



Supporting Documentation

Native Vegetation Clearing Permit

Hendrix East – ML4SA

19 December 2022

EX-AP-EN-0127 Rev 1

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- Appendix 1: Rio Tinto Access Agreement**
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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
CPS	Clearing Permit System
DFAT	Department of Foreign Affairs and Trade
DBCAT	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
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 7627/1, to allow ongoing use and maintenance of previously cleared tracks. These tracks provide safe access to the Hendrix East Prospect, located approximately 110km west of the Township of Tom Price 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.

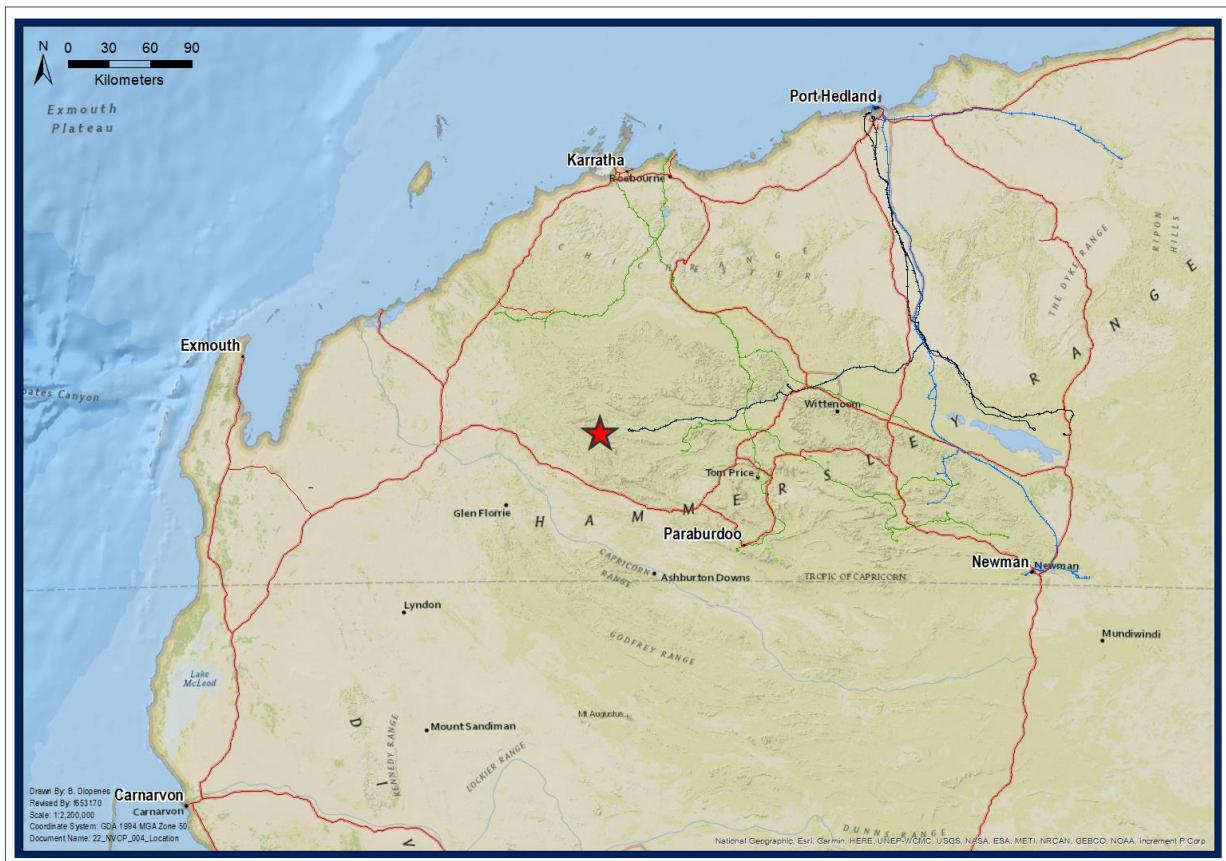


Figure 1 General location of the Hendrix East Prospect

1.1 Summary of Proposal

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

Table 1 Key Details of the Proposed Renewal

Site Details			
Prospect Name	Hendrix East		
Description of Operation	Fortescue Metals Group Limited (Fortescue) proposes to continue to use and maintain access tracks to support its exploration activities across the Hendrix East Prospect		
Total Clearing	Original permit authorised an indicative disturbance footprint of 0.82ha, within a purpose permit envelope of 4.2ha. It was found in 2019 that there was an exceedance of the approved indicative disturbance footprint by 0.24ha. Total vegetation cleared under this permit is 1.06ha.		
Tenement Details	Tenement	Tenement Holder	Status
	ML4SA	Hammersley Iron Pty Ltd	Live
Clearing Method	Clearing will be conducted mechanically using earth moving equipment		
Purpose of Clearing	The clearing was previously authorised for the construction of multiple tracks to allow access to the Hendrix East Prospect		

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			
ABN	57 002 594 872			
ACN	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 Renewed Activities

Access to the Hendrix East Prospect is 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 7627/1, authorised to disturb a 0.82ha Indicative Disturbance Footprint (IDF) within a PPE of 4.2ha. It should be noted that the approved IDF has

been exceeded by 0.24ha. A total of 1.61ha has been cleared within the PPE to provide track access in support of exploration activities across the Hendrix East Prospect (Figure 2). The purpose of this renewal is to allow ongoing use and maintenance of previously cleared access tracks. No further clearing of vegetation is required.

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

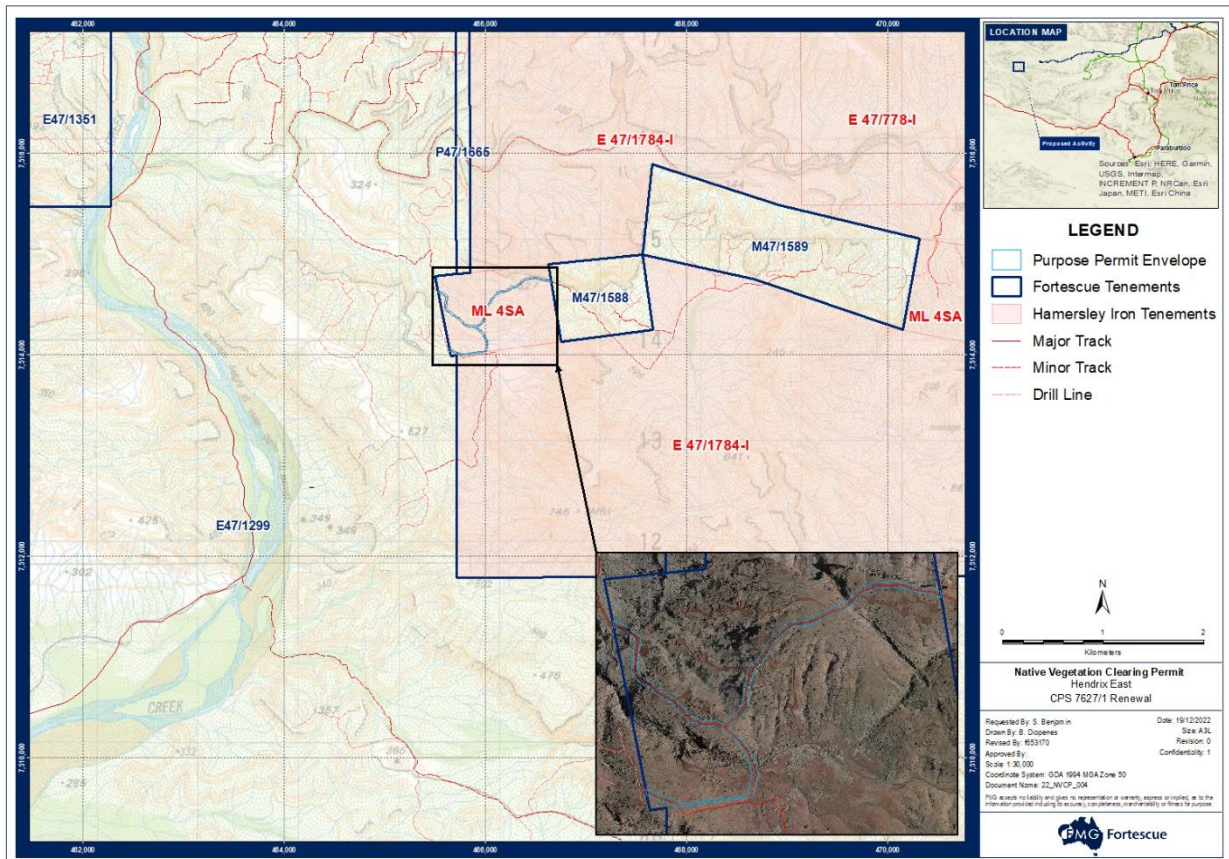


Figure 2 Purpose Permit Envelopes (PPE) of CPS 7627/1

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 Pannawonica Bureau of Meteorology (the Bureau) station (Station Number 5069) has a record of monthly climate statistics from 1971-2005 for temperature and from 1971-2022 for rainfall (Figure 3). The monthly maximum temperatures range from 26.7 to 41.0°C, with the hottest month being January. While monthly minimum temperatures range from 12.6 to 25.2°C, with the coldest month being July. The average annual rainfall for Pannawonica is 404.1mm, with February and September being the wettest (104.5mm) and driest (1.5mm) 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).

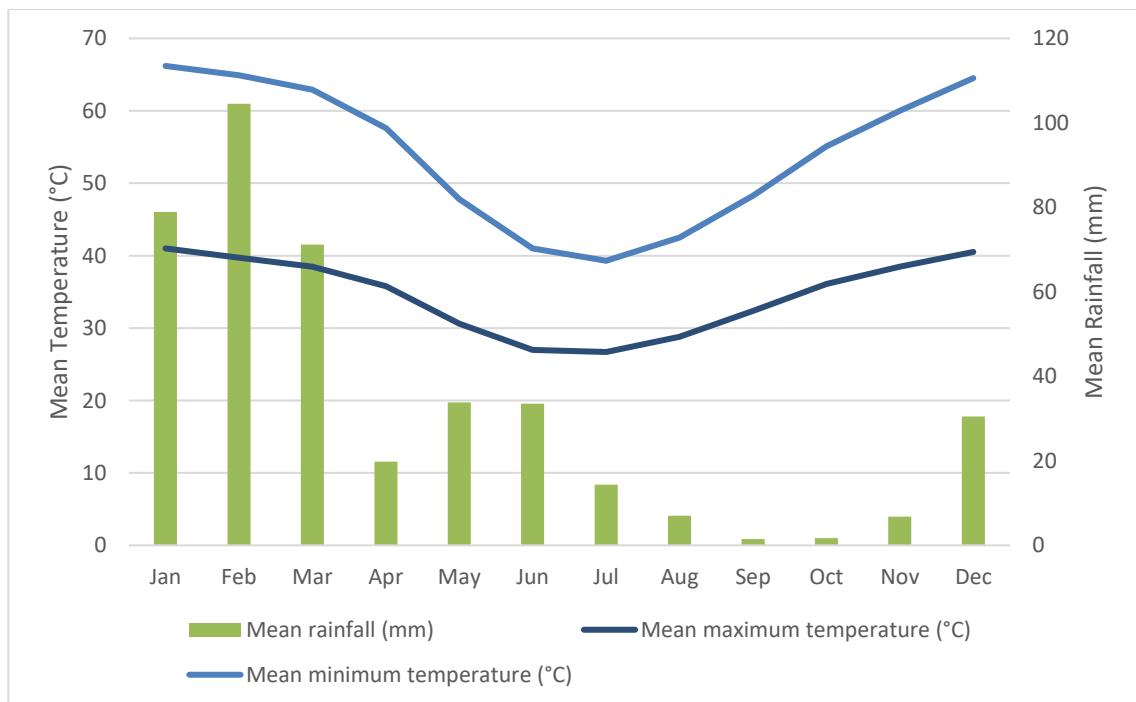


Figure 3 Climate Averages Pannawonica Station 5069

2.2 Existing Land Use

2.2.1 Land Tenure

The disturbance proposed to be renewed occurs on State Agreement tenure ML4SA, held by Hammersley Iron Pty Ltd, a wholly owned subsidiary of Rio Tinto. This land is also leased to the Mt Stuart Pastoral Station. The main use of the land surrounding the PPE is pastoral activities and 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 PPE proposed for renewal is contained within this NVCP lie across the Puutu Kunti Kurrama People and Pinikura People #1 and #2 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. The area that is associated with the new disturbance under this POW has fully heritage surveyed, and no heritage sites were identified.

In line with Fortescue's obligations under the AHA, should sites of Aboriginal heritage significance be identified during works being undertaken in the disturbance area the proposed activity will be adjusted to avoid these sites. If deviations are required outside of the PoW area or in excess of the allowable disturbance under that PoW, Fortescue will apply to the Department of Mines, Industry Regulation and Safety (DMIRS) for a new PoW. This risk adverse 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.

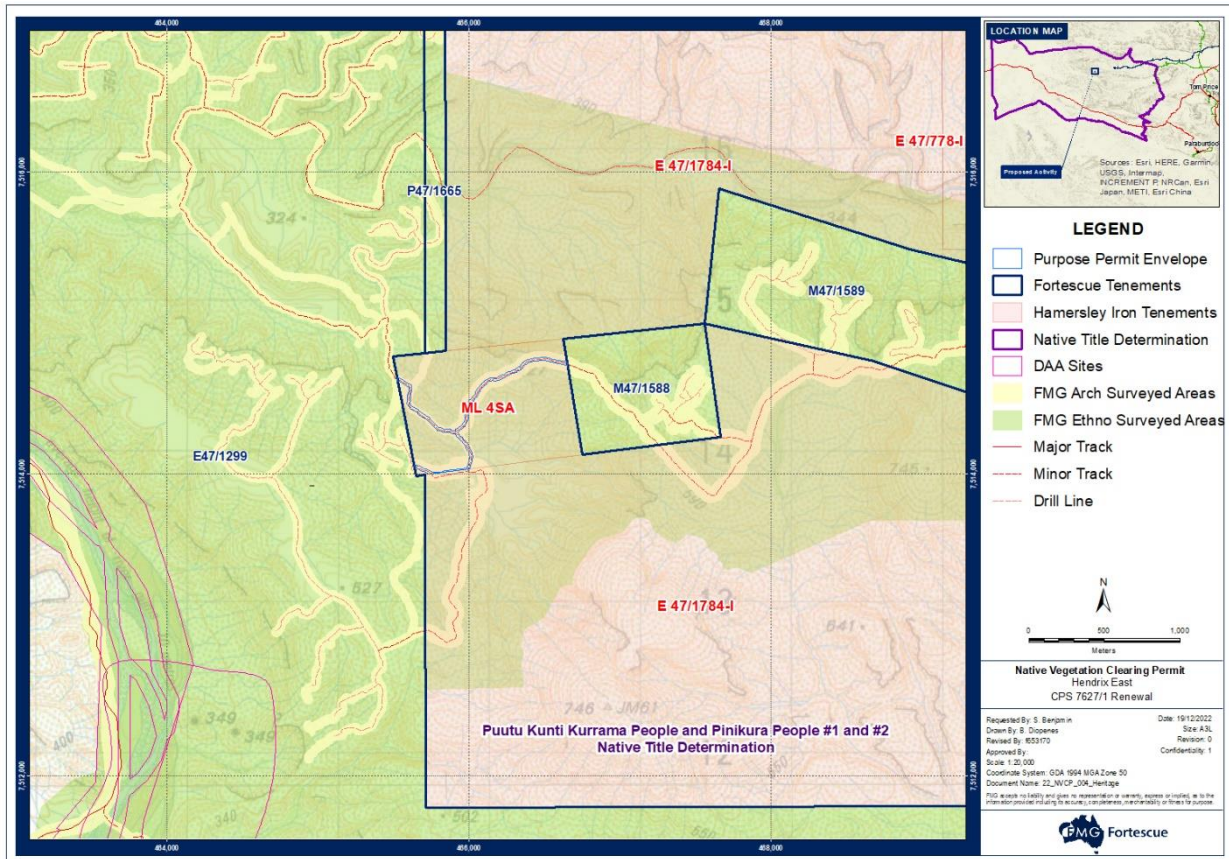


Figure 4 Heritage Sites and Survey Areas

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.

The maintenance of pre-existing tracks will result in the disruption of shallow soils (<0.3 m).

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).

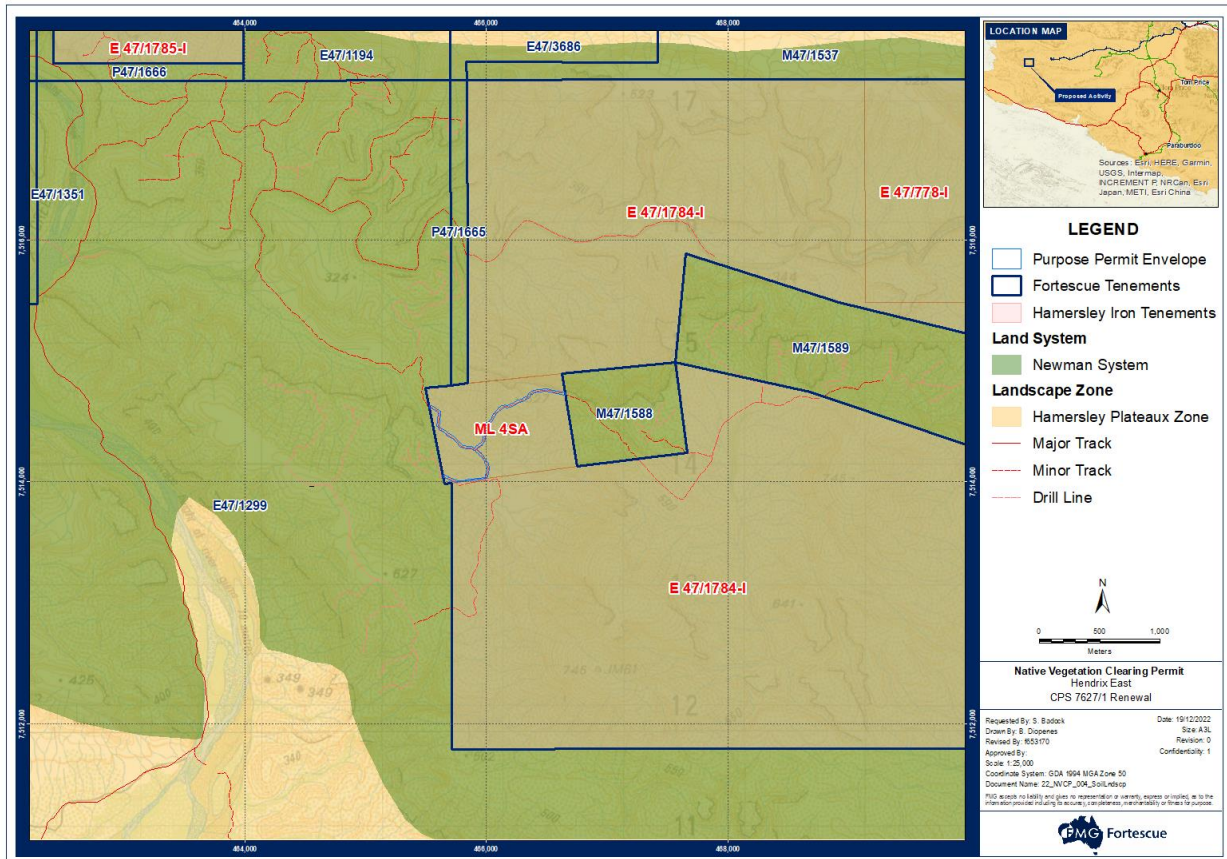


Figure 5 Location of PPE within the Newman System of the Hamersley Plateaux Zone

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

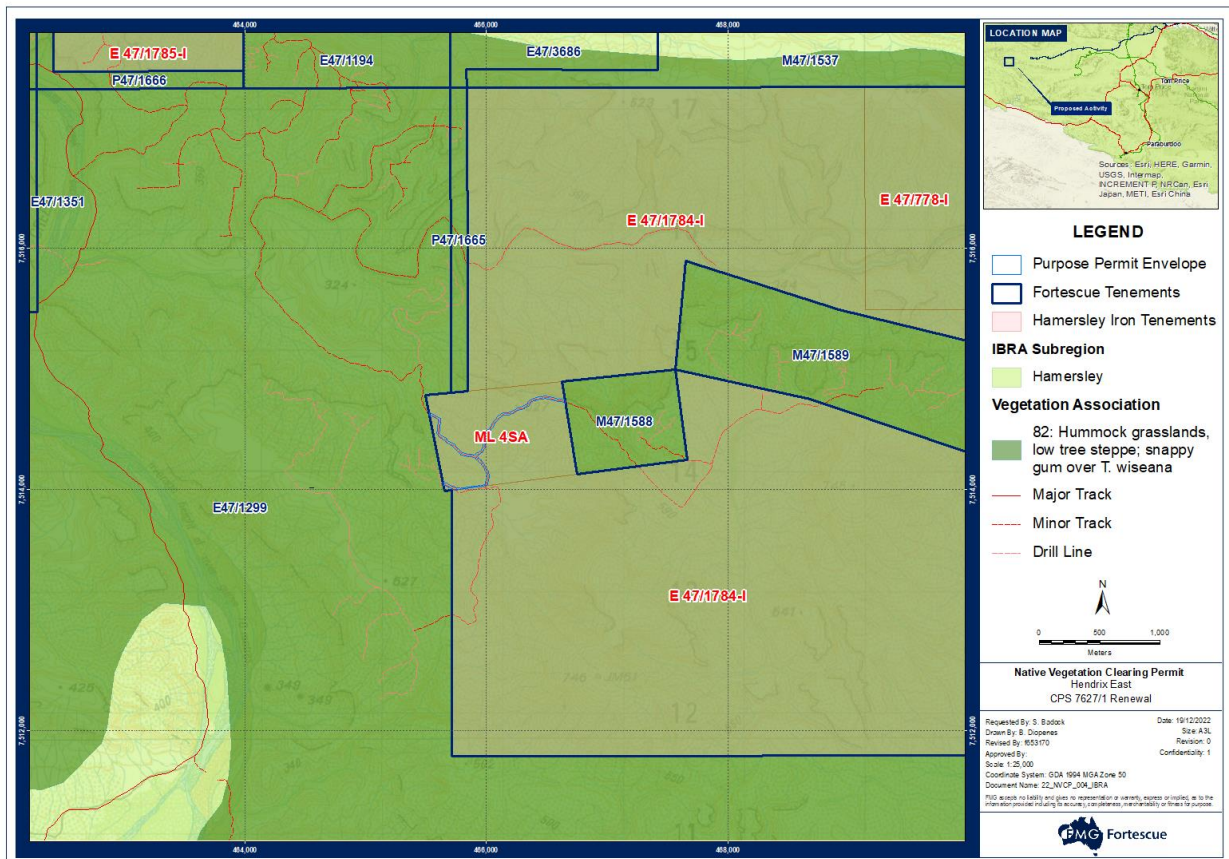


Figure 6 Location of the PPE within the Hamersley IBRA Subregion and the Vegetation Association Unit

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 and its surrounding environment to be mapped as having a Moderate Potential for groundwater dependence.

2.4.5 Flora and Vegetation Surveys

Three flora and vegetation surveys have been undertaken on behalf of Fortescue across a portion of the PPE. Ecoscape Pty Ltd (Ecoscape) undertook Phase 1 of the Delphine Level 2 Flora and Vegetation Survey in 2012 (EX-AS-EN-0025), then in 2015, Phase 2 was undertaken (WH-AS-EN-0014). Ecologia Environment Pty Ltd (Ecologia) undertook the Solomon Hub Flora and Vegetation Assessment in 2014 (SO-AS-EN-0057) (Ecoscape, 2012; Ecoscape, 2015; Ecologia Environment, 2014).

Although not undertaken across the PPE, the Eliwana Consolidated Detailed Flora and Vegetation Phase 2 Assessment was undertaken by Biota Environmental Sciences (Biota) in 2017, immediately adjacent to the PPE (Biota Environmental Sciences, 2017).

A search of the DBCAs Threatened and Priority Flora database (DBCA, 2021) and regional survey records was undertaken over a 10km radius from the PPE (Table 5).

2.4.6 Flora of Conservation Significance

No Threatened flora species, as listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Biodiversity Conservation Act 2016* (BC Act), were identified within the 10km search area. However, 16 flora species, as listed under the Department of Biodiversity, Conservation and Attractions (DBCA) priority list, were identified within the 10km search area, of which none occur within the PPE (Figure 7).

Table 5 Conservation Significant Flora Identified within 10km of the PPE

Species Name	EPBC Act*	BC Act**	DBCA listed***	Recorded in Survey or database search
<i>Sida</i> sp. Hamersley Range (K. Newbey 10692)	-	-	Priority 1	Survey
<i>Triodia</i> aff. <i>karijini</i>	-	-	Priority 1	Survey
<i>Triodia</i> sp. <i>Silvergrass</i> (P.-L. de Kock BES 00808)	-	-	Priority 1	Database Search
<i>Dicladanthera glabra</i>	-	-	Priority 2	Database Search, Survey
<i>Pentalepis trichodesmoides</i> subsp. <i>hispida</i>	-	-	Priority 2	Survey
<i>Cyanthillium gracile</i>	-	-	Priority 3	Database Search
<i>Grevillea saxicola</i>	-	-	Priority 3	Survey
<i>Indigofera</i> sp. <i>Bungaroo Creek</i> (S. van Leeuwen 4301)	-	-	Priority 3	Database Search, Survey
<i>Pleurocarpaea gracilis</i>	-	-	Priority 3	Survey
<i>Sida</i> sp. Hamersley Range (K. Newbey 10692)	-	-	Priority 3	Database Search
<i>Terminalia supranitifolia</i>	-	-	Priority 3	Database Search, Survey
<i>Triodia</i> sp. <i>Robe River</i> (M.E. Trudgen et al. MET 12367)	-	-	Priority 3	Survey
<i>Acacia bromilowiana</i>	-	-	Priority 4	Survey
<i>Eremophila magnifica</i> subsp. <i>magnifica</i>	-	-	Priority 4	Survey
<i>Ptilotus mollis</i>	-	-	Priority 4	Database Search, Survey
<i>Rhynchosia bungarensis</i>	-	-	Priority 4	Database Search, Survey

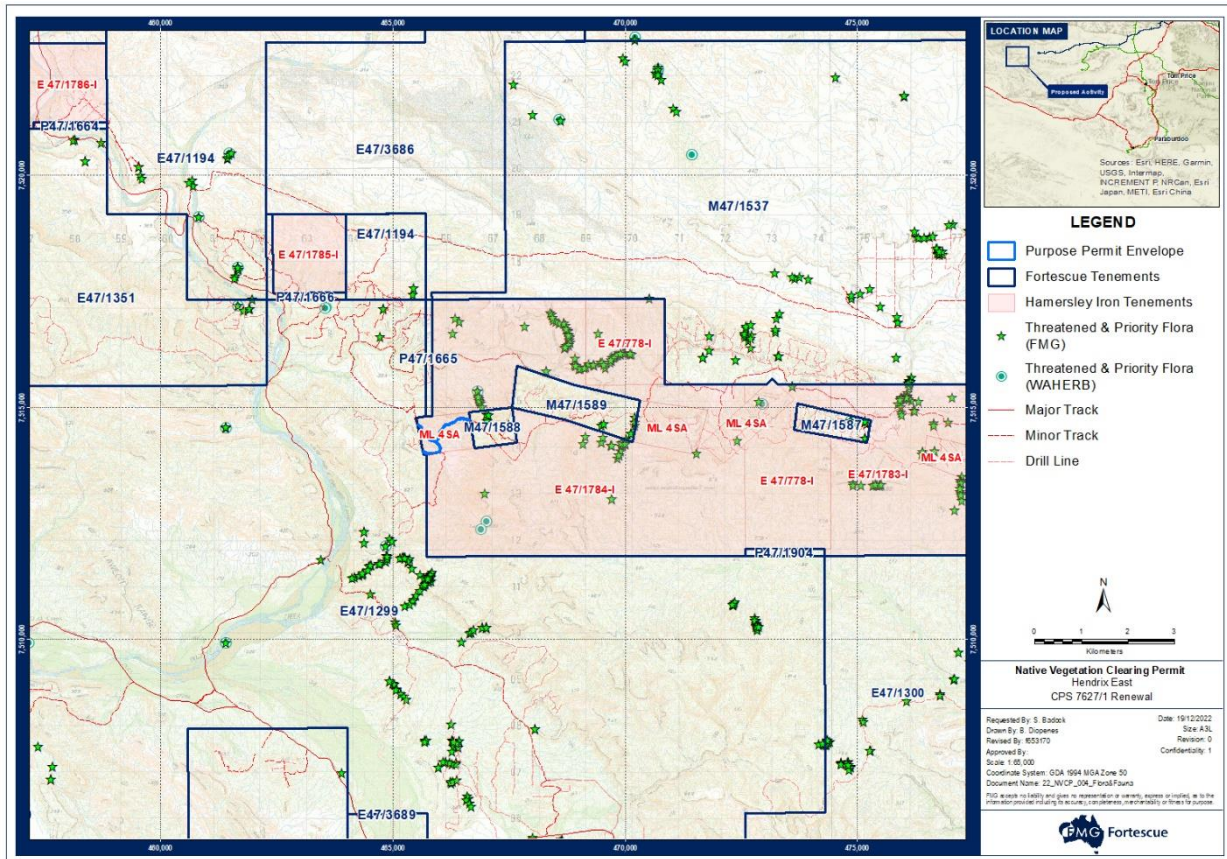


Figure 7 Conservation Significant Flora Identified within 10km of the PPE

2.5 Vertebrate Fauna

2.5.1 Vertebrate Fauna Surveys

Two vertebrate fauna survey has been undertaken on behalf of Fortescue across the PPE (one over a portion and the other over the entirety). In 2014, Ecologia undertook the Solomon Hub Vertebrate Fauna Assessment (SO-AS-EN-0056) which intersects with the western portion of the PPE (Ecologia Environment, 2014). In 2019, the Level 2 and Targeted Conservation Significant Fauna Assessment for the Western Hub, was carried out by (WH-00000-SV-EN-0001) GHD (GHD, 2019).

Although not undertaken across the PPE, two additional surveys have been undertaken immediately adjacent to the PPE. Ecologia completed the Delphine Terrestrial Vertebrate Fauna Assessment (WH-AS-EN-0009) in 2015, while Ecoscape completed the Consolidated Vertebrate Fauna Assessment for the Eliwana Project (EW-AS-EN-0001) in 2017 (Ecologia Environment, 2015; Ecoscape, 2017).

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 10km radius from the PPE (Appendix 2).

2.5.2 Habitat Mapping

The PPE intersects two habitat types mapped by Ecologia (2014) and GHD (2019). These include the Hills/Ranges/Plateau and the Caves/Breakaway habitat types (Figure 8).

Table 6 Major Habitat Types Mapped Across the PPE

Habitat Type	Brief Description
Hills/Ranges/Plateau	Low sparse Eucalypts and shrubland of <i>Acacia</i> sp. <i>Senna</i> sp. and <i>Solanum lasiophyllum</i> over tussock grassland of <i>Triodia</i> sp.
Caves/Breakaways	Mixed shrubland of <i>Acacia</i> sp., <i>Senna</i> sp., <i>Hakea</i> sp., <i>Eremophila</i> , <i>Ptilotus obovatus</i> , <i>Paspalidium clementii</i> and <i>Solanum lasiophyllum</i> over tussock grassland of <i>Triodia</i> sp.

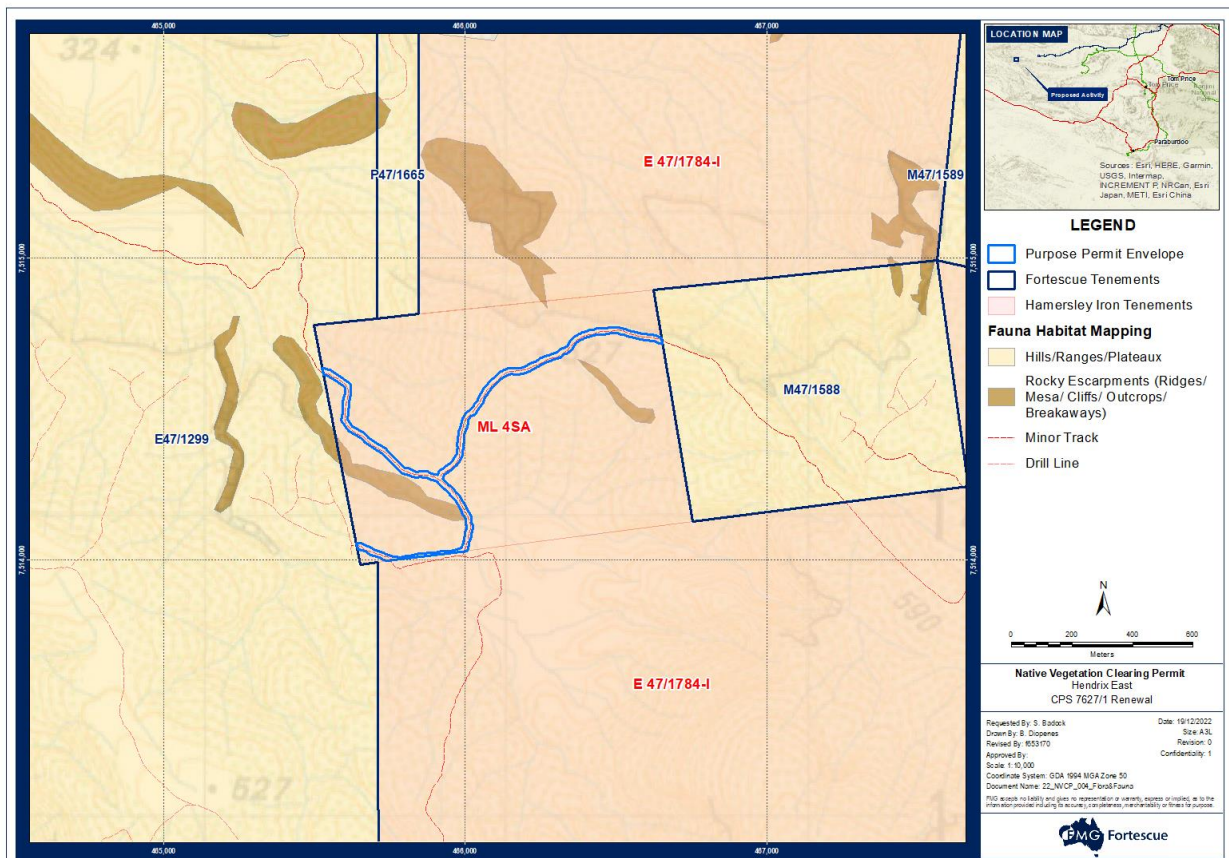


Figure 8 Fauna Habitat Mapped Across the PPE

2.5.3 Conservation Significant Fauna

A total of 10 vertebrate fauna species, listed as either threatened fauna (EPBC Act, BC Act Schedule) or as priority fauna (DBCAs Priority list) have been recorded within a or have the potential to occur within the 10km search area (Table 7; Figure 9). Of the 10 conservation significant fauna species identified, none have been previously identified within the PPE.

Table 7 Conservation Significant Fauna Identified within 10km of the PPE

Species Name	Conservation Status			Recorded in Survey or Database Search
	EPBC Act	BC Act	DBCAs 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, Survey
<i>Macroderma gigas</i> (Ghost Bat)	Vulnerable	Schedule 3	-	Database Search, Survey
<i>Rhinonicteris aurantia</i> (Pilbara Leaf-nosed Bat)	Vulnerable	Schedule 3	-	Database Search, Survey
Fish				
<i>Leiopotherapon aheneus</i> (Fortescue Grunter)	-	-	P4	Survey
Reptiles				
<i>Liasis olivaceus barroni</i> (Olive Python - Pilbara subspecies)	Vulnerable	Schedule 3	-	Database Search, Survey
<i>Notoscincus butleri</i> (Butler's Snake-eyed Skink)	-	-	P4	Survey

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

2.5.3.1 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 PPE identified suitable habitat for the Northern Quoll among the Hills/Ranges/Plateau and the Caves/Breakaway habitat types mapped by Ecologia (2014) and GHD (2019). The disturbance area may be utilised by the Northern Quoll, whilst foraging or transiently moving through the area. However, given that

no further disturbance is required, the use and maintenance of these existing tracks is to have a significant impact on the conservation status or distribution of this species.

2.5.3.2 Ghost Bat (*Macroderma gigas*) and Pilbara Leaf-nosed Bat (*Rhinonictoris 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 PPE identified suitable habitat for the Ghost Bat and Pilbara Leaf-nosed Bat among Caves/Breakaway habitat type mapped by Ecologia (2014) and GHD (2019). However, given that no further disturbance is required, the use and maintenance of these existing tracks is to have a significant impact on the conservation status or distribution of this species.

2.5.3.3 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 PPE identified potential dispersal, and foraging habitat among the Hills/Ranges/Plateau habitat type mapped by Ecologia (2014) and GHD (2019). The Pilbara Olive Python may move transiently through the PPE especially during times of heavy rainfall when ephemeral drainage lines are flowing or contain pooled water. Tracks have been positioned away from watercourses and there is no potential for areas of permanent water within the PPE. Given that no further disturbance is required, the use and maintenance of these existing tracks is to have a significant impact on the conservation status or distribution of this species.

2.5.4 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*)
- Eastern Great Egret (*Ardea modesta*)

- Eastern Osprey (*Pandion cristatus*)
- Fork-tailed Swift (*Apus pacificus*)
- Grey Wagtail (*Motacilla cinerea*)
- Magpie-lark (*Grallina cyanoleuca*)
- Oriental Plover (*Charadrius veredus*)
- Pectoral Sandpiper (*Calidris melanotos*)
- Rainbow Bee-eater (*Merops ornatus*)
- Sacred Kingfisher (*Todiramphus sanctus*)
- Sharp-tailed Sandpiper (*Calidris acuminata*)
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*)
- Yellow Wagtail (*Motacilla flava*)
- Whistling Kite (*Haliastur sphenurus*)

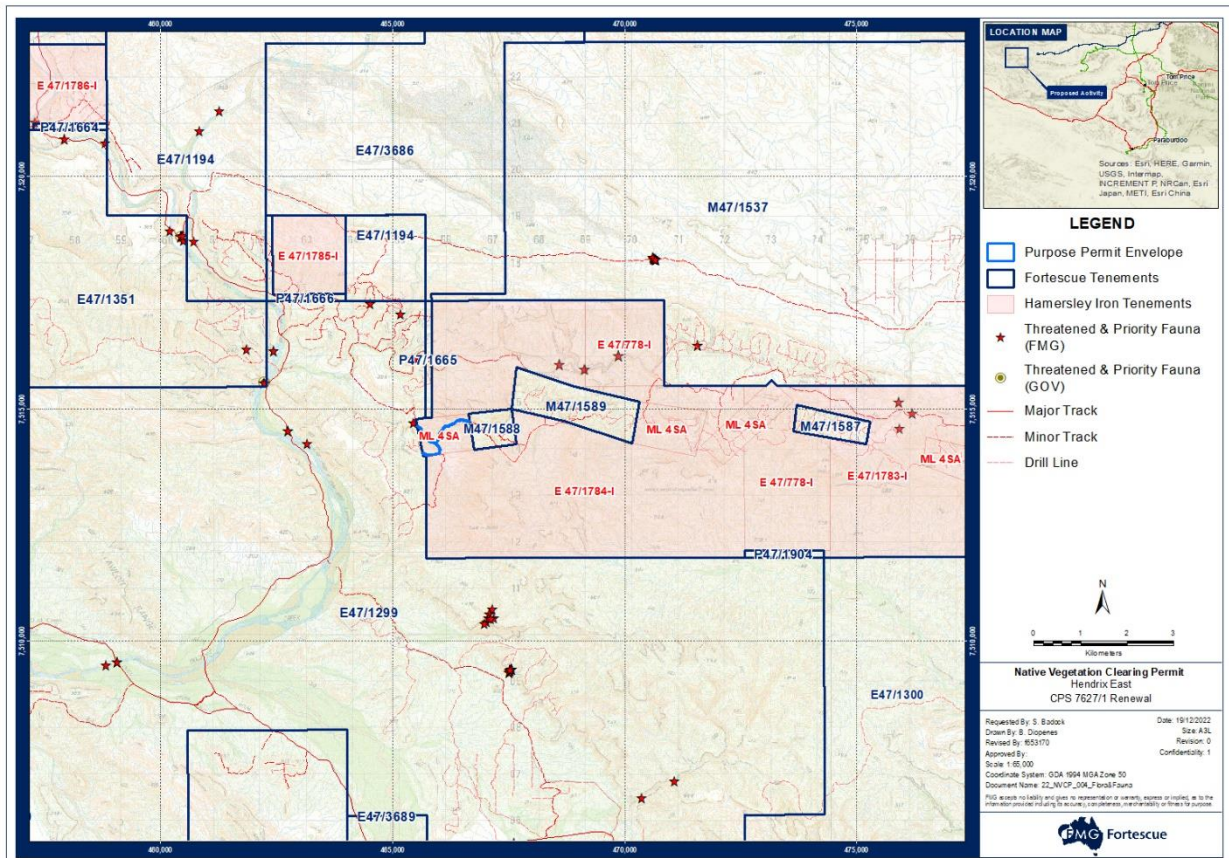


Figure 9 Conservation Significant Fauna Identified within 10km of the PPE

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).

The Duck Creek, a major river runs north to south approximately 3km to the 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 intercept the PPE.

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 renewal of permit CPS 7627/1, will have as minimal an impact on flora and vegetation as practicable.

Fortescue has identified a number of potential risk pathways associated with the Permit 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 7627/1 will allow ongoing use and maintenance of 1.61ha of previously cleared access tracks. The existing disturbance is unlikely to pose significant threat to the vegetation communities within the PPE.

3.1.3 Direct Loss of Flora of Conservation Significance

Of the 16 priority flora species, none have been previously identified within the PPE. Given that access tracks are pre-existing and no new tracks are to be establishes, the renewal of permit CPS 7627/1 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

Increased movement of vehicles, including earth moving machinery, associated with the ongoing use and maintenance of pre-existing tracks, 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).

The 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 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 flora and vegetation.

Table 8 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 • Unauthorised or over clearing resulting in direct loss of conservation significant flora 	<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. • Review the 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

Risk Pathway and Impacts	Management Actions
	<p>protected from disturbance are identified on the ground by appropriate signage, fencing or flagging.</p> <ul style="list-style-type: none"> • 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 renewal of permit CPS 7627/1, will have as minimal an impact on terrestrial fauna as practicable.

Fortescue has identified a number of potential risk pathways associated with the Permit 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 cleared areas, disperse into the surrounding landscape which supports similar habitat and return once rehabilitation is complete. Therefore, it is unlikely the continued use and maintenance of pre-existing tracks 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 7627/1 will allow ongoing use and maintenance of 1.61ha of previously cleared access tracks. The existing 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 disturbance is unlikely to pose significant threat to fauna habitat within the PPE. Management measures will be implemented to avoid any further 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 continued use and maintenance of pre-existing tracks 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 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 conservation significant fauna species and fauna habitat.

Table 9 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 intercept the PPE.

Fortescue has identified a number of potential risk pathways associated with renewal of permit CPS 7627/1 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 existing tracks cross a small number of minor drainage lines. Given the disturbance is pre-existing and occurs on the top of hills in the area, the continued use and maintenance of pre-existing tracks is 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. A small area of bare surface will remain exposed due to the ongoing use and maintenance of pre-existing track. However, 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 10). 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 10 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 11 assesses the proposed renewal of permit CPS 7627/1 against these Principles.

Table 11 Assessment against the 10 Clearing Principles

Principle	Assessment
a. Native vegetation should not be cleared if it comprises a high level of biological diversity.	<p>Not Likely to be at Variance</p> <p>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 or ESAs were identified. The PPE was mapped by the GDE Atlas as having a moderate potential for groundwater dependence. However, 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.</p>
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	<p>Not Likely to be at Variance</p> <p>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.</p>
c. Native vegetation should not be cleared if it includes or is necessary for the continued existence of rare flora.	<p>Not Likely to be at Variance</p> <p>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.</p>
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.	<p>Not at Variance</p> <p>The vegetation within the PPE is not representative of a Threatened Ecological Community.</p>
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.	<p>Not at Variance</p> <p>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.</p>
f. Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	<p>Not Likely to be at Variance</p> <p>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.</p>

Principle	Assessment
<p>g. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.</p>	<p>Not at Variance</p> <p>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.</p>
<p>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.</p>	<p>Not at Variance</p> <p>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.</p>
<p>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.</p>	<p>Not at Variance</p> <p>Appropriate stormwater, vegetation clearing and materials handling management measures will be put in place to minimise the potential impact on water quality.</p>
<p>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.</p>	<p>Not at Variance</p> <p>Given the tracks position in the landscape, changes to surface water flows will be negligible.</p>

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 PPE 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 PPE.
- The area is not an area of remnant vegetation.
- Management measures will reduce the impacts to as low as reasonably practicable.

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Appendix 1: Hamersley Iron 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

5 April 2017

Dear Shontelle,

Request for permission to enter AML 70\4 and E47/1784 ("Tenure") for clearing of new tracks ("Works")

I refer to your email dated 2nd February 2017, requesting permission for FMG Pilbara Pty Ltd. ("**Applicant**") to enter the Tenure to conduct the Works.

I advise that Hamersley Iron Limited ("**Hamersley Iron**") 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) Hamersley Iron 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 Hamersley Iron 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 Hamersley Iron.
- f) At least 5 business days prior to the Applicant requiring access to the Tenure to commence the Works, the Applicant must give to Hamersley Iron 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) Hamersley Iron may, in its absolute discretion, revoke the permission to access the Tenure to conduct the Works if the access compromises or disturbs Hamersley Iron's operations, infrastructure, mining, exercise of its exploration rights or if in Hamersley Iron'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;
- **Hamersley** means Hamersley Iron Pty Limited;
- **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 AML 70/4 and E47/1784; 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 Hamersley granting the Applicant, and its Associates, access to the Tenure to perform the Works, the Applicant shall indemnify and keep indemnified Hamersley 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 Hamersley, 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 Hamersley 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

LOCATION MAP



LEGEND

-  Proposed Access
-  Minor Track
-  Drill Line
-  GOV Tenements - WA



**Proposed Access- AML 70/4 and E471784
Hendrix East**

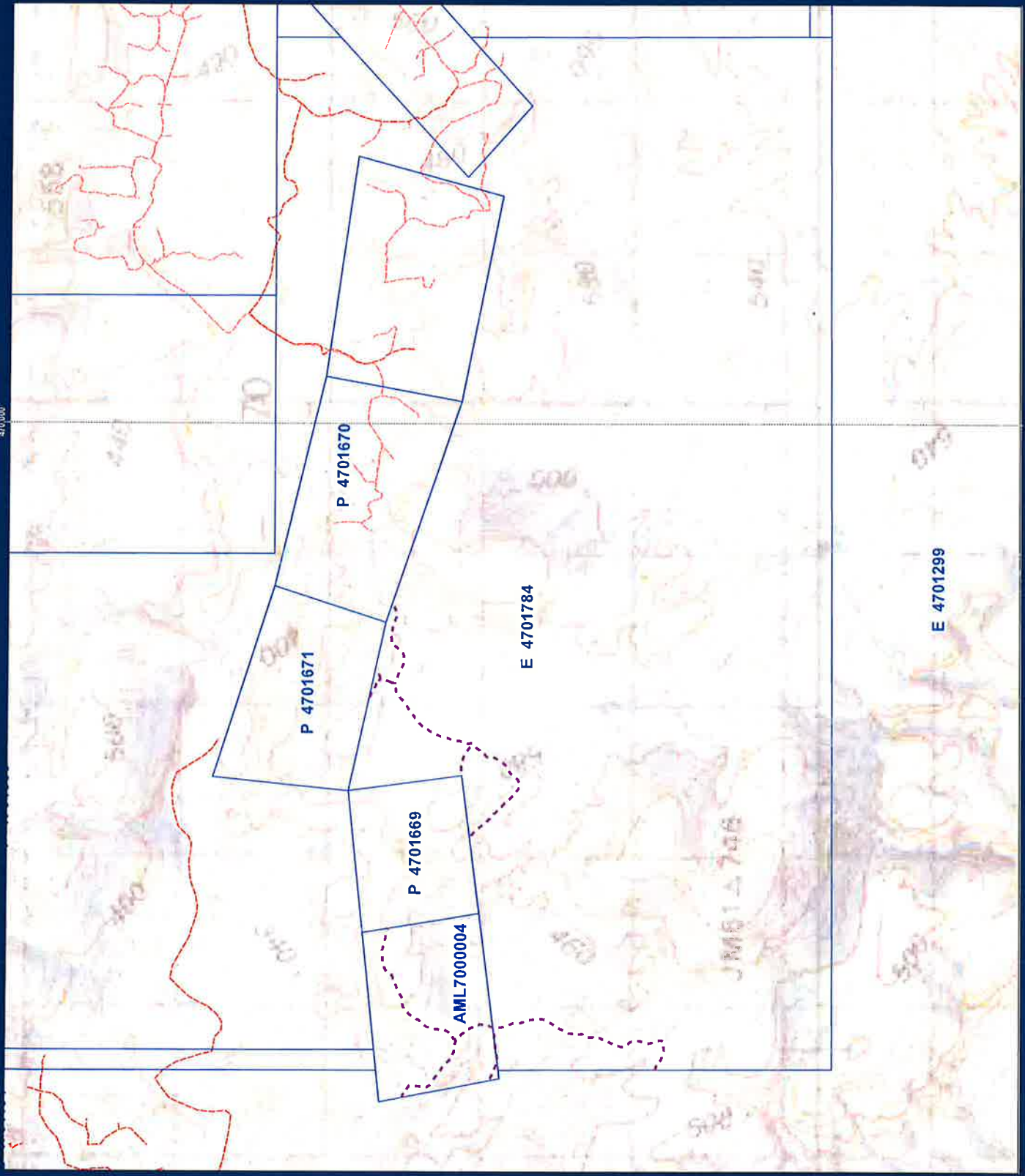
Requested By: K. Beavis
Drawn By: SCurtis
Revised By: scurtis
Approved By:
Scale: 1:25,000
Coordinate System: GDA 1984 MGA Zone 50
Document Name: HI_Access_AML_70_4_E471784

Date: 2022/01/7
Size: A3L
Revision: 0
Confidentiality: 1

FMG accepts no liability and gives no representation or warranty, express or implied, as to the accuracy or appropriateness of the information contained in this document for any purpose.



Fortescue Metals Group Ltd
The New Force in Iron Ore



Appendix 2: Protected Matters Search Tool Results



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 03-Nov-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:	8
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 environment anywhere.

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	14
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
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 likely to occur within area	In feature area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rhinonicteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area	In feature area

REPTILE

Scientific Name	Threatened Category	Presence Text	Buffer Status
Liasis olivaceus barroni Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat likely to occur within area	In feature area
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
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
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
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 likely 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
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area	In feature area

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

Extra Information

EPBC Act Referrals				[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Controlled action					
Eliwana Iron Ore Mine Project, Pilbara region, WA	2017/8024	Controlled Action	Post-Approval	In buffer area only	
Eliwana Railway Project, Pilbara region, WA	2017/8025	Controlled Action	Post-Approval	In buffer area only	
Not controlled action					
Eliwana Iron Ore Mine	2020/8749	Not Controlled Action	Completed	In buffer area only	
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.

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