of exploration activities across the Geode Valley and Channar Prospects (Figure 2). The purpose of this renewal is to allow ongoing use and

maintenance of previously cleared access tracks and to allow further clearing of up to 3.81ha remaining, as required, for the purpose of new access tracks.

The tracks subject to this application will be used by light vehicles, exploration drill rigs and semi-trailers carrying earth moving equipment.

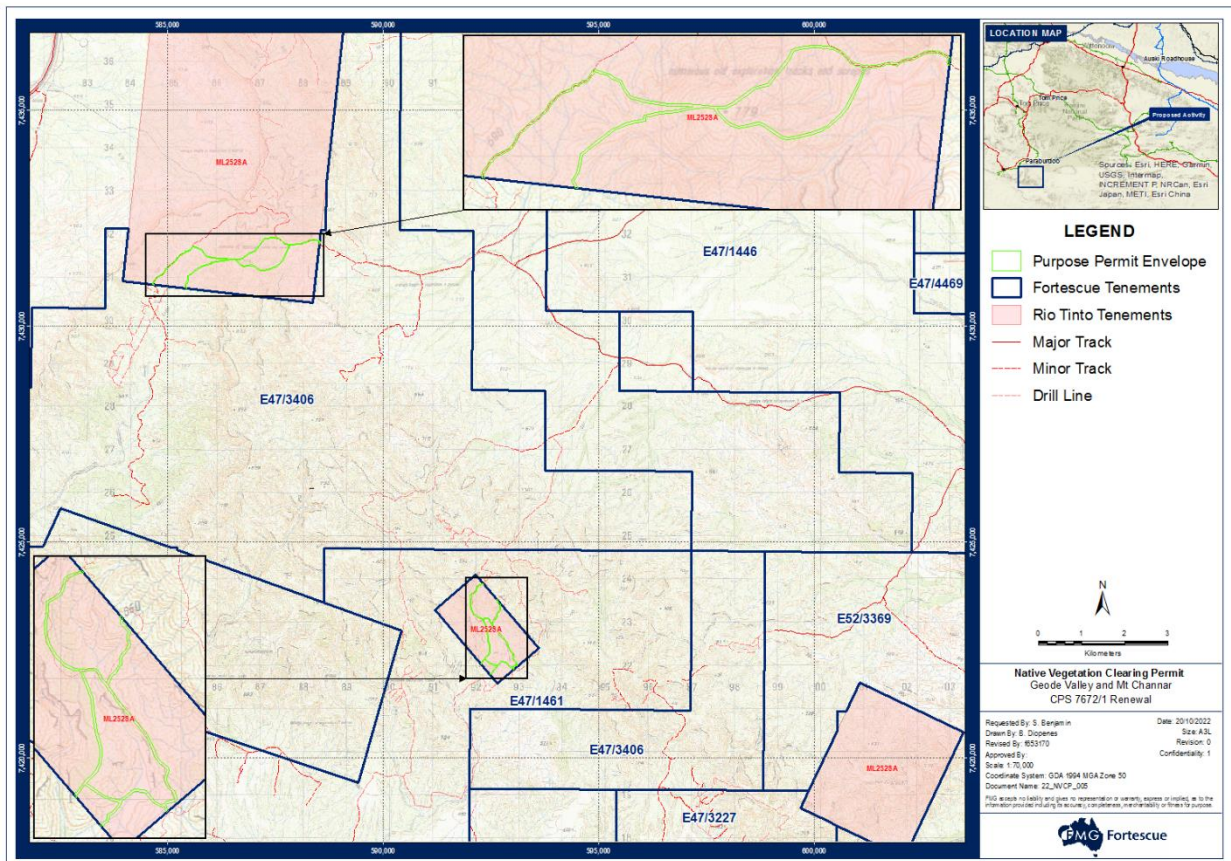


Figure 2 Purpose Permit Envelopes (PPE) of CPS 7672/1

1.4 Relevant Approvals

A Native Vegetation Clearing Permit is required, as the access track will be located on State Agreement tenure. Exemptions under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* do not apply.

2. BASELINE ENVIRONMENTAL DATA

2.1 Climate

The PPE is located within the Pilbara region, which includes two broad climatic zones. Coastal areas, as well as some higher rainfall inland areas, have a semi-desert tropical climate, which experience between 9 and 11 months of dry weather, with hot humid summers and warm winters. The remaining inland areas have a dry desert climate, typically with higher temperatures and lower rainfall, and often experience up to 12 months of dry weather, with hot dry summers and mild winters (van Vreeswyk, et al., 2004).

The Paraburdoo Aero Bureau of Meteorology (the Bureau) station (Station Number 7185) has a record of monthly climate statistics from 1996-2022 for temperature and from 1974-2022 for rainfall (Figure 3). The monthly maximum temperatures range from 25.1 to 40.8°C, with the hottest month being January. While monthly minimum temperatures range from 9.9 to 26.1°C, with the coldest month being July. The average annual rainfall for Paraburdoo is 320.9mm, with February and September being the wettest (72.3mm) and driest (3.5mm) months, respectively (The Bureau, 2022).

Tropical cyclones, many of which originate in the Timor Sea, along with local thunderstorms, produce much of the summer and early autumn rainfall. The driest months are in spring (September to October), and winter rainfall is highly variable, generally decreasing from the coast through to inland areas (McKenzie & Bullen, 2009).

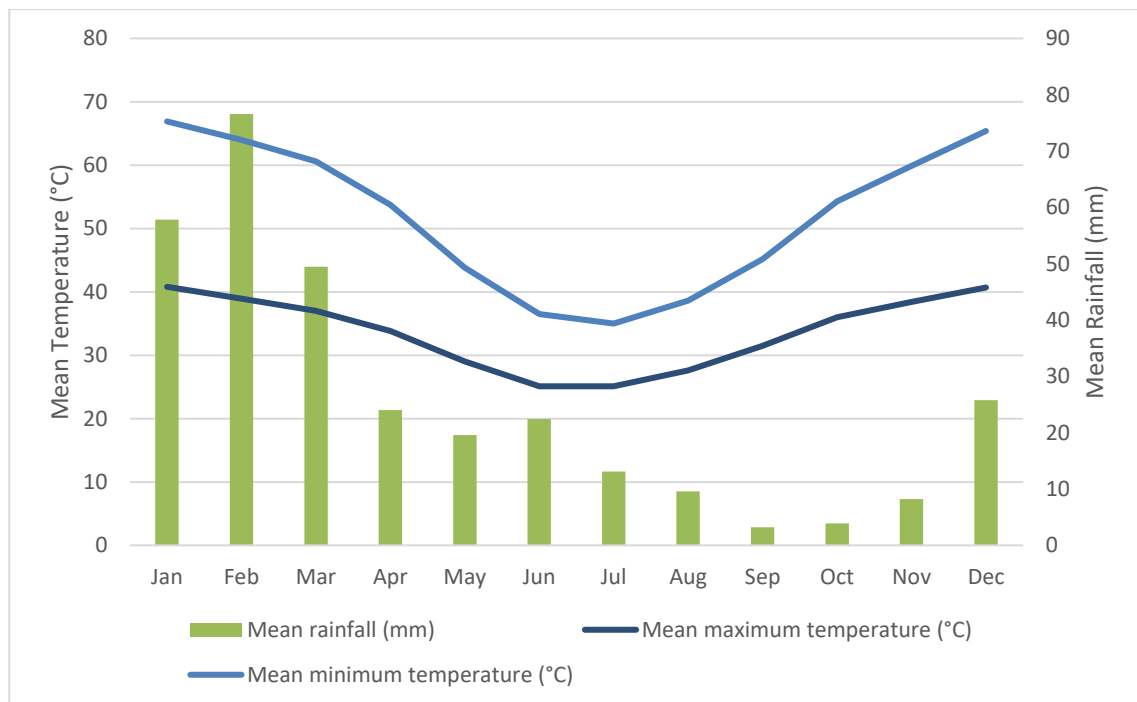


Figure 3 Climate Averages Paraburdoo Aero Station 7185

2.2 Existing Land Use

2.2.1 Land Tenure

The proposed disturbance occurs on State Agreement tenure ML252SA, held by Mount Bruce Mining Pty Ltd (MBM), a wholly owned subsidiary of Rio Tinto. This land is also considered unallocated crown land (UCL). The main use of the land surrounding the PPE is mineral exploration.

Fortescue has an access agreement with Rio Tinto to access the tenements and establish the track (Appendix 1).

2.2.2 Native Title and Aboriginal Heritage

The proposed activities contained within this NVCP lie across the Yinhawangka People Part A and B Native Title Determination Area (Figure 4).

To ensure compliance with the *Aboriginal Heritage Act 1972* (AHA) Fortescue conducts both archaeological and ethnographic surveys over all land prior to the commencement of ground disturbing works. These surveys will be completed prior to conducting disturbance in relation to this NVCP. In line with Fortescue's obligations under the AHA, all sites recorded during heritage surveys will be avoided by the NVCP.

Should sites of Aboriginal heritage significance be identified in the disturbance area through heritage surveys still to be completed, the proposed tracks will be adjusted to avoid these sites. Following completion of heritage surveys, if deviations are required outside of the NVCP area or in excess of the allowable disturbance under that NVCP, Fortescue will apply to the Department of Mines, Industry Regulation and Safety (DMIRS) for a new NVCP. This risk averse approach has been discussed with the Department of Planning, Lands and Heritage (DPLH) and endorsed, as it provides a high level of protection for heritage sites.

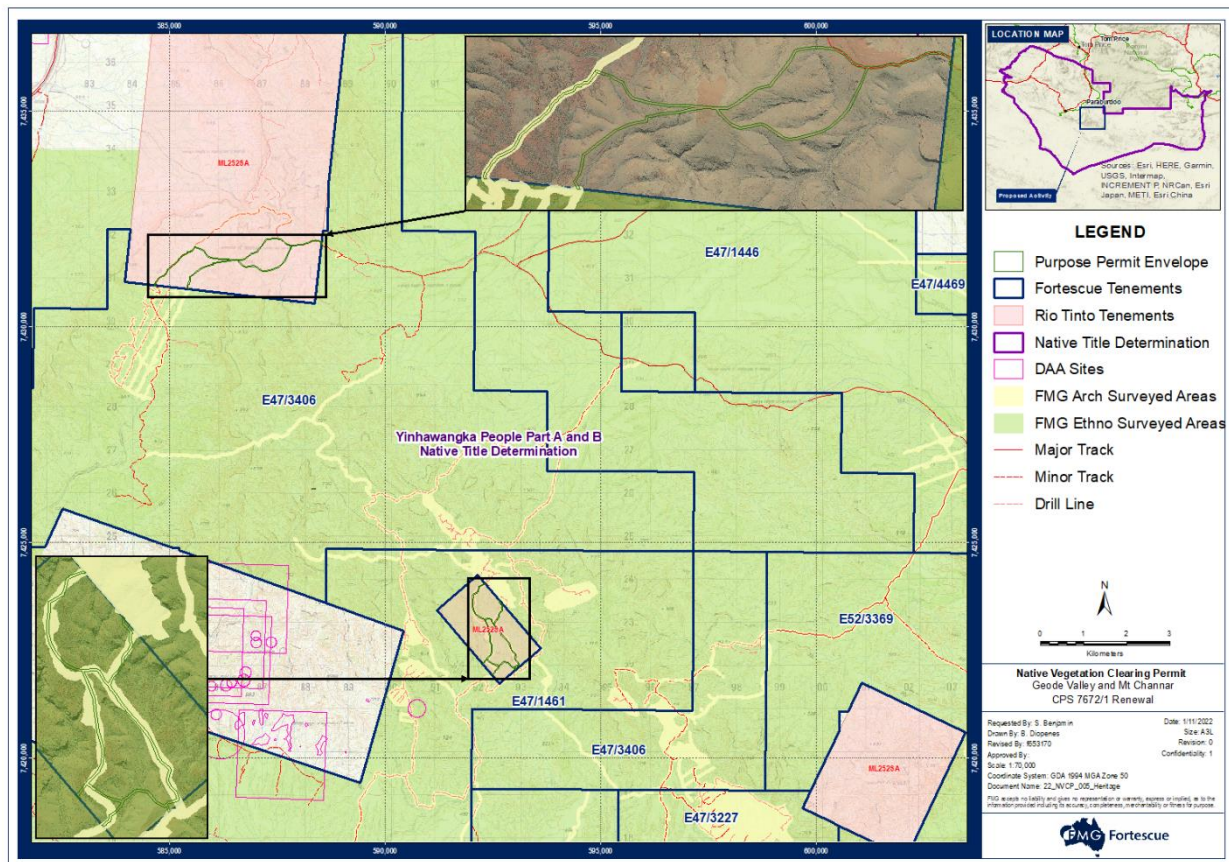


Figure 4 Heritage Sites and Survey Areas

2.3 Soil Landscapes

The Department of Primary Industries and Regional Development's (DPIRD) have developed Technical Report 313; Soil-Landscape of Western Australia's Rangelands and Interior (Tille, 2006). This document describes the hierarchy of soil-landscape mapping units; each level is a subdivision of its preceding level. Western Australia is divided into five main Regions, which are then sub-divided into Provinces. Provinces are in turn sub-divided in zones, which are then sub-divided into systems.

Tille's (2006) document also provides a description of the soil-landscape regions, provinces and zones, while Vreeswyk et al. (2004) provides a description for the land systems in Technical Bulletin 92; An Inventory and Condition Survey of the Pilbara Region, Western Australia. The PPE is located within one region, one province, one zone and one system (Table 3; Figure 5).

Table 3 Hierarchy of Soil-landscapes Intersecting the PPE

Hierarchy Level	Name	Description	Extent (ha)
Region	Western Region	Undulating plateaux (with plains, hills and ranges and coastal plains) on the rocks of the Yilgarn and Pilbara Cratons, Capricorn and Albany-Fraser Orogens and Carnarvon and Perth Basins. Deep sands (mostly red), Loamy earths (mostly red), Shallow loams (mostly red), Sandy duplexes, Stony soils and Sandy earths (mostly red). Mulga shrublands, spinifex grasslands and eucalypt woodlands/forests with acacia shrublands (and some mallee scrub, heaths and halophytic shrublands). Located in the west of Western Australia between Port Hedland, Israelite Bay, Cape Leeuwin and Exmouth.	120,140,000
Province	Fortescue Province	Hills and ranges (with stony plains and some alluvial plains and sandplains) on the volcanic, granitic and sedimentary rocks of the Pilbara Craton. Stony soils with Red loamy earths and Red shallow loams (and some Red/brown non-cracking clays, Red deep sandy duplexes and Red deep sands). Spinifex grasslands with kanji and snappy gum (and some mulga shrublands and tussock grasslands). Located in the Pilbara between Dampier, Port Hedland, Jigalong, Paraburdoo and Pannawonica.	16,005,000
Zone	Hamersley Plateaux Zone	Hills and dissected plateaux (with some stony plains and hardpan wash plains) on sedimentary and volcanic rocks of the Hamersley Basin with Stony soils, Red shallow loams and some Red/brown non-cracking clays and Red loamy earths.	4,445,000
System	Newman System	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.	1,458,000

The Newman Land System is a common and widespread system, characteristic of ridges and plateaux landforms. The predominant surface geology is jaspilite, and the soils are primarily stony soils, red shallow loams and some red shallow sands.

Most of the clearing associated with the Project will result in the shallow (<0.3 m) disturbance of soils for track construction.

Risks associated with acidic and metalliferous drainage, sodic and dispersive materials, and naturally occurring radioactive materials are not considered relevant to the Project. The PPE is classified as Extremely Low Probability for Acid Sulfate Soils. The potential occurrence of Acid Sulfate Soils across the PPE was inferred from CSIRO (2014) mapping provided by the Australian Soil Resource Information System (ASRIS).

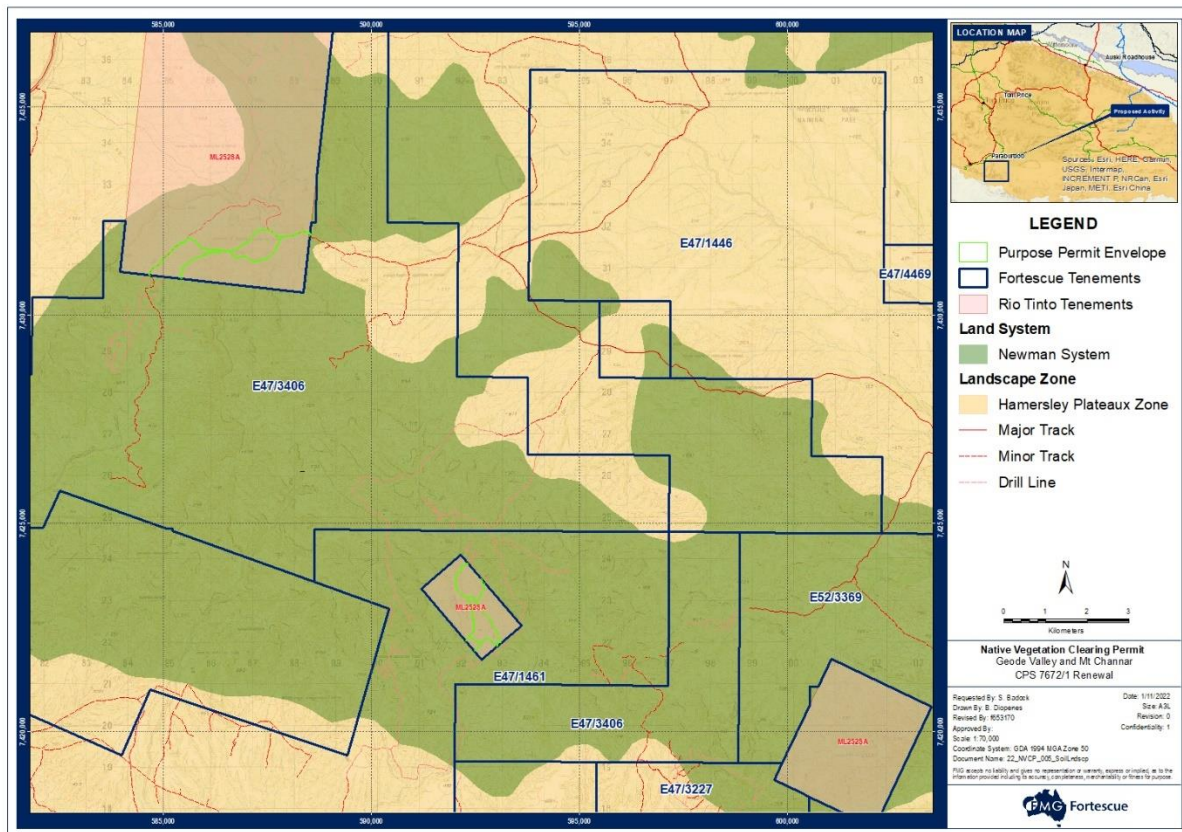


Figure 5 Location of PPE within the Newman System of the Hamersley Plateaux Zone

2.4 Flora and Vegetation

2.4.1 Interim Biogeographic Regionalisation for Australia

The PPE is located within the Pilbara biogeographic region of the Interim Biogeographic Regionalisation for Australia (IBRA). The Pilbara biogeographic region incorporates 17,831,892ha and includes four subregions: Chichester, Roebourne, Hamersley, and Fortescue Plains which are described in the 2002 Biodiversity Audit of Western Australia's 53 Biogeographical Subregions (McKenzie, et al., 2002). The PPE occurs entirely within the Hamersley subregion of the Pilbara bioregion (Figure 6).

The Hamersley subregion, as described by McKenzie et al. (2002), is the Southern section of the Pilbara Craton consisting of 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 300 mm 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. Subregional area is 6,215,092ha (McKenzie, et al., 2002).

2.4.2 Regional Vegetation Mapping

Vegetation association units have been mapped and described on a regional scale by Beard (1975) and updated by DPIRD (2012). These vegetation association units are broad scale descriptors and attempt to depict the native vegetation as it was presumed at the time of European settlement. The PPE intersects the Hammersley 82 vegetation association unit which is dominated by hummock grasslands and low tree steppes (Table 4; Figure 6)

Table 4 Beard Vegetation Units Intersecting the PPE

Association	Description	Pre-European Extent (ha)	Current Extent (ha)	Extent mapped within the Purpose Permit Envelope (ha)
Hammersley 82	Hummock grasslands, low tree steppe; snappy gum over <i>T. wiseana</i>	317,182	316,855	26.6

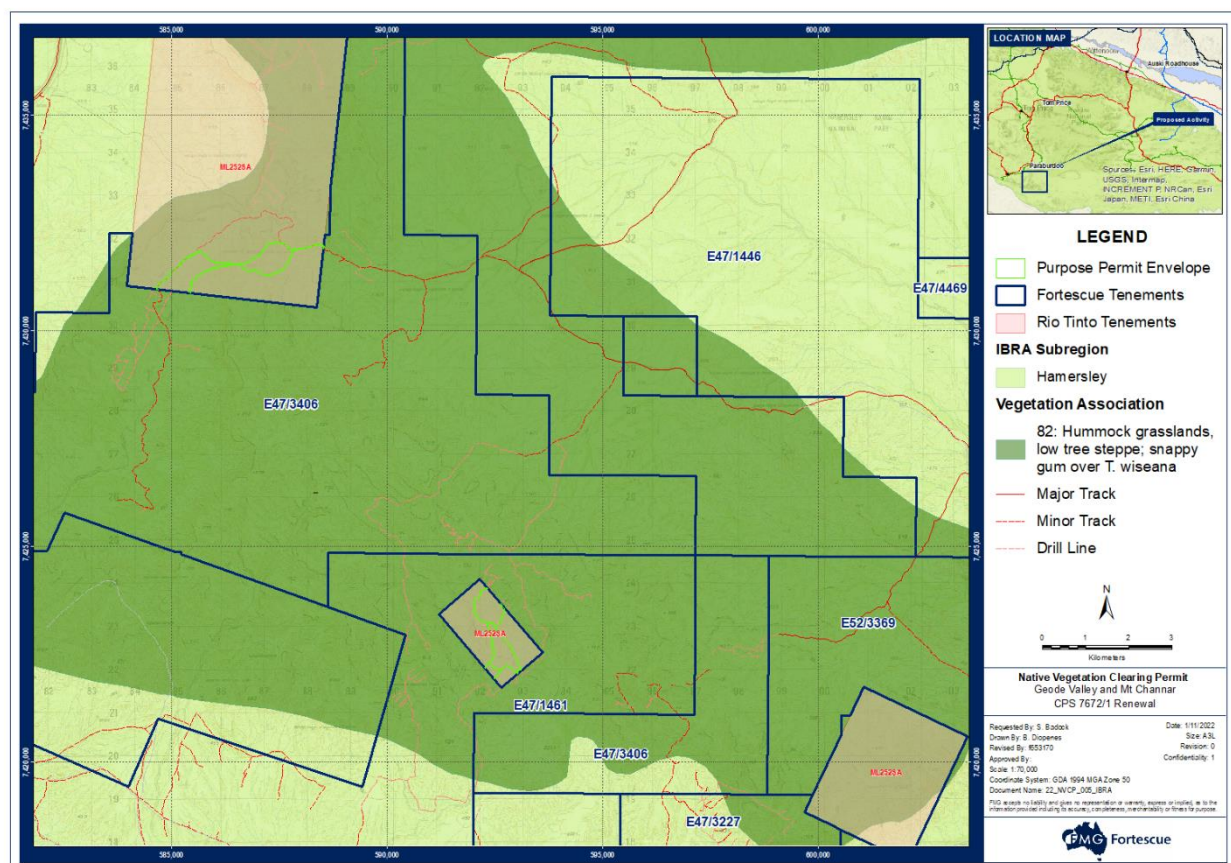


Figure 6 Location of the PPE within the Hammersley IBRA Subregion and the Vegetation Association Unit

2.4.3 Conservation Significant Vegetation Communities

In Western Australia, a vegetation community can be classified as a Threatened Ecological Community (TEC) by the Western Australian Minister for Environment, based on the assessment and recommendation of the Threatened Species Scientific Committee. TECs that are listed to be of State conservation significance in Western Australia are considered to be Environmentally Sensitive Areas (ESA) under Part V of the EP Act.

Potential TECs that do not meet survey criteria are added to the Priority Ecological Community (PEC) list under Priority 1, 2 or 3. Ecological communities that are adequately known, are rare but not threatened, meet criteria for “Near Threatened”, or that have been recently removed from the threatened list, are placed in Priority 4. Conservation dependent ecological communities are placed in Priority 5.

The database searches revealed that the PPE does not occur within or intersect with any known ESA, TEC or PEC. (DWER, 2019; DBCA, 2021).

2.4.4 Groundwater Dependent Ecosystems

Groundwater Dependent Ecosystems (GDE) are ecosystems that require permanent or intermittent access to groundwater. GDEs are dependent on the presence of groundwater to meet some, or all, of their water requirement to maintain their communities of plants and animals, ecological processes and ecosystem service (Richardson, et al., 2011).

A review of the GDE Atlas found the PPE to be unassessed, and the surrounding environment was mapped as Low Potential GDE.

2.4.5 Flora and Vegetation Surveys

No Flora and Vegetation surveys have been undertaken by Fortescue across the PPE. However, one Level 2 Vegetation and Flora Assessment (WH-AS-EN-0001) was undertaken by Ecologia Environment Pty Ltd (Ecologia), on behalf of Fortescue, approximately 6km to east (Ecologia Environment, 2012).

A search of the DBCAs Threatened and Priority Flora database (DBCA, 2021) and regional survey records was undertaken over a 20km radius from the PPE.

2.4.6 Flora of Conservation Significance

One Threatened flora species, as listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Biodiversity Conservation Act 2016* (BC Act), was identified by the database search and previous surveys, within the 20km of the PPE (Table 5). In

addition, 23 flora species, as listed under the Department of Biodiversity, Conservation and Attractions (DBCA) priority list, were identified within the 20km radius. Of the 24 conservation significant flora species identified, none occur within the PPE (Figure 7).

Table 5 Conservation Significant Flora Identified within 20km of the PPE

Species Name	EPBC Act*	BC Act**	DBCA listed***	Recorded in Survey or database search
<i>Aluta quadrata</i>	Endangered	Schedule 2	-	Survey, Database Search
<i>Eremophila</i> sp. Mt Channar Range (C. Keating & M.E. Trudgen CK 408)	-	-	Priority 1	Database Search
<i>Eremophila</i> sp. Snowy Mountain (S. van Leeuwen 3737)	-	-	Priority 1	Database Search
<i>Eremophila</i> sp. West Angelas (S. van Leeuwen 4068)	-	-	Priority 1	Database Search
<i>Eremophila pusilliflora</i>	-	-	Priority 2	Survey
<i>Hibiscus</i> sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	-	-	Priority 2	Database Search
<i>Solanum octonum</i>	-	-	Priority 2	Database Search
<i>Eremophila coacta</i>	-	-	Priority 3	Database Search
<i>Eremophila</i> sp. Hamersley Range (K. Walker KW 136)	-	-	Priority 3	Database Search
<i>Goodenia</i> sp. East Pilbara (A.A. Mitchell PRP 727)	-	-	Priority 3	Database Search
<i>Grevillea saxicola</i>	-	-	Priority 3	Database Search
<i>Indigofera</i> sp. Bungaroo Creek (S. van Leeuwen 4301)	-	-	Priority 3	Database Search
<i>Olearia mucronata</i>	-	-	Priority 3	Database Search
<i>Pilbara trudgenii</i>	-	-	Priority 3	Database Search
<i>Sida</i> sp. Barlee Range (S. van Leeuwen 1642)	-	-	Priority 3	Database Search
<i>Sida</i> sp. Hamersley Range (K. Newbey 10692)	-	-	Priority 3	Database Search
<i>Solanum kentrocaule</i>	-	-	Priority 3	Database Search
<i>Swainsona thompsoniana</i>	-	-	Priority 3	Database Search
<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)	-	-	Priority 3	Database Search
<i>Eremophila magnifica</i> subsp. <i>magnifica</i>	-	-	Priority 4	Database Search
<i>Eremophila youngii</i> subsp. <i>lepidota</i>	-	-	Priority 4	Database Search
<i>Goodenia nuda</i>	-	-	Priority 4	Survey
<i>Ptilotus mollis</i>	-	-	Priority 4	Database Search
<i>Ptilotus trichocephalus</i>	-	-	Priority 4	Database Search

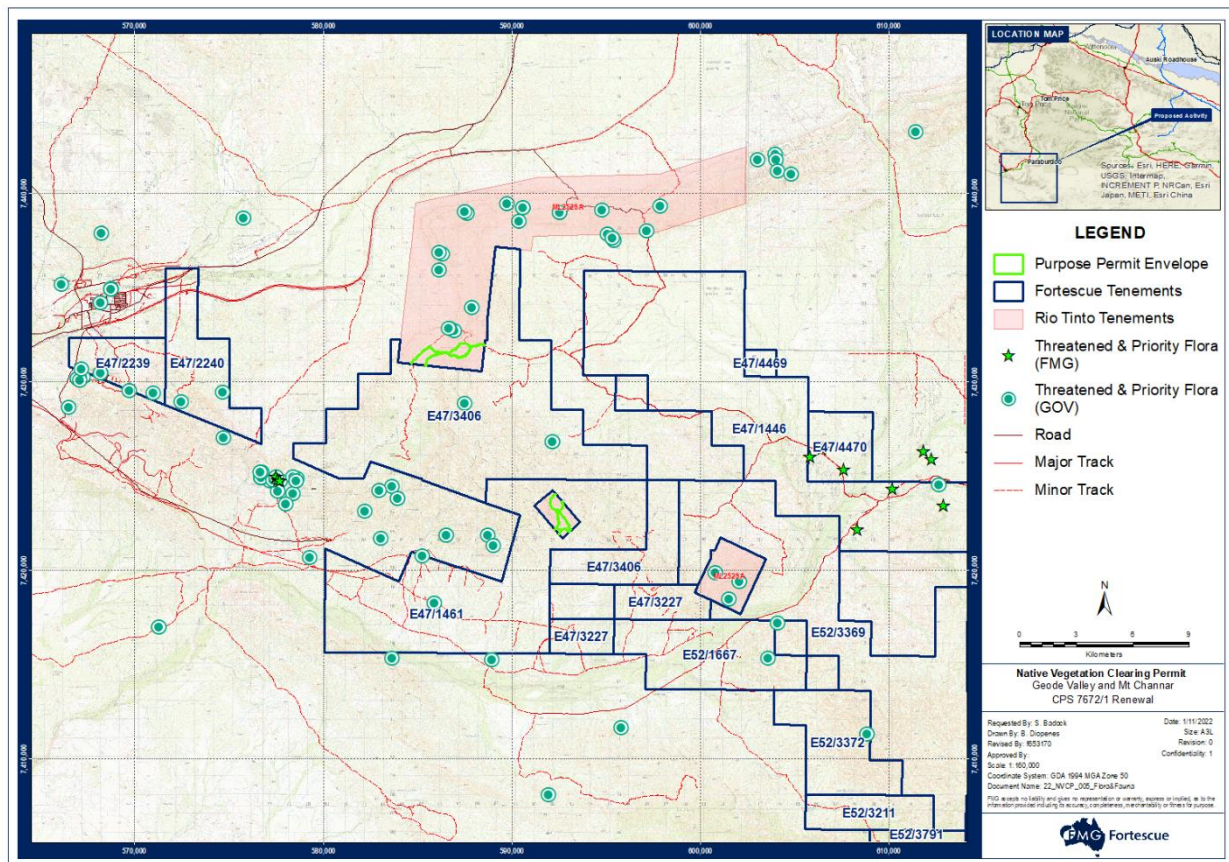


Figure 7 Conservation Significant Flora Identified within 20km of the PPE

2.5 Vertebrate Fauna

2.5.1 Vertebrate Fauna Surveys

No Vertebrate Fauna surveys have been undertaken by Fortescue across the PPE. However, two Vertebrate Fauna Assessments (EX-AS-EN-0030 and SO-AS-EN-0056) have been undertaken by Coffey Environments Pty Ltd (Coffey) and Ecologia, on behalf of Fortescue, approximately 6km to east (Coffey Environments, 2013; Ecologia Environment, 2014).

A search of the Protected Matters Search Tool (PMST), DBCAs Threatened and Priority Flora database and regional survey records (DCCEEW, 2022; DBCA, 2021) was undertaken over a 20km radius from the PPE (Appendix 2).

2.5.2 Conservation Significant Fauna

A total of 12 vertebrate fauna species, listed as either threatened fauna (EPBC Act, BC Act Schedule) or as priority fauna (DBCA Priority list) have been recorded within a or have the potential

to occur within the 20km search area (Table 6; Figure 8). Of the 12 conservation significant fauna species identified, none have been previously identified within the PPE.

Table 6 Conservation Significant Fauna Identified within 20km of the PPE

Species Name	Conservation Status			Recorded in Survey or Database Search
	EPBC Act	BC Act	DBCA listed	
Birds				
<i>Calidris ferruginea</i> (Curlew Sandpiper)	Critically Endangered Migratory	Schedule 1	-	Database Search
<i>Pezoporus occidentalis</i> (Night Parrot)	Endangered	Schedule 2	-	Database Search
<i>Rostratula australis</i> / (<i>Rostratula benghalensis (sensu lato)</i>) (Australian Painted Snipe)	Endangered Migratory	Schedule 2	-	Database Search
<i>Falco hypoleucos</i> (Grey Falcon)	Vulnerable	Schedule 3		Database Search
Mammals				
<i>Dasyurus hallucatus</i> (Northern Quoll)	Endangered	Schedule 2	-	Database Search
<i>Macrotis lagotis</i> (Greater Bilby)	Vulnerable	Schedule 3	-	Database Search
<i>Macroderma gigas</i> (Ghost Bat)	Vulnerable	Schedule 3	-	Database Search, Survey
<i>Rhinonictes aurantia</i> (Pilbara Leaf-nosed Bat)	Vulnerable	Schedule 3	-	Database Search
<i>Pseudomys chapmani</i> (Western Pebble-mound Mouse)	-	-	P4	Database Search
<i>Sminthopsis longicaudata</i> (Long-tailed Dunnart)	-	-	P4	Database Search
<i>Dasykaluta rosamondae</i> (Little Red Kaluta)	-	-	Other	Survey
<i>Ningau timealeyi</i> (Pilbara Ningau)	-	-	Other	Survey
Reptiles				
<i>Liasis olivaceus barroni</i> (Olive Python - Pilbara subspecies)	Vulnerable	Schedule 3	-	Database Search
<i>Liopholis kintorei</i> (Great Desert Skink)	Vulnerable	Schedule 3	-	Database Search
<i>Anilius ganei</i> (Gane's blind snake - Pilbara)	-	-	P1	Database Search
<i>Lerista flammicauda</i> (Pilbara flame-tailed slider)			Other	Survey

Based on preferred habitat, species which are possible and likely to occur within the PPE are discussed below.

2.5.2.1 Northern Quoll (*Dasyurus hallucatus*)

Northern Quolls are broadly distributed across the Pilbara bioregion. Habitat considered critical to the survival of this species includes rocky gorges and escarpments, diverse eucalypt forests with hollow logs, and offshore islands (DCCEEW, 2005). Surveys undertaken across the region identified potential dispersal and foraging habitat for the Northern Quoll among the Drainage Lines (Major) and Rocky Escarpment habitat types mapped by Coffey (2013), and the Gorges/Gullies,

Drainage line/River/Creek (Major) and Hilltops/ridges/plateaux habitat types mapped by Ecologia (2014). The proposed disturbance area may be utilised by the Northern Quoll, whilst foraging or transiently moving through the area. However, it is unlikely that the loss of 5.42ha of habitat will have a significant impact on the conservation status or distribution of this species.

2.5.2.2 Ghost Bat (*Macroderma gigas*) and Pilbara Leaf-nosed Bat (*Rhinocterus aurantia*)

The Ghost Bat and Pilbara Leaf-nosed Bat are mainly found in the arid zone near rock outcrops, and roosts in caves, mines and rock clefts. The main threat to the Ghost Bat and Pilbara Leaf-nosed Bat is the loss of its remaining roost sites (DCCEEW, 2022; DCCEEW, 2022). Surveys undertaken across the region identified potential foraging habitat for the Pilbara Leaf-nosed Bat among Rocky Escarpment habitat type mapped by Coffey (2013) and the Gorges/Gullies and Drainage line/River/Creek (Major) habitat types mapped by Ecologia (2014). Potential foraging habitat for the Ghost Bat was identified in proximity to Hilltops/ridges/plateaux habitat mapped by Ecologia (2014). The area within the PPE may provide foraging habitat for both species. However, it is unlikely that the loss of 5.42ha of habitat will have a significant impact on the conservation status or distribution of either species.

2.5.2.3 Western Pebble Mound Mouse (*Pseudomys chapmani*)

This mouse is widely distributed, but patchy within the region, occurring across the central and southern Pilbara and extends into smaller ranges of the Little Sandy Desert (Start, 2008). Western Pebble-mound mice inhabit gently sloping hills of rocky ranges where the ground is stony and vegetated by Spinifex with a sparse overstorey of eucalypts and scattered shrubs of *Senna*, *Acacia* and *Ptilotus*. Ecologia (2014) recorded an individual Western Pebble-mound Mouse within the Hummock Grassland habitat mapped across the survey area. It is possible that the Western Pebble-mound Mouse may be found within the PPE. However, the loss of 5.42ha of habitat will have a significant impact on the conservation status or distribution of this species.

2.5.2.4 Long-tailed Dunnart (*Sminthopsis longicaudata*)

The Long-tailed Dunnart is common in rocky screes, flat top hills and plateaux, sandstone ranges and breakaway habitat in the Pilbara, in spinifex hummock grasslands with sparse overstorey (Western Australian Museum, 2021). Ecologia's Vertebrate Fauna Assessment (2014) concluded that this species is expected to occur within the Hilltops/ridges/plateaux habitat mapped across the survey area. Long-tailed Dunnarts are therefore likely to be found in the PPE, however it is unlikely that the loss of 5.42ha of habitat will have a significant impact on the conservation status or distribution of this species.

2.5.2.5 Pilbara Olive Python (*Liasis olivaceus barroni*)

The Pilbara Olive Python is known to inhabit watercourses and areas of permanent water in rocky gorges and gullies (DCCEEW, 2022). Surveys undertaken across the region identified potential dispersal, shelter and foraging habitat for the Pilbara Olive Python among the Drainage Line (Major) and Rocky Escarpment habitat types mapped by Coffey (2013) and the Gorges/Gullies and Drainage line/River/Creek (Major) habitat types mapped by Ecologia (2014).

There is no potential for areas of permanent water within the PPE. The Pilbara Olive Python may move transiently through the application area especially during times of heavy rainfall when ephemeral drainage lines are flowing or contain pooled water. However, due to the small scale of clearing associated with this Permit, and the positioning of tracks away from watercourses, it is unlikely this project will adversely impact the conservation status or distribution of this species.

2.5.2.6 Gane's Blind Snake (*Anilius ganei*)

The elusive Gane's Blind Snake has been found within the Pilbara region between Newman and Pannawonica, it is thought to be associated with moist gullies and gorges. Surveys undertaken across the region concluded that the rocky escarpment habitat within the mapped survey area may potentially support the Blind Snake (Ecologia Environment, 2014; Coffey Environments, 2013). It is therefore possible that Gane's Blind Snake may occur within the PPE. However, due to the small scale of clearing associated with this Permit, it is unlikely to adversely affect the conservation of this species.

2.5.3 Migratory and Marine Bird Species

Migratory and Marine bird species migrate to Australia along the East Asian-Australian Flyway and some of these bird species are known to use inland wetlands as their dominant habitat (Hansen et al. 2016). These bird species could potentially use suitable wetland habitats such as the Fortescue Marsh to migrate across the inland regions of Australia as they move to non-breeding sites in southern Australia. Migration pathways are not distinct, moving across any part of the Pilbara region and utilising any available wetland habitats.

- Australian Painted Snipe (*Rostratula australis*)
- Barn Swallow (*Hirundo rustica*)
- Black-eared Cuckoo (*Chalcites osculans*)
- Cattle Egret (*Bubulcus ibis*)
- Common Sandpiper (*Actitis hypoleucos*)
- Curlew Sandpiper (*Calidris ferruginea*)

- Fork-tailed Swift (*Apus pacificus*)
- Grey Wagtail (*Motacilla cinerea*)
- Oriental Plover (*Charadrius veredus*)
- Pectoral Sandpiper (*Calidris melanotos*)
- Rainbow Bee-eater (*Merops ornatus*)
- Sharp-tailed Sandpiper (*Calidris acuminata*)
- Yellow Wagtail (*Motacilla flava*)

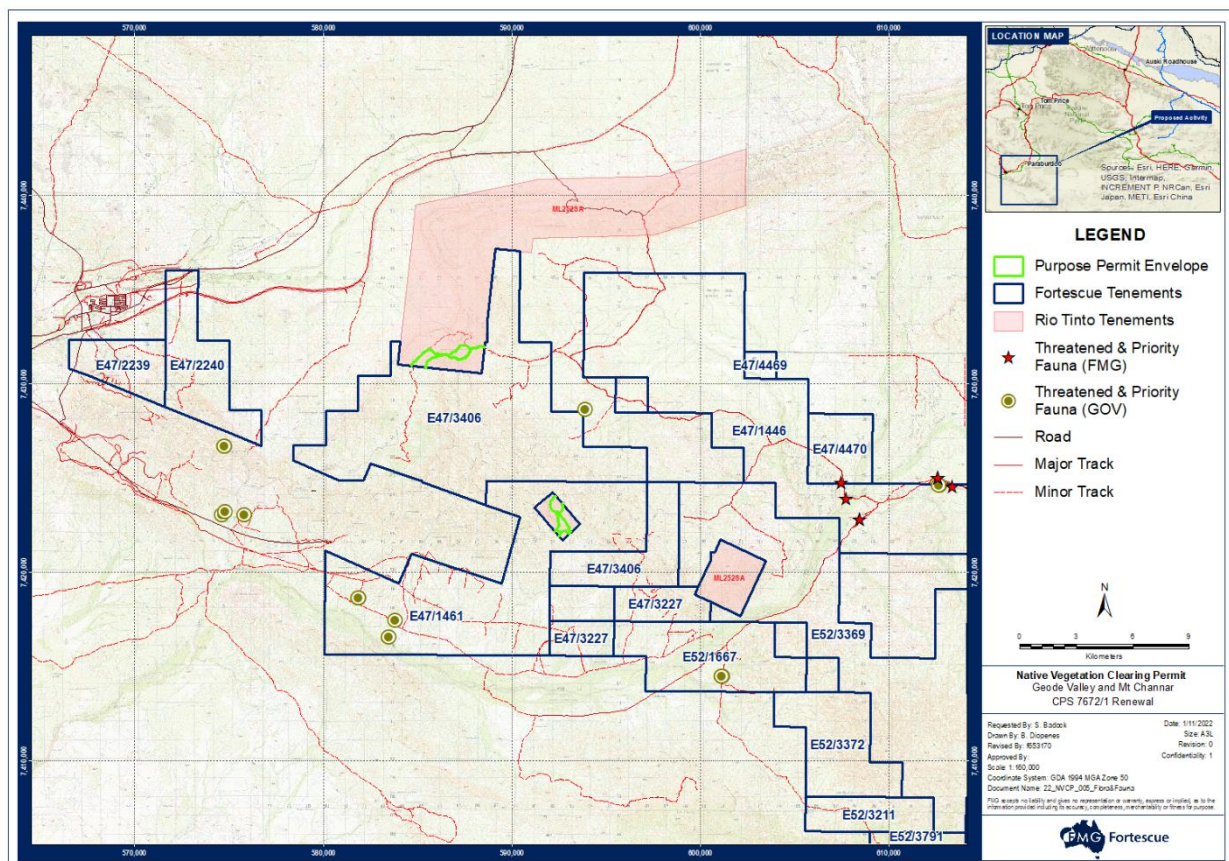


Figure 8 Conservation Significant Fauna Identified within 20km of the PPE

2.6 Hydrology and Hydrogeology

The PPE occurs within the Ashburton River Catchment. The Ashburton River Catchment has an area of approximately 78,000km² (DWER, 2018). On a local scale, the areas to be cleared are located in catchment areas for the Turee Creek and Seven Mile Creek Catchments.

The Turee Creek, a minor river runs east to west approximately 10km to the south of the PPE. Another unnamed minor river runs north-east to south-west approximately 8km to the north-west of the PPE (DWER, 2018). The PPE is largely situated on the hill tops at the head of local drainage catchments. A few minor drainage lines may be intercepted by clearing.

The PPE is located within the Pilbara Groundwater Area, a proclaimed groundwater area under the *Rights in Water and Irrigation Act 1914* (RIWI Act). This area has been identified as the Hamersley Basin, the hydrogeology is characterised by Precambrian rocks of which are principally volcanics, shales and iron formation. The Hamersley Combined Fractured Rock Aquifer contains groundwater within the fractures of these Precambrian rocks.

3. ENVIRONMENTAL IMPACTS AND MANAGEMENT

3.1 Flora and Vegetation

3.1.1 Potential Risk Pathways and Impacts

There has been considerable effort expended to ensure the proposed works associated with the renewal of permit CPS 7672/1, will have as minimal an impact on flora and vegetation as practicable.

Fortescue has identified a number of potential risk pathways associated with the proposed works which may impact flora and vegetation, including:

- Unauthorised or over clearing;
- Unauthorised vehicle movement;
- Introduction of weed species via increased vehicle movement; and
- Increased dust emissions/deposition via vehicle movement.

These risk pathways have the potential to cause:

- Direct loss of vegetation;
- Direct loss of conservation significant flora; and
- Degradation of vegetation

3.1.2 Direct Loss of Vegetation

The Hammersley 82 vegetation association unit is not representative of a threatened or priority ecological community (TEC or PEC) and is widespread across the Hamersley subregion. Renewal of permit CPS 7672/1 will allow ongoing use and maintenance of 1.61ha of previously cleared access tracks and allow further clearing of up to 3.81ha, authorising a total IDF of 5.42ha. The existing and proposed disturbance is unlikely to pose significant threat to the vegetation communities within the PPE.

3.1.3 Direct Loss of Flora of Conservation Significance

The closest record of endangered species *Aluta quadrata*, is approximately 10km to the west of the PPE and of the 23 priority flora species, none have been previously identified within the PPE. Given that access tracks are pre-existing and any new tracks to be establishes are small scale, the amount of disturbance is unlikely to impact the conservation of any of these species.

3.1.4 Degradation of Vegetation

Degradation of vegetation can occur as a result of indirect impacts such as introduction of weeds and increase dust emissions.

Weeds

Clearing for development and increased movement of vehicles, including earth moving machinery may result in the spread of existing or the establishment of new, populations of weed species. Increased numbers of weeds can significantly impact vegetation community health as introduced species and native vegetation compete for water, nutrients and sunlight, resulting in degradation of vegetation.

Dust

Dust interferes with physiological processes such as transpiration in vegetation. Whilst background levels of dust are high in the Pilbara, elevated dust loads can be caused by vegetation clearing, ground disturbance and vehicle movement.

Research on the effects of dust deposition on vegetation health has been undertaken for Australian conditions. This research indicates that vegetation health is not impacted by the direct physical effects of mineral dust deposition until relatively high surface loads are experienced, at $>7\text{g/m}^2/\text{month}$ (Doley, 2006).

Clearing and maintenance of access track associated with the renewal of this permit is likely to cause dust deposition on adjacent vegetation, however deposition levels will not approach the significant levels referred to in Doley (2006).

3.1.5 Management Measures

Based on the types of risk pathways identified, Fortescue has established relevant management action in order to minimise any impact on flora and vegetation (Table 7). Overall, Fortescue will continue to implement management strategies in accordance with our Exploration Environmental Management Plan (E-PL-EN-0002 Rev 7d) to minimise impacts on and protect conservation significant flora and vegetation.

Table 7 Risk Pathway, Impacts & Management Measures for Flora and Vegetation

Risk Pathway and Impacts	Management Actions
<ul style="list-style-type: none"> • Unauthorised or over clearing resulting in unwanted direct loss of flora and vegetation 	<ul style="list-style-type: none"> • Where significant flora and vegetation have been identified, ensure they are recorded in the Corporate GIS and Document Management System and appropriately flagged in the field.

Risk Pathway and Impacts	Management Actions
<ul style="list-style-type: none"> • Unauthorised or over clearing resulting in direct loss of conservation significant flora 	<ul style="list-style-type: none"> • Review the proposed ground disturbance and clearing against flora and vegetation data to avoid/minimise clearing of significant flora and vegetation. • Prior to conducting ground disturbance activities, ensure known locations of environmentally sensitive areas to be retained and protected from disturbance are identified on the ground by appropriate signage, fencing or flagging. • Ensure staff and contractors are aware of the location of significant flora and vegetation on site and their responsibility to ensure they are protected. • Conduct vegetation clearing in accordance with a permit issued under the Land Use Certificate Procedure 100-PR-TA-0001. Internal Land Use Certificates (LUC) will be required prior to commencement of activities, which may include: <ul style="list-style-type: none"> ○ pre-clearance checks for conservation significant flora and/or vegetation undertaken by suitably experienced personnel prior to ground disturbance, ○ areas to be cleared clearly delineated both on maps and on the ground, ○ post-clearing audits undertaken to assess compliance with internal permits.
<ul style="list-style-type: none"> • Unauthorised vehicle movement resulting in direct loss of flora and vegetation • Unauthorised vehicle movement resulting direct loss of conservation significant flora 	<ul style="list-style-type: none"> • Vehicles will be confined to defined roads and access tracks. • All Threatened and Priority Flora are to be identified on the ground by appropriate flagging prior to clearing. • Ensure staff and contractors are aware of the location of significant flora and vegetation on site and their responsibility to ensure they are protected.
<ul style="list-style-type: none"> • Introduction of weed species via increased vehicle movement resulting in degradation of vegetation 	<ul style="list-style-type: none"> • Vehicles will be confined to defined roads and access tracks. • Weed hygiene requirements are implemented for plant and equipment in identified weed risk areas and/or in areas where weed populations have been identified and high-risk activities are proposed to be undertaken in accordance with the Weed Management Plan 100-PL-EN-1017.
<ul style="list-style-type: none"> • Vehicle movements, ground disturbance and clearing activities leading to increased dust emissions/deposition resulting in degradation of vegetation 	<ul style="list-style-type: none"> • Vehicles will be confined to defined roads and access tracks. • Vehicles will adhere to appropriate speed limits on all roads. • Dust suppression will be carried out regularly.

3.2 Terrestrial Fauna

3.2.1 Potential Risk Pathways and Impacts

There has been considerable effort expended to ensure the proposed works associated with the renewal of permit CPS 7672/1, will have as minimal an impact on terrestrial fauna as practicable.

Fortescue has identified a number of potential risk pathways associated with the proposed works which may impact flora and vegetation, including:

- Unauthorised or over clearing;
- Unauthorised vehicle movement;
- Introduction of weed species via increased vehicle movement; and
- Fauna and vehicle interaction.

These risk pathways have the potential to cause:

- Direct loss of fauna;
- Direct loss of fauna habitat; and
- Habitat degradation and fragmentation.

3.2.2 Direct Loss of Fauna

Increased movement of vehicles, including earth moving machinery may result in fauna injury or death. Vehicles may strike fauna species on roads, particularly slow-moving animals or species that are easily startled. Vehicles travelling at night are more likely to strike native fauna when visibility is reduced and animals are more active. Species such as birds of prey are also likely to feed off dead carcasses on roads and may also become victim to vehicle strike.

Fortescue keeps a record of all vehicle related fauna incidents. The species with the highest number of vehicle strikes at Fortescue's sites is the kangaroo, usually at dawn and dusk.

Due to their migratory habits, it is likely any migratory or protected marine birds would avoid clearing areas, disperse into the surrounding landscape which supports similar habitat and return once rehabilitation is complete. Therefore, it is unlikely the proposed activities would significantly impact on the conservation status of these species.

3.2.3 Direct Loss of Fauna Habitat

The Newman Land System is common and widespread across the Hamersley Plateaux Zone. Renewal of permit CPS 7672/1 will allow ongoing use and maintenance of 1.61ha of previously cleared access tracks and allow further clearing of up to 3.81ha, authorising a total IDF of 5.42ha. The existing and proposed disturbance is unlikely to pose significant threat to fauna habitat within the PPE.

3.2.4 Habitat Degradation and Fragmentation

Vegetation clearing has the potential to result in fragmentation of fauna habitat reducing the connectivity of fauna populations. Fauna with large home ranges, such as ground mammals, are likely to be most at risk of habitat fragmentation.

The existing and proposed disturbance is unlikely to pose significant threat to fauna habitat within the PPE. Management measures will be implemented to minimise clearing and maintain connectivity between fauna habitats.

Habitat degradation and fragmentation may also occur as a result of indirect impacts such as introduction of weeds.

Weeds

The introduction of weeds can lead to an indirect impact on native fauna by causing habitat degradation and fragmentation. Areas of dense weed infestation can reduce the ability of fauna to move through their habitat and impact on their ability to forage. Weed species palatable to feral herbivores may attract these animals to the area causing an increase in predation of native species, potential land degradation and further spreading of weed species either by movement of soil or in the animal's dung.

Through the implementation of weed hygiene management measures, it is not expected that the proposed works will result in significant spread of or the introduction of new weed populations.

3.2.5 Management Measures for Fauna

Based on the types of risk pathways identified, Fortescue has established relevant management action in order to minimise any impact on terrestrial fauna (Table 8). Overall, Fortescue will continue to implement management strategies in accordance with our Exploration Environmental Management Plan (E-PL-EN-0002 Rev 7d) to minimise impacts on and protect conservation significant fauna species and fauna habitat.

Table 8 Risk Pathway, Impacts & Management Measures for Fauna

Risk Pathway and Impacts	Management Actions
<ul style="list-style-type: none"> • Unauthorised or over clearing resulting in direct loss of fauna habitat • Unauthorised or over clearing resulting in habitat fragmentation 	<ul style="list-style-type: none"> • Where conservation significant fauna and associated habitat has been identified, ensure they are recorded in the Corporate GIS and Document Management System. • Review the proposed ground disturbance and clearing against fauna data to avoid/minimise clearing of conservation significant fauna habitat. • Prior to conducting ground disturbance activities, ensure known locations of environmentally sensitive areas to be retained and protected from disturbance are identified on the ground by appropriate signage, fencing or flagging. • Ensure staff and contractors are provided with appropriate training to ensure conservation significant fauna and associated habitat are protected. • Conduct vegetation clearing in accordance with a permit issued under the Land Use Certificate Procedure 100-PR-TA-0001. Internal Land Use Certificates (LUC) will be required prior to commencement of activities, which may include: <ul style="list-style-type: none"> ○ pre-clearance checks for conservation significant flora and/or vegetation undertaken by suitably experienced personnel prior to ground disturbance, ○ areas to be cleared clearly delineated both on maps and on the ground, ○ post-clearing audits undertaken to assess compliance with internal permits.
<ul style="list-style-type: none"> • Unauthorised vehicle movement resulting in resulting in direct loss of fauna habitat 	<ul style="list-style-type: none"> • Vehicles will be confined to defined roads and access tracks.
<ul style="list-style-type: none"> • Unauthorised vehicle movement resulting fauna strike 	<ul style="list-style-type: none"> • Vehicles will be confined to defined roads and access tracks. • Vehicles will adhere to appropriate speed limits on all roads. • Vehicle movement will be restricted to daylight hours only. • Where injury or death has occurred to native fauna as a result of Fortescue exploration activities, investigate and report the incident. Causes of incidents will be determined and management procedures will be modified (as required), with measures taken to prevent re-occurrence of incidents.

3.3 Hydrology and Hydrogeology

3.3.1 Potential Risk Pathways and Impacts

The PPE is situated on the hill tops at the head of local drainage catchments, a few minor drainage lines may be intercepted by clearing.

Fortescue has identified a number of potential risk pathways associated with the proposed works which may impact surface water and groundwater, including:

- Hydrocarbon spills;
- Increased risk of flooding cause by unauthorised or over clearing; and
- Increased risk of erosion cause by unauthorised or over clearing.

These risk pathways have the potential to cause:

- Degradation to the quality of surface water and groundwater; and
- Changes to surface water flows.

3.3.2 Degradation to the Quality of Surface Water and Groundwater

There is potential for hydrocarbon spills from vehicle fuel leaks or other accidents. This could in turn result in contamination of surface or ground waters. The risk of hydrocarbon spills is low, and with the implementation of management measures impacts are considered minor.

3.3.3 Changes to Surface Water Flows

Flooding events have the potential to significantly alter surface water flows. The proposed tracks cross a small number of minor drainage lines. Given the disturbance proposed is only clearing of a road 4-6 m wide and occurs on the top of hills in the area, the clearing unlikely to significantly alter surface water flows or raise the potential for flooding.

The Pilbara is an actively eroding landscape and as such, sediment loads are expected to be naturally high during surface water flow events. Clearing for this proposal will expose a small area of bare surface but this is unlikely to significantly increase erosion or sediment loads during surface water flow events, particularly given its location at the top of the catchment.

3.3.4 Management Measures for Surface Water and Groundwater

Based on the types of risk pathways identified, Fortescue has established relevant management action in order to minimise any impact on surface water and groundwater (Table 9). Overall, Fortescue will continue to implement management strategies in accordance with our Exploration Environmental Management Plan (E-PL-EN-0002 Rev 7d) to minimise impacts on and protect surface water and groundwater.

Table 9 Risk Pathway, Impacts & Management Measures for Fauna

Risk Pathway and Impacts	Management Actions
<ul style="list-style-type: none"> Hydrocarbon spills resulting in the degradation of surface water and groundwater quality 	<ul style="list-style-type: none"> Hydrocarbons and chemicals will be transported, stored and handled in accordance with the applicable legislation and Australian Standards. Spill response equipment to be available in each vehicle.
<ul style="list-style-type: none"> Increased risk of flooding and erosion caused by unauthorised or over clearing, resulting in changes to surface water flows 	<ul style="list-style-type: none"> Floodways will be constructed at drainage line crossings Clearing of individual trees within the creek will be restricted to those absolutely necessary.

4. ASSESSMENT AGAINST THE 10 CLEARING PRINCIPLES

The EP Act includes 10 principles that provide decision makers with a guide on whether native vegetation should be cleared. The principles, outlined in 'Schedule 5 – Principles for Clearing Native Vegetation', are used as a comparative tool by DWER and DMIRS in determining whether clearing activities are environmentally acceptable and capable of being appropriately managed. Table 10 assesses the proposed clearing against these Principles.

Table 10 Assessment against the 10 Clearing Principles

Principle	Assessment
a. Native vegetation should not be cleared if it comprises a high level of biological diversity.	Not Likely to be at Variance The vegetation within the PPE is unlikely to comprises a high level of biological diversity. The vegetation is not considered to be of conservation significance, no TECs, PECs, ESAs or GDEs were identified, and the Hammersley 82 vegetation association unit is very common across the Pilbara landscape. Additionally, no flora or fauna of conservation significance has been previously identified within the PPE.
b. Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous	Not Likely to be at Variance Newman Land System supports plateaux/ridges and spinifex grassland habitats. The fauna habitat within the PPE is therefore considered widespread across the Pilbara region and not considered critical habitat for fauna.
c. Native vegetation should not be cleared if it includes or is necessary for the continued existence of rare flora.	Not Likely to be at Variance Conservation significant flora species may potentially occur within the PPE. However, these species have been recorded over a wide range, some of which have been identified in more than one IBRA sub-bioregion.
d. Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.	Not at Variance The vegetation within the PPE is not representative of a Threatened Ecological Community.
e. Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	Not at Variance The Hamersley IBRA sub-bioregion remains at 99.5% of its pre-European extent. The PPE does not occur in an area that has been extensively cleared.
f. Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Not Likely to be at Variance The PPE occurs on top of hills and on slopes. Only very minor drainage lines will be intercepted by the clearing. Surface drainage will be maintained.

Principle	Assessment
g. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Not at Variance The management measures detailed in previous sections will assist in reducing the likelihood of land degradation occurring as a result of clearing for this permit. These management measures include surface water and weed management measures and progressive rehabilitation to reduce the amount of cleared land potentially at risk of erosion.
h. 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.	Not at Variance There are no nearby conservation areas. The nearest conservation area to the permit envelop is Karijini National Park approximately 80km north-east of the PPE.
i. Native vegetation should not be cleared if the clearing of vegetation is likely to cause deterioration in the quality of surface or underground water.	Not at Variance Appropriate stormwater, vegetation clearing and materials handling management measures will be put in place to minimise the potential impact on water quality.
j. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	Not at Variance Given the tracks position in the landscape, changes to surface water flows will be negligible.

5. CONCLUSION

In conclusion, the proposal is considered to be not at variance with Principles **d, e, g, h, i** and **j** and not likely to be at variance to principles **a, b, c** and **f**.

- The area to be cleared is located in common vegetation types, which are not representative of threatened ecological communities.
- The clearing occurs on the top of hills and slopes and will not impact on surface water flow.
- No conservation estate occurs within close proximity to the clearing.
- The area is not an area of remnant vegetation.
- Management measures will reduce the impacts to as low as reasonably practicable.

6. REFERENCES

- Astron, 2016. *Pilbara Groundwater Dependent Vegetation Literature Review*, s.l.: Unpublished report prepared for Fortescue Metals Group Ltd .
- Atlas of Living Australia, 2022. *Dasykaluta rosamondae* : *Little Red Antechinus*. [Online]
Available at: <https://bie.ala.org.au/species/https://biodiversity.org.au/afd/taxa/c7713b38-8ebd-4577-a0cd-a8eb7164be29>
[Accessed 2022].
- Atlas of Living Australia, 2022. *Lerista flammicauda* : *Pilbara Flame-Tailed Slider*. [Online]
Available at: https://bie.ala.org.au/species/https://biodiversity.org.au/afd/taxa/b7baa73e-8315-454c-9f99-5e941c1bf324#tab_recordsView
[Accessed 2022].
- Beard, J. S., 1975. *Vegetation Survey of Western Australia: Pilbara 1:1 000,000 Vegetation Series*, s.l.: University of Western Australia Press, Nedlands, WA.
- CSIRO, 2014. *Australian Soil Resource Information System (ASRIS)*. [Online]
Available at: <https://www.asris.csiro.au/>
[Accessed 2022].
- DAFWA, 2012. *Soil-Landscape Mapping*, s.l.: Department of Agriculture and Food WA .
- DBCA, 2021. *Threatened Ecological Communities (DPAW-020)*. WA: Department of Biodiversity Conservation and Attractions.
- DCCEEW, 2005. *Northern Quoll (Dasyurus hallucatus)*. [Online]
Available at:
<https://www.dcceew.gov.au/environment/biodiversity/threatened/assessments/dasyurus-hallucatus-2005>
[Accessed 2022].
- DCCEEW, 2022. *Species Profile and Threats Database: Liasis olivaceus barroni — Olive Python (Pilbara subspecies)*. [Online]
Available at: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66699
[Accessed 2022].
- DCCEEW, 2022. *Species Profile and Threats Database: Liasis olivaceus barroni — Olive Python (Pilbara subspecies)*. [Online]
Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66699
[Accessed 2022].
- DCCEEW, 2022. *Species Profile and Threats Database: Macroderma gigas — Ghost Bat*. [Online]
Available at: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=174
[Accessed 2022].
- DCCEEW, 2022. *Species Profile and Threats Database: Rhinonicteris aurantia (Pilbara form) — Pilbara Leaf-nosed Bat*. [Online]
Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82790
[Accessed 2022].
- Doley, D., 2006. Airborne particulates and vegetation: Review of physical interactions. *Clean Air and Environment Quality*, Volume 2, p. 40.

Dunlop, J. N. & Sawle, M., 2013. *The Habitat and Life History of the Pilbara Ningau Timealeyi*. [Online]

Available at: <https://museum.wa.gov.au/research/records-supplements/records/habitat-and-life-history-pilbara-ningau-timealeyi>

[Accessed 2022].

DWER, 2018. *Hydrographic Catchments - Catchments (DWER-028)*. Perth: s.n.

DWER, 2018. *Hydrography, Linear (Hierarchy) (DWER-031)*. Perth: s.n.

DWER, 2019. *Clearing Regulations - Environmentally Sensitive Areas (DWER-046)*. WA: Department of Water and Environmental Regulation (DWER).

iNaturalist Australia, 2022. *Western Pebble Mouse (Pseudomys chapmani)*. [Online]

Available at: <https://inaturalist.ala.org.au/taxa/45207-Pseudomys-chapmani>

[Accessed October 2022].

McAlpin, S., 2001. *A Recovery Plan for the Great Desert Skink (Egernia kintorei) 2001-2011*. [Online]

Available at:

<https://www.dcceew.gov.au/environment/biodiversity/threatened/publications/recovery/recovery-plan-great-desert-skink>

[Accessed 2022].

McKenzie, N. L. & Bullen, R. D., 2009. The echolocation calls, habitat relationships, foraging niches and communities of Pilbara microbats.. Records of the Western Australian Museum Supplement 78,. pp. pp. 123-155..

McKenzie, N. L., May, J. E. & McKenna, S., 2002. *Bioregional Summary of the 2002 Biodiversity Audit for WA*, Perth: Department of Conservation and Land Management (CALM).

Richardson, E. et al., 2011. *Australian groundwater dependent ecosystems toolbox part 1: assessment framework*, Canberra: National Water Commission.

Schoknecht, N. & Pathan, S., 2013. *Soil Groups of Western Australia - A Simple Guide to the Main Soils of Western Australia*, South Perth: Department of Agriculture and Food.

Start, A. N., 2008. Western Pebble-mouse, *Pseudomys chapmani*. in S van Dyk and R Strahan (eds), *The Mammals of Australia*, pp. 621-2.

The Bureau, 2022. *Climate Statistics for Australian Locations - Paraburdoo Aero (7185)*. [Online]

Available at: http://www.bom.gov.au/climate/averages/tables/cw_007185.shtml

[Accessed 12 October 2022].

Tille, P., 2006. *Soil-landscapes of Western Australia's Rangelands and Arid Interior*, s.l.: DPIRD (Formerly Department of Agriculture and Food).

van Vreeswyk, A. M., Payne, A. M., Leighton, K. A. & Hennig, P., 2004. *An Inventory and Condition Survey of the Pilbara Region, Western Australia*, Perth: Department of Agriculture and Food Western Australia.

Western Australian Museum , 2021. *Long-tailed Dunnart (Sminthopsis longicaudata)*. [Online]

Available at: <https://museum.wa.gov.au/online-collections/names/sminthopsis-longicaudata>

[Accessed 2022].

Appendix 1: Rio Tinto Access Agreement

Iron ore
152-158 St Georges Terrace
Perth 6000
Western Australia
T + 61 (8) 9327 2000

Private and confidential

Mrs Shontelle Curtis-Smith
Fortescue Metals Group
Level 2, 88 Adelaide Terrace
Perth WA 6892

Via email

5th April 2017

Dear Shontelle,

Request for permission to enter ML252SA ("Tenure") for clearing of new tracks ("Works")

I refer to your email dated 24TH March 2017, requesting permission for FMG Pilbara Pty Ltd. ("**Applicant**") to enter the Tenure to conduct the Works.

I advise that Mount Bruce Mining Pty Ltd ("**Mount Bruce Mining**") grants permission to enter the Tenure to conduct the Works, subject to the following conditions:

- a) The Applicant, its officers, employees, agents, contractors, subcontractors, representatives or consultants ("**Associates**") enter the Tenure at their own risk and take the Tenure in the condition they find it.
- b) Mount Bruce Mining Iron and Mount Bruce Mining makes no warranty as to the condition of the Tenure or the ability of the Applicant or its Associates to travel through it.
- c) The Applicant agrees that before entering the Tenure and whilst on the Tenure, it and its Associates will obtain and comply with the terms and conditions of the tenure and all necessary permits, consents or authorisations required by law to carry out the Works and comply with all laws in relation to carrying out the works.
- d) The Applicant will rehabilitate the Works on the Tenure in accordance with legal and regulatory requirements. If relief is sought by the Applicant for the Works, it must notify Mount Bruce Mining Iron and Mount Bruce Mining in writing as soon as possible.
- e) The Applicant and its Associates are not permitted to use ground disturbing equipment (as defined in section 8 of the *Mining Act 1978 (WA)*) on the Tenure other than a grader for the purposes of the Works on the Tenure unless it has obtained approval from the Department of Mines and Petroleum ("**DMP**") and provided prior notice in writing to Mount Bruce Mining Iron and Mount Bruce Mining.
- f) At least 5 business days prior to the Applicant requiring access to the Tenure to commence the Works, the Applicant must give to Mount Bruce Mining verbal and email notice. The notice must include:
 - (i) the details of the date that the Applicant wishes to access the Tenure to commence the Works;
 - (ii) the anticipated amount of time for which the Applicant will require access to the Tenure to complete the Works;

- (iii) a detailed map showing the existing access track where the Applicant proposes to carry out the Works; and
- (iv) the details of all legal and regulatory permits or approvals obtained in relation to the Works.

The notice must be given to:

Mark Tait
Manager – Resource Evaluation
Ph : 6213 0097
Email: mark.tait@riotinto.com

- g) The Applicant and its Associates are not permitted to access the Tenure to conduct the Works otherwise than on dates and locations contained in the notice.
- h) To access the Tenure on dates and locations other than as stated in the notice referred to in paragraph (g) above, the Applicant and its Associates must give prior written notice.
- i) Mount Bruce Mining may, in its absolute discretion, revoke the permission to access the Tenure to conduct the Works if the access compromises or disturbs Mount Bruce Mining's operations, infrastructure, mining, exercise of its exploration rights or if in Mount Bruce Mining's reasonable opinion, safe access to or use of the Tenure is compromised in any way.
- j) Prior to accessing the Tenure, the Applicant must sign the attached indemnity and return it to:

Mr Graham Dumbrell
Advisor- Tenure Management and Strategy
Rio Tinto Pty Ltd
Central Park, 152 - 158 St Georges Terrace
Perth WA 6000

Nothing in this letter:

- will be deemed to create or be construed as creating a mining operation, tenancy; or
- will confer or be construed as conferring on the Licensee any interest in the Tenure.

Please contact Graham Dumbrell if you require any further assistance with this matter.

Yours sincerely



Mark Tait
Manager Resource Evaluation

INDEMNITY DEED POLL

This Indemnity Deed Poll is made on 26 APRIL 2017.

1 **Defined terms**

In this document:

- **Applicant** means FMG Pilbara Pty. Limited;
- **Associates** means officers, employees, agents, contractors and subcontractors;
- **Mount Bruce Mining** means Mount Bruce Mining Pty Ltd;
- **Liability** means damages, claims, losses, liabilities, liquidated sums, charges, costs, expenses and penalty of any kind, but does not include indirect loss, loss of profits, loss of revenue, loss of production or loss of opportunity;
- **Related Body Corporate** has the same meaning given to it in the *Corporations Act 2001* (Cth);
- **Tenure** means a mining tenement known as ML 252SA and
- **Works** means the work associated with creation of new access track set out on the attached map (*Attachment A*) on the Tenure by the Applicant or its Associates.

2 **Indemnity**

In consideration for HI granting the Applicant, and its Associates, access to the Tenure to perform the Works, the Applicant shall indemnify and keep indemnified Mount Bruce Mining and their Associates against all Liabilities caused, whether wholly or in part, directly or indirectly by:

- a) the performance of the Works;
- b) the presence of the Applicant on the Tenure,

including, but without limiting the generality of the foregoing, injury or death of any person, and damage to or destruction of any property (including the property of Mount Bruce Mining, the Applicant and their Associates) except to the extent that the Liability was caused or contributed to by any willful or negligent act or omission on the part of Mount Bruce Mining and their Associates.

Executed and delivered in Perth as a deed poll.

Date of Execution:

Executed as a deed poll sign for and on behalf of FMG Pilbara Pty Ltd (ACN 106 943 828) in accordance with section 127 of the *Corporations Act 2001* (Cth) in the presence of:



Director Signature

Elizabeth Gaines

Print Name



Director / Secretary Signature

Alison Terry

Print Name



LEGEND

- Proposed Access
- Proposed Maintenance
- Pilbara Pastoral Leases (Excluding Easements)
- Rio Tinto Rail
- Gov Tenements
- Major Track
- Minor Track
- Drill Line

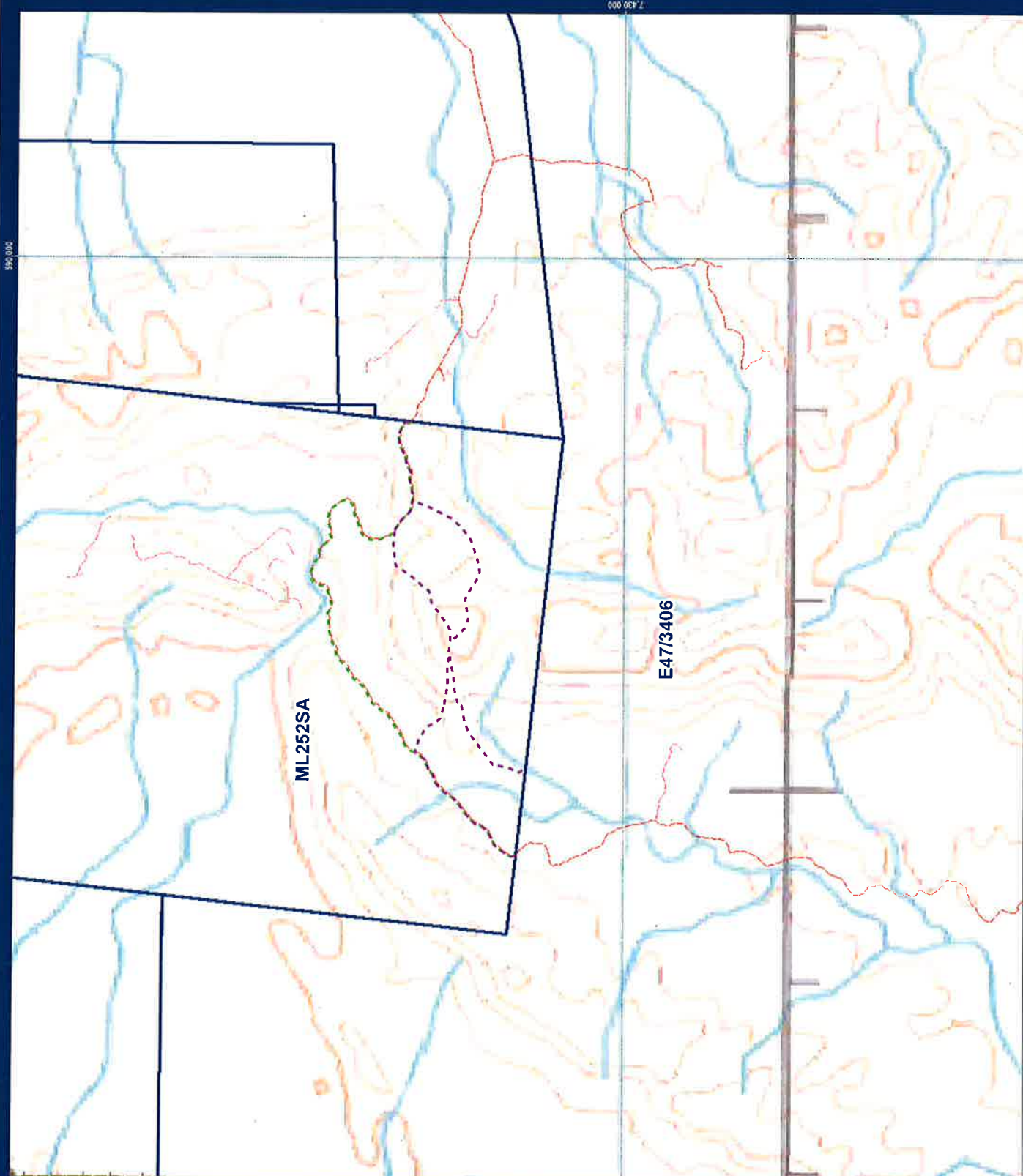


Proposed Access and Maintenance Request Geode Valley

Requested By: S. Fasana
 Drawn By: S. Curtis
 Revised By: scaris
 Approved By:
 Date: 24/03/2017
 Size: A3L
 Revision: 0
 Confidentiality: 1
 Scale: 1:33,544
 Coordinate System: GDA 1984 MGA Zone 50
 Document Name: 17_POW_04_Access and Maintenance
 PUG accepts no liability and gives no representation or warranty, express or implied, as to the
 information provided in this document. Copyrights, third party rights or other legal purposes.



Fortescue Metals Group Ltd
 The New Force in Iron Ore



Appendix 2: Protected Matters Search Tool Results



EPBC Act Protected Matters Report

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

Report created: 27-Sep-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	10
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	13
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species

[Resource Information]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area	In feature area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
REPTILE			
Liasis olivaceus barroni Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Liopholis kintorei Great Desert Skink, Tjakura, Warrarna, Mulyamiji [83160]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species

[Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species

Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area

Migratory Wetlands Species

Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area

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

Other Matters Protected by the EPBC Act

Commonwealth Lands

[Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Unknown		
Commonwealth Land - [51015]	WA	In buffer area only

Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Karijini	National Park	WA	In buffer area only

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Greater Paraburdoo Iron Ore Hub, WA	2018/8341	Controlled Action	Proposed Decision	In buffer area only
Turee Syncline Iron Ore Project	2012/6391	Controlled Action	Post-Approval	In feature area
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

[© Commonwealth of Australia](#)

Department of Agriculture Water and the Environment

GPO Box 858

Canberra City ACT 2601 Australia

+61 2 6274 1111