Fortescue

Plan

Iron Bridge Conservation Significant Fauna Plan

Environment

10 March 2025

IB-0000-PL-EN-0001

Rev: 1

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EXECUTIVE SUMMARY

State legislation		
Proponent name	FMG Iron Bridge (Aust) Pty Ltd	
Proposal name	North Star Magnetite Project North Star Magnetite Project Extension	
Ministerial number	MS 993	
Purpose of EMP	Provide monitoring and management measures for conservation significant terrestrial fauna within, and adjacent to, the North Star Magnetite Project.	
Key environmental factor/s	Terrestrial Fauna - *"To protect terrestrial fauna so that biological diversity and ecological integrity are maintained"*	
Outcomes	**TF-1:** Disturb no more than 132.4 ha Gorges and gullies habitat and 19.1 ha of rocky escarpment habitat considered critical fauna habitat. **TF-2:** Avoid disturbance of and ensure no impacts to the structural integrity of Ghost Bat and Pilbara Leaf-nosed Bat roosts at the South Star Cave Complex.	
Objectives	**TF-3 (1)** Avoid where practicable and otherwise minimise impacts and disturbance to conservation significant fauna including physical injury or mortality, behavioural changes, and health impacts **TF-3 (2)** Minimise the impact of feral fauna species within the development envelope.	
Operation / construction date	The North Star Magnetite Project (MS 993) became operational in 2023. Construction of the North Star Magnetite Project Extension is expected 2026.	
Commonwealth legislation		
Proponent name	FMG Iron Bridge (Aust) Pty Ltd	
ACN	78 150 848 025	
Project name	North Star Magnetite Project	North Star Magnetite Project Extension
Instrument number	EPBC 2012/6689	EPBC 2023/09466 (under assessment)
Proposed action	To develop a magnetite iron ore mine approximately 110 km south of Port Hedland in the Pilbara region, and associated borefield in the Canning Basin, Western Australia.	The proposed action is an extension of the approved proposal North Star Magnetite Project (EPBC 2012/6689). The proposed action consists of an extension of the Mine Development Envelope to develop new mine pits, an extension of the waste rock dump and development of additional ancillary infrastructure. The total disturbance for the proposed action is 606.9 ha.
Location of the action	Iron Bridge Mine, Pilbara, Western Australia	
EMP preparation date	March 2025	
Declaration of accuracy	In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation*	

	Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration. Signature/date: Name: Jarrod Pittson Role: Group Manager Environment and Closure Organisation: Fortescue Ltd

1 INTRODUCTION

1.1 Purpose

The purpose of this *Conservation Significant Fauna Plan* (the Plan) is to provide monitoring and management measures to achieve the outcomes and objectives (Table 4 and Table 5) for conservation significant terrestrial fauna within, and adjacent to, the North Star Magnetite Project.

1.2 Proposal

Fortescue Ltd (Fortescue) is an integrated green technology, energy, and metals company. The mining assets in the Pilbara region of Western Australia comprises of mine, rail, and port operations. An unincorporated joint venture between subsidiary group FMG Iron Bridge (Aust) Pty Ltd and Formosa Steel IB Pty Ltd (Formosa) operates the North Star Magnetite Project (the Project).

The Project is located approximately 110 kilometres southeast of Port Hedland in the Pilbara region of Western Australia. The Project comprises of:

- Approved Proposal under Ministerial Statement 993 (MS 993) of an open cut magnetite iron ore mine and associated infrastructure, including roads, administrative buildings, accommodation camp, aerodrome, borefield, slurry and raw water pipelines and an auxiliary power station. The approved works include clearing of 5,371 hectares of vegetation. Construction for the Project was initiated in August 2019 and operations commenced in May 2023.The mine life is expected to be 50 years.

- Proposed Amendment of MS 993: Referral of the significant amendment for the Project in 2022 included extension of the Mine Development Envelope for additional pits, extension of the waste rock dump and ancillary infrastructure, an additional 606.9 hectares of clearing.

1.3 Legislative context and definitions

Fortescue employees and contractors are obliged to comply with all relevant environmental Commonwealth and State legislation. Environment legislation directly relevant to this Plan is provided in Appendix A.

Definitions of terms and acronyms used throughout this Plan are provided in Appendix B.

1.4 Key environmental factor

This Plan addresses the key environmental factors relevant to the Project, including:

- Environmental Protection Authority's (EPA's) objective for the key environmental factor Terrestrial Fauna "*to protect terrestrial fauna so that biological diversity and ecological integrity are maintained*".

- Matters of National Environmental Significance under the *Environment Protection and Biodiversity Conservation Act* 1999, specifically national threatened species and migratory species, and their critical habitats (refer to Table 2).

1.5 Condition requirements

The Proposed Amendment is currently being assessed through an Environmental Review Document (ERD) under Part IV of the *Environmental Protection Act* 1986 (EP Act). This Plan outlines the Fortescue's monitoring management approach to conservation significant fauna and has been prepared to provide supporting information to this application. Condition requirements have not yet been issued.

1.6 Rationale

This Plan adopts a combination of outcome-based provisions and objective-based (management) provisions. Outcome-based provisions relate to monitoring and applied when sufficient information exists to establish and evaluate specific measurable outcomes. Objective-based provisions relate to the achievement of environmental factors through the implementation of management actions and targets. Objectives-based provisions are applied when there is insufficient information or a level of uncertainty not allowing specific outcomes and measurable criteria.

The outcomes and objectives applicable for the Project and rationale is detailed in Table 1.

Table 1: Rationale for outcomes and objectives

Provision	Rationale
Outcome TF-1: Disturb no more than 132.4 ha Gorges and gullies habitat and 19.1 ha of rocky escarpment habitat considered critical fauna habitat.	Outcome based provision was selected as the amount of disturbance in habitat types is easily measurable and reportable. Spatial distribution of rocky ridge, breakaway and rocky gorge habitat, which has been identified as suitable Northern Quoll denning and foraging habitat, was assessed against proposed and existing project infrastructure layout (Figure 2). The trigger criteria has been set at a conservative level to warn the approach towards the threshold criteria. This allows for actions to be implemented in advance to reduce the risk of exceeding the threshold criteria and compromising the environmental outcome.
Outcome TF-2: Avoid disturbance of and ensure no impacts to the structural integrity of Ghost Bat and Pilbara Leaf-nosed Bat roosts at the South Star Cave Complex.	Outcome based provision was selected as the protection of cave structural integrity are measurable and reportable. The trigger criteria has been set at a conservative level to warn the approach towards the threshold criteria. This allows for actions to be implemented in advance to reduce the risk of exceeding the threshold criteria and compromising the environmental outcome.
TF-3 (1) Avoid where practicable and otherwise minimise impacts and	Objective based provision is considered appropriate to measure physical injury, behavioural changes and health impacts as there are several factors outside of the Projects activities that could impact. For example, Northern

Provision	Rationale
disturbance to conservation significant fauna including physical injury or mortality, behavioural changes, and health impacts	Quoll populations are known to fluctuate naturally according to resource availability (Cook, 2010), which can also be impacted by wildfire (i.e. from lightning strike). Therefore, site climate data, particularly rainfall as an indicator of resource availability, should be interrogated in conjunction with Northern Quoll monitoring results to determine if population decline trends are independent from climatic variables. The targets for the objective are: • Direct impact - No direct death to recorded conservation significant fauna within the project area as a result of the Projects ground disturbance activities (i.e. clearing). • Direct impact - No direct loss to recorded conservation significant fauna habitat within the project area that is not approved for disturbance. • Indirect impact (high density populations) - No greater than a 30% decline averaged over 3 years in the relative abundance of conservation significant species across impact sites compared to reference sites. • Indirect impact (low density populations) - Conservation significant species recorded within the area of impact for the project will continue to have an ongoing presence (failure to record species for three consecutive years to indicate no ongoing presence) The above objective-based targets were recommended based on the outcomes of a peer review of the conservation significant fauna monitoring across all Fortescue sites (Davis, R.A. 2024). The set of criteria in the previous approved *Northern Quoll Management Plan* (662MI-5500-PL-EN-0001) (approved under the approved proposal under MS 993; 11/07/2016, our reference UID-61031) (i.e. 25% decline and 50%decline) has been updated to a single value (30%) inline with objective based targets. Three monitoring events (i.e. three years) has been selected to provide a margin of error given the range of normal population size and demographic fluctuations due to natural seasonal fluctuations.
Objective TF-3(2) Minimise the impact of feral fauna species within the development envelope.	Objective based provision was selected for impact of feral fauna species as (management measures (i.e. feral control programs) are required to minimise the number of feral species potentially impacting conservation significant species. By minimising the abundance of feral fauna, it is assumed that it will also reduce the impact on conservation significant species. The target for the objective are: • Minimise the occurrence of feral cat sightings within the mine development envelope. • Conduct surveillance monitoring around transport vectors within the mine development envelope to minimise the occurrence of other feral species (e.g. cane toads) The above targets have been set as abundance of cat and cane toad sightings can be measured. It would be difficult to fully eradicate feral cats and cane toads, as they are likely to migrate from adjacent areas around the mine development envelope. The target for cane toad sightings and management measures are based around modelling of cane toad invasion suggests that artificial water bodies increase landscape connectivity for cane toads in semi-arid areas, providing dry season refuges and creating 'invasion hubs' from which toads can disperse after rainfall (Tingley et al 2013; Florance et al 2011). Research also indicates that higher Northern Quoll numbers and high-quality habitat may result in learned aversion traits which likely contribute to northern quoll persistence in cane toad affected areas (Ujvari et al 2013).

1.7 Approach

For the purposes of this Plan, conservation significant fauna (refer to definition in Appendix B) has been limited to terrestrial vertebrate fauna species recorded within the Project, that are listed on either the *Environmental Protection Biodiversity Conservation Act* 1999 (EPBC Act) or the *Biodiversity Conservation Act 2016* (BC Act). Table 2 outlines the conservation significant species covered by this Plan, as determined by surveys and monitoring detailed in Section 3.2 and 3.3.

Key assumptions and uncertainties of this Plan include:

- Baseline surveys have accurately recorded the presence of conservation significant species and habitat types within the development envelope.
- Protection of critical habitat will enable persistence of conservation significant fauna within development envelope.
- Influence of wildfire on the population dynamics of target species and feral cats is not fully understood but is considered to be a contributing factor to past declines of Northern Quoll populations.
- Limited studies and research on the sensitivity of conservation significant fauna to increases in dust, noise and vibration.
- Feral predators (i.e. feral cats) will likely migrate from adjacent areas and cannot be fully eradicated.

Table 2: Conservation significant fauna species recorded

Class	Species	Common name	*EPBC Act 1999*	*BC Act 2016*	Mine	Infrastructure corridor[1]	Slurry corridor[1]	Water corridor[1]
Mammalia	*Dasyurus hallucatus*	Northern Quoll	EN	EN	Critical and supporting habitat Population approximately 20 individuals[2]		Supporting habitat	Critical and supporting habitat
	Rhinonicteris aurantia (Pilbara form)	Pilbara Leaf-nosed Bat	VU	VU	Critical habitat (Roost) and supporting habitat	Supporting habitat	Supporting habitat	Supporting habitat
	Macroderma gigas	Ghost Bat	VU	VU	Critical habitat (Roost) and supporting habitat	Supporting habitat	Supporting habitat	Supporting habitat
	Macrotis lagotis	Greater Bilby	VU	VU		Critical and supporting habitat	Critical and supporting habitat	
Reptilia	*Liasis olivaceus barroni*	Pilbara Olive Python	VU	VU	Critical and supporting habitat			Critical and supporting habitat
Aves	*Falco peregrinus*	Peregrine Falcon		OS	Supporting habitat			
	Falco hypoleucos	Grey Falcon	VU	VU	Supporting habitat		Supporting habitat	
	Apus pacificus	Fork-tailed Swift	M	MI	* [3]		* [3]	

[1] Potential impacts were limited to the construction phase of the infrastructure, water and slurry corridors. Infrastructure, water and slurry corridor during operations are unlikely to have potential impact therefore monitoring is not recommended.
[2] Northern Quoll census data, including abundance, distribution and behaviour from survey data prior to the development of the Project and during the first two years of construction and operation are provided in Appendix D
[3] Recorded. Due to their nomadic and entirely aerial ecology in the Pilbara regions, Fork-tailed Swift are not associated with any terrestrial habitats

2 PLAN COMPONENTS

A series of outcomes and objectives have been developed to mitigate environmental impacts on conservation significant fauna that could potentially be caused by Fortescue's activities (exploration, construction, operation and decommissioning).

Outcome-based provisions are detailed in Table 4. Objective-based provisions are detailed in Table 5, with key elements within the objectives-based table described in Table 3.

Table 3: Descriptions of key elements of environmental management process to achieve identified objectives

Element	Definition/ description
Management Action	Tasks undertaken to enable the objective to be met
Evidence	Demonstrates that the Management Action has been applied and the outcome evaluated.
Timing	Period during which the Management Action should be undertaken.
Responsibility	Accountability for ensuring management action is completed. The responsible role is dependent on project timing. Refer to Appendix C.

Table 4: Environmental outcomes provision table

EPA Factor and objective: Terrestrial Fauna - *"To protect terrestrial fauna so that biological diversity and ecological integrity are maintained"*
Proposal: North Star Magnetite Project (Assessment number APP-0012119), North Star Magnetite Project (EPBC 2012/6689) and North Star Magnetite Project Extension (EPBC 2023/09466) (under assessment)
Outcomes:

- **TF-1:** Disturb no more than 132.4 ha Gorges and gullies habitat and 19.1 ha of rocky escarpment habitat considered critical fauna habitat.
- **TF-2:** Avoid disturbance of and ensure no impacts to the structural integrity of Ghost Bat and Pilbara Leaf-nosed Bat roosts at the South Star Cave Complex.

Key Environmental Values: Conservation significant fauna and their critical habitats; Conservation significant flora and vegetation; Groundwater and groundwater dependent systems; Surface water and surface water dependent systems
Key Impacts and Risks:

- Direct: Habitat clearing due to vegetation clearing; restriction or removal of access to breeding habitat, foraging habitat or water sources; Alterations to hydrology.
- Indirect: Altered fire regimes, increase in feral animal populations, vehicle interactions; dust, light and noise.

Environmental criteria	Response actions	Monitoring	Reporting
Outcome TF-1: Disturb no more than 132.4 ha Gorges and gullies habitat and 19.1 ha of rocky escarpment habitat considered critical fauna habitat.			
Trigger criteria • More than 120 ha disturbance of gorges and gullies habitat within the mine development envelope • More than 17 ha disturbance of rocky escarpment habitat within the mine development envelope **Threshold criteria** • More than 132.4 ha disturbance of gorges and gullies habitat within the mine development envelope • More than 19.1 ha disturbance of rocky escarpment habitat within the mine development envelope	**Trigger criteria** Review future proposed clearing areas to ensure threshold criteria is not exceeded. Review existing LUCs in system and do not approve any future LUCs to ensure threshold criteria is not exceeded. **Threshold criteria** Ground truth the direct clearing to validate extent of clearing and cause. **Once the direct clearing has been validated:** • Where the direct clearing was caused by construction, operation, or decommissioning activities: o Review the LUC process and implement any further measures including changes to the process to reduce the potential for clearing outside approved areas. o Implement actions to remediate/rehabilitate the clearing where possible. • Where the direct clearing was not caused by construction, operation, or decommissioning activities: o No further action required.	Reconciliation of disturbance data with the respective year's aerial imagery. **Timing:** March **Frequency:** Annually	**Annual reporting** Annual Compliance Assessment Reports (CAR) are required to be submitted in accordance with Condition 4-6 of MS 993 and EPA's *Post Assessment Guideline for Preparing a Compliance Assessment Report* (CAR), Post Assessment Guideline No. 2. In the event that a trigger or threshold criteria was exceeded during the reporting period, the CAR will include a description of the effectiveness of the contingency actions implemented to manage the impact and any adaptive management measures applied as a result of the exceedance. **Potential non-compliance reporting** When an exceedance of a Threshold criteria has occurred, Fortescue will, in accordance with Condition 4-5 of MS 993: • Report the potential non-compliance to the DWER within 7 days of the exceedance being identified.
Outcome TF-2: Avoid disturbance of and ensure no impacts to the structural integrity of Ghost Bat and Pilbara Leaf-nosed Bat roosts at the South Star Cave Complex			
Trigger criteria Direct disturbance within 50m of the Mundagoora Environmental Exclusion Zone boundary. **Threshold criteria** Direct disturbance within Mundagoora Environmental Exclusion Zone other than what existing/approved.	**Trigger criteria** Ground truth the direct clearing to validate extent of clearing and cause. Review future proposed clearing areas to ensure threshold criteria is not exceeded. **Threshold criteria** Ground truth the direct clearing to validate extent of clearing and cause. **Once the direct clearing has been validated:** • Where the direct clearing was caused by construction, operation, or decommissioning activities: o Review the LUC process and implement any further measures including changes to the process to reduce the potential for clearing outside approved areas. o Implement actions to remediate/rehabilitate the clearing where possible. • Where the direct clearing was not caused by construction, operation, or decommissioning activities: o No further action required	Reconciliation of disturbance data with the respective year's aerial imagery. **Timing:** March **Frequency:** Annually	**Annual reporting** Annual Compliance Assessment Reports (CAR) are required to be submitted in accordance with Condition 4-6 of MS 993 and EPA's *Post Assessment Guideline for Preparing a Compliance Assessment Report* (CAR), Post Assessment Guideline No. 2. In the event that a trigger or threshold criteria was exceeded during the reporting period, the CAR will include a description of the effectiveness of the contingency actions implemented to manage the impact and any adaptive management measures applied as a result of the exceedance. **Potential non-compliance reporting** When an exceedance of a Threshold criteria has occurred, Fortescue will, in accordance with Condition 4-5 of MS 993:

Environmental criteria	Response actions	Monitoring	Reporting
<u>Trigger criteria</u> Blast exceeding the following parameters at the cave entrance of permanent diurnal roost: • Vibration level of 10 mm/s • Airblast level of 125 dBL **<u>Threshold criteria</u>** Blast exceeding the following parameters at the cave entrance of permanent diurnal roost: • Vibration level of 25 mm/s • Airblast level of 150 dBL	**<u>Trigger criteria</u>** • Validate results of exceedance and review predicted against recorded blast vibration/airblast data. • Review why there was a discrepancy between predicted and recorded blast vibration/airblast data. • Ground truth the results to validate if there has been any rockfall or structural damage within the cave and if findings of the assessment are correct. Where the cause is identified during ground truthing and can be rectified, undertake immediate action. For actions which require alternative resources, schedule works to be undertaken as soon as possible. **Once the results of exceedance has been validated:** If caused by construction, operation, or decommissioning activities: • Undertake further communication and training to raise awareness with staff of the impact and the management measures to reduce the potential impact on the species. • Undertake monitoring to inform if there has been an impact on the species as a result of the exceedance. If not caused by construction, operation, or decommissioning activities: • No further action required. **<u>Threshold criteria</u>** Validate results of exceedance and review predicted against recorded blast vibration/airblast data. • Ground truth the results to validate if there has been any rockfall or structural damage within the cave and if findings of the assessment are correct. **Once the results of exceedance has been validated:** If caused by construction, operation, or decommissioning activities: • Undertake further communication and training to raise awareness with staff of the impact and the management measures to reduce the potential impact on the species. • Cease blasting and review blasting parameters prior to any blasting commencing. • Undertake geotechnical inspections (in person or drone) to reassess the structural integrity of the cave and determine any structural changes. • Inspect the cave for any signs of significant deterioration that would impact Ghost Bat and/or Pilbara Leaf-nosed Bat persistence. • Undertake monitoring to inform if there has been an impact on the species as a result of the exceedance. If not caused by construction, operation, or decommissioning activities: • No further action required.	Blast records **Timing:** After blast event **Frequency**: Following every blast event	Report the potential non-compliance to the DWER within 7 days of the exceedance being identified.

Table 5: Environmental objectives provision table

EPA Factor and objective: Terrestrial Fauna - *"To protect terrestrial fauna so that biological diversity and ecological integrity are maintained"*

Proposal:

- North Star Magnetite Project (Assessment number APP-0012119), North Star Magnetite Project (EPBC 2012/6689) and North Star Magnetite Project Extension (EPBC 2023/09466) (under assessment)

Objectives:

- **TF-3** Avoid where practicable and otherwise minimise impacts and disturbance to conservation significant fauna including physical injury or mortality, behavioural changes, and health impacts.
- **TF-4** Minimise the impact of feral fauna species within the development envelope.

Key Environmental Values: Conservation significant fauna and their critical habitats; Conservation significant flora and vegetation; Groundwater and groundwater dependent systems; Surface water and surface water dependent systems

Key Impacts and Risks:

- Direct: Habitat clearing due to vegetation clearing; restriction or removal of access to breeding habitat, foraging habitat or water sources; Alterations to hydrology.
- Indirect: Altered fire regimes, increase in feral animal populations, vehicle interactions; dust, light and noise.

Management targets	Applicability		Management actions	Evidence	Timing	Responsibility	Monitoring	Reporting
	Mine	Corridor[4]						
Objective TF-3 Avoid where practicable and otherwise minimise impacts and disturbance to conservation significant fauna including physical injury or mortality, behavioural changes, and health impacts								
Direct Impact No direct death to recorded conservation significant fauna within the project area as a result of the Projects ground disturbance activities (i.e. clearing). No direct loss to recorded conservation significant fauna habitat within the project area that is not approved for disturbance. **Indirect Impact** High density populations - No greater than a 30% decline averaged over 3 years in the relative abundance of conservation significant species across impact sites compared to reference sites Low density populations - Conservation significant species recorded within the area of impact for the project will continue to have an ongoing presence (failure to record species for three consecutive years to	Y	Y	During planning for disturbance, where possible: • Position activities and infrastructure away from critical habitat areas. • Minimise clearing of critical habitat areas. • Retain habitat corridors and linkages between areas of impact.	Location of infrastructure positioned away from critical habitat and clearing minimised.	Prior to relevant approval submission[5]	Manager Environmental Primary Approvals	**Monitoring** All: • Meteorological data • Environmental threats Northern Quoll: • Population • Behaviour Conservation significant bats: • Presence • Habitat characteristics Conservation significant birds • Area of occupancy / number of birds • Habitat characteristics Refer to: Table 7 **Statistical analysis methods:** Section 3.7	**Annual reporting** Annual Compliance Assessment Reports (CAR) are required to be submitted in accordance with Condition 4-6 of MS 993 and EPA's *Post Assessment Guideline for Preparing a Compliance Assessment Report* (CAR), Post Assessment Guideline No. 2. As part of the CAR a Northern Quoll monitoring report will be submitted. In the event that a management target was not met during the reporting period, the CAR will include a description of the effectiveness of the contingency actions implemented to manage the impact and any adaptive management measures applied as a result of the target not being met. **Conservation significant fauna monitoring report** The monitoring report will contain all reporting requirements as stated
	Y	Y	Prior to conducting ground disturbance activities, ensure known locations of conservation significant fauna and their associated critical habitat and buffers are identified and management measures implemented to minimise impacts to those areas.	LUCs: • Disturbance is undertaken with a LUC. • Conservation significant fauna and habitat and associated buffers are identified. • Relevant management measures are identified in the LUC, including measures for groundwater, surface water, weeds, noise and vibration, dust and artificial light. Monitoring reports: • Conservation significant fauna monitoring program implemented and impacts from risks minimised.	Prior to LUC approval.	Project Manager / Manager Environment Operations		
	Y		Where individual animals are encountered and at risk of impact, implement mitigation measures, including the relocation of fauna, prior to disturbance. See *Fauna Handling, Relocation and Rehabilitation Procedure* (45-PR-EN-0026).	BMS record • Relocated fauna recorded with location data.	Prior to LUC approval.	Project Manager / Manager Environment Operations		
	Y	Y	Ensure staff and contractors are provided with appropriate training and communication to ensure conservation significant fauna and associated critical habitat are protected. Training / communication includes information on activities and impacts (e.g., feral animals, vehicle strike, lighting) and required controls (e.g. driving procedures, no	Inductions - includes details on conservation significant fauna. Site communication materials delivered to targeted work groups.	Prior to new employee commencement Annually during operations	Project Manager / Manager Environment Operations		

[4] Infrastructure, Slurry or Water corridor

[5] Relevant approval submission may include an approval issued under the *Environmental Protection Act 1986*, *Environment Protection and Biodiversity Conservation Act 1999*, the *Mining Act 1978, the Rights in Water and Irrigation Act 1914* or the *Bush Fires Act 1954*.

Management targets	Applicability		Management actions	Evidence	Timing	Responsibility	Monitoring	Reporting
	Mine	Corridor[4]						
indicate no ongoing presence)			domestic pets allowed, no feeding of native or feral species, fire event procedures, weed procedures).					within EAG 17 (EPA, 2015), and will include: • Reporting of monitoring trends against performance indicators. • Reporting any exceedance of performance indicators. • Reporting on review and revision of management actions and Project activities which have been implemented when required. Data to be presented within monitoring reporting will include number of trap captures, density estimates and morphological data on captured individuals. Suitable data analysis will be completed allowing for an assessment against the target. Collation of previous records will be presented within each monitoring report. **Potential non-compliance reporting** When a management target has not been met, Fortescue will, in accordance with Condition 4-5 of MS 993: • Report the potential non-compliance to the DWER within 7 days of the exceedance being identified.
	Y		Fauna management measures, including exclusion or exit/egress structures, to minimise potential impacts to conservation significant fauna, are in place for mining infrastructure that poses a fauna entrapment and drowning risk (including storage ponds, operational mine void water and tailings storage areas, egress where linear infrastructure restricts fauna movement); and when conducting excavation or trenching activities.	BMS record: • No mortality of conservation significant fauna: o Due to entrapment and drowning in mining infrastructure. o As a result of excavation or trenching activities.	Prior to relevant approval submission Prior to LUC approval	Project Manager / Manager Mine Services or Manager Technical Services/ Manager Environment Operations		
	Y	Y	To minimise the potential for fauna injuries or deaths, implement appropriate traffic mitigation measures. Mitigation measures may include: • Installation of fauna related signage in areas of conservation significant fauna habitat • Speed limit restrictions • Avoidance of off-road driving. • Seasonal aspects should be considered (e.g., reduce speed limits adjacent to critical fauna habitat during breeding seasons).	Inspection records: • Appropriate signage and speed limits in areas identified as high-risk areas (e.g., locations where conservation significant fauna habitat intersects with tracks/roads). BMS record: • Vehicle strike incident reports	Prior to LUC approval	Project Manager/ Manager Environment Operations		
	Y	Y	Prior to conducting ground disturbance activities, ensure known locations of weed populations are identified and management measures to minimise the potential for weed spread are included in the LUC. Management measures include where required: • Implementation of weed hygiene requirements for plant and equipment in weed risk areas and/or in areas where weed populations have been identified and high-risk activities are proposed. • Cleared material with identified weeds to be cleared separately and buried to ensure no re-emergence of weed species occur.	LUCs: • Disturbance is undertaken with a LUC. • Conservation significant fauna habitats and associated buffers are identified. • Weed populations and management measures are identified in the LUC, Monitoring Reports: • Conservation Significant Fauna and Weed Monitoring programs implemented and impacts to degradation of fauna habitat from risks minimised.	Prior to LUC approval	Project Manager/ Manager Environment Operations		
	Y		Direct lighting onto active construction and operational areas to minimise the potential for light overspill resulting in fauna disturbance, injuries, or deaths. Lighting must not be directed at confirmed conservation significant bat diurnal roost sites.	BMS records: • No lighting directed at confirmed conservation significant bat diurnal roost sites.	During night activities	Project Manager/ Manager Mining		
	Y		To minimise the potential for dust deposition on vegetation within conservation significant fauna habitat, determine whether dust suppression measures are required to be included in the LUC for areas identified as high-risk.	LUCs: • Disturbance is undertaken with a LUC. • Conservation significant fauna habitat and associated buffers are identified.	Prior to LUC approval	Project Manager / Manager Mining / Manager Environment Operations		

Management targets	Applicability		Management actions	Evidence	Timing	Responsibility	Monitoring	Reporting
	Mine	Corridor[4]						
				• Conditions added against the LUC include dust management measures.				
	Y		To minimise the impact on conservation significant fauna and habitat when constructing a fire break or carrying out a prescribed burn, determine controls to be included in the LUC for areas identified as high-risk.	LUCs: • Disturbance is undertaken with a LUC. • Conservation significant fauna habitat and associated buffers are identified. • Conditions added against the LUC. • Fire breaks and prescribed burns are undertaken in accordance with the relevant requirements of Firebreak Notice and/or Permit to Burn and Burn Prescription.	Prior to LUC approval	Project Manager/ Manager Environment Operations Health and Safety Manager/ Mining Manager		
	Y		"Confined" blasting techniques (where inert material such as crushed stone is used to seal off or 'stem' the blast holes and contain the energy released by the detonation of the explosives in the blast hole inside the rock) will be used in preference to unconfined methods.	Blast records	Prior to blasts	Manager Mining		
	Y	Y	Where a conservation significant fauna injury or death or potential impact to conservation significant fauna habitat has occurred as a result of the Project, internally report, investigate the incident and notify the Regulator where required. Update management actions, where required, to inform an adaptive management approach.	BMS record: • Incident reported and investigated. • Plant and Animal Register includes details of the record. • Fauna report[6] form sent where required.	**Internal Reporting** Within 24 hours of the Incident occurring	Project Manager / Manager Environment Operations		
	Y	Y	Ensure drainage infrastructure location and design aligns with the risk assessment outcomes where possible to minimise interference and disruption of natural surface water flows that support conservation significant fauna habitat.	Audit and inspection reports show location and design of drainage infrastructure aligns with risk assessment outcomes where possible.	Prior to relevant approval submission[7]	Project Manager / Manager Environmental Approvals/ Manager Environment Operations		
	Y		Ensure access (particularly tracks for light vehicles) to conservation significant fauna monitoring sites is maintained	Maintenance records: Maintenance of track is undertaken as required.	At all times	Manager Mining		
	Y		All surface holes drilled for the purpose of resource definition are to be plugged immediately after drilling and sampling to prevent fauna entering the hole.	Inspection reports: Drill holes plugged immediately after drilling and sampling.	After drilling and sampling, in accordance with the relevant Tenement Condition(s)	Manager Mining		
	Y	Y	Conduct rehabilitation of disturbed areas particularly those no longer required for operations.	GIS dataset updated with rehabilitation data. Rehabilitation is managed in accordance with plans approved under the *Mining Act 1978*.	In accordance with the Closure Plan	Manager Exploration/ Manager Mining		

[6] Fauna report form available through DBCA's website https://www.dbca.wa.gov.au/management/threatened-species-and-communities/threatened-and-priority-fauna-resources

[7] Relevant approval submission may include an approval issued under the *Environmental Protection Act 1986*, *Environment Protection and Biodiversity Conservation Act 1999*, the *Mining Act 1978, the Rights in Water and Irrigation Act 1914* or the *Bush Fires Act 1954*.

Management targets	Applicability		Management actions	Evidence	Timing	Responsibility	Monitoring	Reporting
	Mine	Corridor[4]						
	Y		When monitoring results indicate a potential impact on conservation significant fauna, implement contingency actions (Table 8). Update the Plan where required, to inform an adaptive management approach to fauna management across the business.	Reporting records outline Contingency actions implemented and reporting requirements met. Plan updated as required	When required in response to monitoring outcomes.	**Corrective Actions:** Project Manager / Manager Environment Operations **Plan Update**: Manager Environment Governance		
Objective TF-4 Minimise the impact of feral fauna species within the development envelope.								
Minimise the occurrence of feral cat sightings within the mine development envelope. Conduct surveillance monitoring around transport vectors within the mine development envelope to minimise the occurrence of other feral species (e.g. cane toads)	Y		Develop and implement a Feral Animal Control Program, in accordance with the *Feral Cat Trapping Procedure* (45-PR-EN-0042), to effectively manage and control feral animals within the Project to minimise impacts on conservation significant fauna.	BMS record: • All opportunistic feral animal sightings are registered in BMS. • No significant increase in feral animal records from sightings and road transect counts.	Annually during operations	Project Manager / Manager Environment Operations	**Monitoring** • Abundance of feral cats • Area of occupancy • Abundance of cane toads	**Annual reporting** Annual Compliance Assessment Reports (CAR) are required to be submitted in accordance with Condition 4-6 of MS 993 and EPA's *Post Assessment Guideline for Preparing a Compliance Assessment Report* (CAR), Post Assessment Guideline No. 2. In the event that a management target was not met during the reporting period, the CAR will include a description of the effectiveness of the contingency actions implemented to manage the impact and any adaptive management measures applied as a result of the target not being met. **Potential non-compliance reporting** When a management target has not been met, Fortescue will, in accordance with Condition 4-5 of MS 993: • Report the potential non-compliance to the DWER within 7 days of the exceedance being identified.
	Y		Putrescible waste will be managed appropriately to prevent potential access by feral animals (i.e. bins with secure lids, fences installed around waste facilities).	BMS record: • All opportunistic feral animal sightings are registered in BMS. • No significant increase in feral animal records from sightings and road transect counts.	At all times	Manager Non-process infrastructure		
	Y		Close and rehabilitate any artificial water bodies created during mining activities that are no longer required for operations.	GIS dataset updated with rehabilitation data. Rehabilitation is managed in accordance with plans approved under the *Mining Act 1978*.	In accordance with the Closure Plan	Manager Exploration/ Manager Mining		
	Y		When monitoring results indicate a potential impact on conservation significant fauna, implement contingency actions (Table 8). Update the Plan where required, to inform an adaptive management approach to fauna management across the business.	Reporting records outline Contingency actions implemented and reporting requirements met. Plan updated as required	When required in response to monitoring outcomes.	**Corrective Actions:** Project Manager / Manager Environment Operations **Plan Update**: Manager Environment Governance		

2.1 Environmental impacts

Potential direct and indirect impacts to conservation significant fauna and habitats includes:

- Loss of habitat (e.g. restriction or removal of access to breeding or foraging habitat or access to water) due to vegetation clearing, introduction/spread of weeds and/or altered fire regimes.
- Habitat fragmentation due to clearing and linear infrastructure (e.g. roads)
- Alterations to hydrology (e.g. surface water flow from infrastructure design) increasing inundation on vegetation and habitat suitability.
- Fauna deaths from mining activities (e.g. vehicle interactions, entrapment in mining infrastructure or unplugged drill holes).
- Increasing feral animal populations due to accommodation/camp facilities and putrescible waste disposal.
- Fauna behaviour impacts from construction and operations activities (i.e. light, noise, vibration, dust)

2.2 Environmental risk

2.2.1 Risk reviews

Fortescue actively manages risk by undertaking a risk assessment prior to relevant approval submissions to identify high risk areas where conservation significant fauna have been identified and potential impacts are likely. Annual Environmental Risk Reviews are undertaken during construction and operations phase where all environmental risks are considered with a focus on high-risk impacts. The review considers the effectiveness of management actions that are currently in place for these impacts. The review also considers any relevant incidents that have occurred, if the actions from incident investigations have translated into new management actions, and generally considers the need for any new management actions to ensure lower risk targets can be achieved.

2.2.2 Compliance

Fortescue ensures compliance with its legal obligations through first party quality assurance by site and corporate environment teams with a focus on effective environmental management through the implementation of the Fortescue wide Environmental Management System.

Fortescue has adopted a risk-based approach to monitor compliance with its legal obligations. Site environment teams will monitor their compliance with this Plan.

Where non-conformances occur, the incident will be reported in accordance with the *Incident Event Management Procedure* (45-PR-SA-0080) and implement reporting requirements and contingency actions defined in Table 4, Table 5, and Table 8 .

Non-conformance issues and/or opportunities for improvement identified will be documented and tracked via Fortescue's business management system.

3 MONITORING GUIDELINES

A conservation significant fauna monitoring program is required to measure the effectiveness of the broad management actions outlined in this Plan. The outcomes of the monitoring program will contribute to ongoing improvements in management actions to ensure an adaptive management approach is adopted.

3.1 Objectives

The overall objective of Fortescue's monitoring program is to monitor and measure the success of management actions to minimise impacts on conservation significant fauna species. The guiding objectives of the conservation significant fauna monitoring program include:

- Measure impacts of Fortescue's activities on conservation significant fauna within the Project.
- Monitor and measure spatial and temporal changes in the abundance and distribution of conservation significant fauna within the Project.
- Monitor and measure the success of management measures to inform an adaptive management approach.
- Conduct an independent expert review of monitoring data every three years to inform monitoring frequency and ongoing monitoring requirements.

Operational monitoring will be informed by the findings of the monitoring itself as they become available. These findings may similarly lead to ongoing refinements to this Plan and its management strategies to ensure an adaptive management approach is undertaken during Fortescue activities.

3.2 Baseline surveys

Baseline surveys were completed for the Iron Bridge project as part of the *North Star Magnetite Project Public Environmental Review (*Assessment number 1946; Report 1514) and for the referral of the *North Star Magnetite Project Extension* (APP-0012119), in accordance with relevant Commonwealth and State survey guidelines (refer to Section 7), and included:

- *Fauna Habitats and Fauna Assemblage of the Proposed FMG Stage A rail corridor* (Biota, 2004).
- *North Star Project Targeted Conservation Significant Fauna Survey* (Ecologia Environment, 2011)
- *North Star Project Level 2 Terrestrial Vertebrate Fauna Assessment* (Ecologia Environment, 2012).

- *North Star Access Corridor Flora, Vegetation, Vertebrate Fauna and Fauna Habitat Assessment* (Ecologia Environment, 2012)
- *Canning Basin Pipeline and Drawdown Area Vertebrate and Short Range Endemic Invertebrate Survey* (Ecologia Environment, 2012).
- *Pilbara Leaf-nosed Bat colony survey* (Bat Call, 2013).
- *Additional Rail Infrastructure Project Conservation Significant Fauna Monitoring Program* (Ecologia Environment, 2014)
- *North Star Pilbara Leaf-nosed Bat colony activity monitoring* (Bat Call, 2015)
- *North Star Haematite Project, EPBC Listed Threatened Fauna Monitoring* (Ecologia Environment, 2015)
- *North Star Aerodrome Flora Level 2 and Fauna Level 1 Assessment* (Ecologia Environment, 2015)
- *Pilbara Leaf-nosed Bat Roost Habitat Survey* (GHD, 2015)
- *North Star Cave 13 Lateral Extent and Structural Assessment* (GHD, 2015)
- *Cave 13 Pilbara Leaf-nosed Bat Survey* (GHD, 2016)
- *North Star Conservation Significant Fauna Monitoring Report* (Ecoscape, 2016)
- *Pilbara Leaf-nosed Bat Radio Tracking Survey - Survey Results Report* (GHD, 2017)
- *Operations, Nullagine and North Star Fauna Monitoring Report* (Spectrum Ecology, 2019)
- *Glacier Valley and South Star Fauna Surveys* (GHD, 2020)
- *Pilbara Leaf-nosed Bat radio tracking survey 2019-2020 Survey Report* (GHD, 2020)
- *Glacier Valley Terrestrial Vertebrate Fauna Assessment* (Spectrum Ecology, 2023)
- *North Star Magnetite Project Extension Targeted Bilby Survey (Spectrum Ecology, 2024)*

3.3 Baseline monitoring

Baseline survey data was used to support the development of monitoring programs for the project area. The first round of baseline monitoring within the mine area was completed in 2014 (NS-RP-EN-0022; Ecologia Environment, 2014). For operations, monitoring along the Canning Basin and slurry pipelines is not proposed, as there are minimal impacts expected to conservation significant fauna.

3.4 Monitoring site selection

Where populations of conservation significant fauna (vertebrate fauna species listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999*) have been recorded in the Project and critical habitat has been identified monitoring sites will be established.

Monitoring site locations were determined based on consideration of the following requirements:

- Locations where species have been previously recorded (through direct or indirect methods).
- In suitable habitat and denning/shelter zones outside of direct impact areas (control sites).
- In suitable locations within impact areas (impact sites) to allow for replication of results.
- Critical habitat types for the conservation significant species will be represented in the monitoring program, with at least one monitoring sites per representative habitat type where possible.
- Northern Quoll monitoring sites were selected by utilise monitoring sites established during Stage 1 of the Project and aligning with DPaWs Regional Pilbara Northern Quoll monitoring project. Control sites from the DPaW program have been utilised to allow for independent assessment of population trends at the Project area in comparison to regional control sites. Should DPAW monitoring sites no longer be available, or are deemed unsuitable as part of management review, then site specific control sites should be re-established, with careful consideration given to the proximity of the control sites to the Project and nearby Projects such as the Abydos Iron Ore Mine.
- Conservation significant bat monitoring sites are located in known bat foraging and critical habitat within the Project site and offsite for reference sites.
- Pilbara Olive Python monitoring sites are positioned in Pilbara Olive Python foraging and critical habitat (i.e., shelter habitat) within the Project site and offsite for reference sites.
- Conservation significant bird monitoring sites are positioned in suitable habitat within the Project site and offsite for reference sites.

The number and approach to the selection of monitoring sites varies dependent upon the species being monitored.

To allow for comparisons of change over time moving monitoring sites should be avoided; however, on occasion, changes to operational plans (i.e., mine plan changes), land access (i.e., relinquishment of tenure / heritage constraints) or safety requirements (i.e., accessing

areas), may require a change to monitoring locations. Any changes, and impacts of these, will be detailed in the annual monitoring report, and captured in the next revision of the management plan.

3.5 Program summary

An effective long-term conservation significant fauna monitoring program may be adaptive. Innovations in monitoring techniques and methods will be considered and where appropriate incorporated into the program design over time. This would, however, be dependent on, and driven by, the quality and quantity of data collected from each site, coupled with a periodic review of monitoring methods. Further, program design is based on replicable sampling at impact and reference sites.

The intention of the program is the repeat sampling at the same impact sites throughout the monitoring program. However, if access is prevented due to developments of the mine, changes to land access agreements or similar, sites will be relocated to the nearest suitable location. Any changes will be documented in annual monitoring reports.

The timing of monitoring programs for each species is variable and based on the period of highest activity for each of the species whilst avoiding undue stress to breeding individuals, during the reproductive season.

The program will be undertaken annually, or at a frequency recommended by subject matter experts. The program will be led by appropriately skilled, Pilbara experienced, ecologists who will conduct in-field monitoring, analyse monitoring results and write monitoring reports.

Table 6 provides the monitoring parameters to be monitored for each conservation significant fauna species recorded within the Project.

Table 6: Summary of conservation significant fauna monitoring

Fauna species	Site location	Monitoring parameters	Method	Monitoring effort	Timing / frequency	Monitoring sites
Northern Quoll (*Dasyurus hallucatus*)	Mine	Population	Cage Trapping and/or Motion Cameras	Minimum effort: • Wire cage traps covered with hessian or similar (e.g. small cage traps: 45 cm x 17 cm x 17 cm). Locations are fixed and GPS marked. • 30 traps each spaced at least 50m apart • 4 consecutive nights at each site. Traps checked and closed in accordance with relevant permits and ethics approvals requirements. Alternative effort (or suitable equivalent)[8]: • Motion cameras: 5 downward facing (or equivalent to allow Spot recognition) cameras per sampling site. Spaced 200 m apart. • 4 consecutive nights.	**Timing** April to September **Frequency** Annual	**Figure 3**
			Active searches for scats and other signs	10 hours per site • A sample of scats is collected where possible for dietary analysis (stored in a paper envelope, lodged with DPaW if required).		
			Biodiversity camera grids (e.g. motion sensors)	Motion camera grid (grid cells 2 km^2) Set up in areas where quolls and feral predators are most likely to interact) and locations preferential for predators (e.g. roads, access tracks, culverts).		
		Behaviour	Radio tracking	4-6 weeks	**Timing** April to September **Frequency** Annual (if cage trapping)	
			Remote cameras	Utilise biodiversity camera grid to detect changes on population distribution		
		Meteorological data	Data from weather stations near monitoring locations	N/A	N/A	
		Environmental threats	Observation, mapping, photographs	N/A	N/A	
Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia* (Pilbara form))	Mine	Presence Habitat characteristics Meteorological data Environmental threats	Suitable audio or visual recording devices, and/or Scat DNA analysis	Undertake monitoring in accordance with methods developed as part of the *Pilbara Leaf-nosed Bat Habitat Survey and Research Plan* (NS-RP-EN-0032)[9]. **Review of site-based records**	**Timing** April to September **Frequency** Annual	
Ghost Bat (*Macroderma gigas*)	Mine	Presence Habitat characteristics Meteorological data Environmental threats	Scat counts Ultrasonic recording Habitat assessment Prescence of bats Microclimate monitoring	Seven nights per impact and control sites: • Attempts will be made to align sampling nights across all sampling nights • Sheets deployed where midden piles are present • Habitat assessment will determine structural damage and disturbance at the entrance of the monitoring site, including: o New fractures along the roof, wall or bedding planes within the cave. o Signs of fresh rock fall, including amount of dust, debris and/all rocks (including size of rock). o Prescence of bats, scats and/or evidence of foraging. • Habitat assessment will include assessment of landscape surrounding each monitoring site, including condition of vegetation, presence of water and/or presence of artificial light or evidence of other disturbances (e.g. fire). • Microclimate logging device will be installed at a position within the roosting chamber and recorded at six-hourly intervals to provide four readings a day. **Review of site-based records**	**Timing** April to September **Frequency** Annual	**Figure 4**

[8] Less invasive method and allows for Northern Quoll can be identified by downward facing cameras (Harry A. Moore, 2021; Jesse Rowland A C, 2020).
[9] Once goals of the *Pilbara Leaf-nosed Bat Habitat Survey and Research Plan* (NS-RP-EN-0032) are met, ongoing monitoring will continue using relevant methods developed by the research plan.

Fauna species	Site location	Monitoring parameters	Method	Monitoring effort	Timing / frequency	Monitoring sites
Pilbara Olive Python (*Liasis olivaceus*)	Mine	eDNA analysis Site Records Meteorological data Environmental threats	Area searches, and/or eDNA analysis	**Area searches**: 1 hour search time for each 1 hectare sampling site. **eDNA analysis for presence/absence (4 impact and 4 control sites)** **Review of site-based records**	**Timing** December to February **Frequency** Annual	**Figure 5**
Grey falcon (*Falco hypoleucos*)	Mine and Water Corridor	Area of occupancy Habitat characteristics Meteorological data Environmental threats	Area searches, transect point monitoring	**Area searches**: 20-minute search time for every 2 hectare sampling site. Target nesting sites where possible **Review of site-based records**	**Timing** December to February **Frequency** Annual	**Figure 6**
Peregrine Falcon *(Falco peregrinus*)	Mine	Area of occupancy Habitat characteristics Meteorological data Environmental threats	Area searches, transect point monitoring	**Area searches**: 20-minute search time for every 2 hectare sampling site. Target nesting sites where possible **Review of site-based records**		
Pacific Swift (Fork-tailed Swift) (*Apus pacificus*)	Mine	Number of birds Habitat characteristics Meteorological data Environmental threats	Area searches, targeted resource and habitat searches, bird calls	**Area searches**: 20-minute search time for every 2 hectare sampling site. **Review of site-based records**		

3.6 Monitoring parameters and methods

A set of monitoring parameters and methods have been selected to provide broad coverage of potential changes in spatial distribution and relative abundance of conservation significant fauna that can be expected under a range of different mining related impacts. The number of parameters will vary depending on the site-specific conditions and the target significant fauna. A summary of the key monitoring parameters and methods are provided in Table 7.

Table 7: Conservation significant fauna monitoring parameters and methods

Monitoring parameter	Method
Individual Data / Biometric Data	Direct results from trapping and observation monitoring methods
Individual Data from trapped individual Northern Quolls	Morphometric, survivorship, breeding and genetic information will be collected for comparison between monitoring events. Data collected will be made available to DPaW to incorporate in the DPaW's regional population monitoring of Northern Quolls in the Pilbara and across Australia. Information to be collected includes: • All captured individuals are implanted with a subcutaneous microchip (PIT) for individual identification. • Standard measurements collected from all captured individuals (body weight, short pes length, head length, age class, sex and reproductive condition). • A small amount of ear tissue is collected from all individuals at initial capture for genetic analysis (stored in 100% ethanol, to be lodged with DPaW). Habitat data sheets should be completed for each trapping site (if DPAW require).
Population	Cumulative results from single season monitoring programs, as well as over annual programs
Habitat Characteristics	Observation, habitat mapping, photographs etc.
Meteorological Data	Data from Weather Stations installed near monitoring site locations
Environmental Threats	Observation, mapping, photographs etc.

3.7 Data handling and statistics analysis

Data will be handled in accordance with the data handling protocol established as part of the annual monitoring tender. The protocol will include the requirements as to data storage and protection, data extraction, quality control, analysis, interpretation, reporting and presentation. The protocol will also directly reference and align with the requirements detailed in *Document Control, Information Management* (100-ST-DC-0001) and *Geographic Information Systems and Raw Data Guidelines* (100-GU-EN-0009).

Statistical analysis of data will be undertaken where data permits. Where data capture allows, analysis will include univariate or multivariate analysis, as deemed appropriate, to determine whether there are any statistical variation in monitoring data. Robust statistical analysis shall be completed for all programs. Error analysis shall also be completed to understand the accuracy of the monitoring results.

4 CONTINGENCY ACTIONS

Contingency actions will be initiated during construction, operational and decommissioning activities when monitoring indicates that implemented management measures, as specified in Table 5, are not successfully mitigating impacts on conservation significant fauna and their supporting habitats and/or the management objectives are not being achieved.

Table 8: Target and associated contingency measures

Target	Contingency measure
Direct Impact No direct death to recorded conservation significant fauna within the project area as a result of the Projects ground disturbance activities (i.e. clearing). No direct loss to recorded conservation significant fauna habitat within the project area that is not approved for disturbance. **Indirect Impact** High density populations - No greater than a 30% decline averaged over 3 years in the relative abundance of conservation significant species across impact sites compared to reference sites Low density populations - Conservation significant species recorded within the area of impact for the project will continue to have an ongoing presence (failure to record species for three consecutive years to indicate no ongoing presence)	**Validate the decline or lack of presence:** • Re-examine applied monitoring parameters to validate they are operating within management levels and where necessary implement changes to the management system to address exceedance. • Ground truth the results to validate if findings of the assessment are correct. Where the cause is identified during ground truthing and can be rectified, undertake immediate action. For actions which requite alternative resources, schedule works to be undertaken as soon as possible. • Cross reference conservation significant fauna results with the most recent environmental monitoring data (i.e., surface water/ groundwater/ vegetation/ weeds/ feral animals/meteorological etc.) as well as regional bushfire data to determine whether the cause can be identified. • For conservation significant fauna species where suitable regional data is available (e.g. DBCA Northern Quoll monitoring) cross reference project data against regional data to determine if part of a larger Pilbara-wide decline. • Verify any fauna management measures are operating as per design. Where issues are identified seek immediate rectification to ensure the management response can be met. For actions which require alternate resources, schedule works to be undertaken as soon as possible. **Once the exceedance has been validated:** If caused by construction, operation or decommissioning activities: • Review management measures with an adaptive management response. • Undertake further communication and training to raise awareness with staff of the impact and the management measures (including new management measures identified) to reduce the potential impact on the species. Implement appropriate measures based on what the cause is determined to be, including: • Vehicle interaction: o Reduce speed limits in areas with target fauna records and suitable habitat. o Erect road signage to identify species and habitat areas. o Construct culverts suitable for use by fauna connecting areas of conservation significant fauna habitat. • Habitat clearing or fragmentation of habitat: o Review the LUC process and implement any further measures including changes to the process to reduce the potential for clearing outside approved areas.

Target	Contingency measure
	o If possible, rehabilitate areas including restoration of habitat and restoration of suitable habitat features where applicable. • Light or noise: o Verify lighting is directed onto active construction and operational work areas. Amend lighting location(s) where required. o Verify equipment is operating within Australian standard noise limits. Undertake maintenance on equipment that is in exceedance. • Once management actions have been completed, undertake a subsequent monitoring event to verify parameters are within acceptable limits. Where the exceedance was not caused by construction, operation or decommissioning activities: • Resume standard monitoring frequency.
Minimise the occurrence of feral cat sightings within the mine development envelope. Conduct surveillance monitoring around transport vectors within the mine development envelope to minimise the occurrence of other feral species (e.g. cane toads)	**Validate the decline or lack of presence:** • Re-examine applied monitoring parameters to validate they are operating within management levels and where necessary implement changes to the management system to address exceedance. • Ground truth the results to validate if findings of the assessment are correct. Where the cause is identified during ground truthing and can be rectified, undertake immediate action. For actions which requite alternative resources, schedule works to be undertaken as soon as possible. • Verify any fauna management measures are operating as per design. Where issues are identified seek immediate rectification to ensure the management response can be met. For actions which require alternate resources, schedule works to be undertaken as soon as possible. **Once the exceedance has been validated:** If caused by construction, operation or decommissioning activities: • Review management measures with an adaptive management response. • Where a rise in feral animal numbers is linked to camp activities, undertake further training to raise awareness with staff on the management measures to reduce the potential impact on conservation significant species. • Verify access to food resources associated with site waste is restricted (Landfill sites, dumpsters, bins), remedy where necessary. • Implement feral animal control is areas where feral animals have been sighted. • Once management actions have been completed, undertake a subsequent monitoring event to verify parameters are within acceptable limits. Where the exceedance was not caused by construction, operation or decommissioning activities: • Resume standard monitoring frequency.

5 ADAPTIVE MANAGEMENT AND REVIEW

Fortescue will implement adaptive management practices to learn from the implementation of mitigation measures and monitoring. Adaptive management practices that will be assessed for the conservation significant fauna management and monitoring program as part of this approach will include:

- Evaluation of the monitoring program, data and comparison to baseline data and reference sites on an annual basis to verify whether responses to project activities are the same or similar to predictions,
- Evaluation of assumptions and uncertainties of the conservation significant fauna management and monitoring program,
- Re-evaluation of the risk assessment and revision of risk-based priorities as a result of monitoring outcomes,
- Review of data and information gathered over the review period that has increased understanding of site environment in the context of the regional ecosystem,
- Review of management actions as the project matures and new management measures and technologies become available that may be more effective for conservation significant fauna management, and
- Assessment of changes which are outside the control of the project and the management measures identified (i.e., a new project within the area or region; regional change affecting conservation significant fauna management).

This Plan will be reviewed in response to monitoring program review, inclusive of baseline data capture or adaptive management response.

The monitoring program will be technically assessed and reviewed every three years. The main objective of the assessment and review will be to ensure that the methods, parameters and frequency used are considerate and appropriate to the findings of the monitoring program. The frequency of monitoring will be reduced to a frequency supported by the review. Where no impact to conservation significant fauna due to the project or no individuals has been recorded (which aligns with baseline survey data) over the five-year period the review will determine whether monitoring may cease.

6 STAKEHOLDER CONSULTATION

Fortescue has undertaken stakeholder consultation program whereby landowners, regulators and other relevant parties have been consulted with regard to investigation and design through the environmental approvals process.

Table 9 will be updated following receipt of stakeholder comment as a result of the review and approval process.

Table 9: Stakeholder consultation

Stakeholder	Correspondence	Changes
DPaW	**DPaW**: Consultation with Amy Mutton from DPaW on use of radio collars to monitor Northern Quoll behaviour and presence (100-EN-0537; 25/07/2014).	
DPaW	**DPaW**: Consultation with Dr Judy Dunlop on suitability of DPaW Northern Quoll regional monitoring sites as control sites, behaviour monitoring methods, suitable trigger levels for performance indicators and contingency responses. Ms Dunlop also provided suggestions regarding the creation of quoll habitat as a possible contingency response.	
DPaW	**Fortescue**: Submission of *Conservation Significant Fauna Management Plan* (100-PL-EN-0022) (UID-41201; 13/10/2014).	
DWER	**Fortescue**: Submission of *Conservation Significant Fauna Management Plan* (100-PL-EN-0022) (UID-44977; 23/01/2015).	
DPAW	**DPAW**: Advice on additional information required for *Conservation Significant Fauna Management Plan* (100-PL-EN-0022) (UID-48717; 25/05/2015).	
DWER	**Fortescue**: Provision to DWER of advice received from DPAW (UID-49112; 05/06/2015).	
DWER	**DWER:** Comments on *Conservation Significant Fauna Management Plan* (100-PL-EN-0022) with request to provide an Iron Bridge specific and not Fortescue Management Plan (UID-51231; 23/07/2015).	*Conservation Significant Fauna Management Plan* (100-PL-EN-0022)
DWER	**Fortescue**: Acknowledgement of DWERs request for an Iron Bridge Northern Quoll Management Plan instead of a *Fortescue's Conservation Significant Fauna Management Plan* (100-PL-EN-0022) (UID-51232; 20/08/2015).	
DWER	**Fortescue**: Submission of *Northern Quoll Management Plan* (662MI-5500-PL-EN-0001 Rev B) (UID-54996; 22/12/2015).	*Northern Quoll Management Plan* (662MI-5500-PL-EN-0001 Rev B)
DWER	**DWER**: Comments on *Northern Quoll Management Plan* (662MI-5500-PL-EN-0001) (UID-60021; 14/06/2016).	
DWER	**Fortescue**: Submission of *Northern Quoll Management Plan* (662MI-5500-PL-EN-0001; Rev 1) with requested amendments (UID-60022; 20/06/2016).	*Northern Quoll Management Plan* (662MI-5500-PL-EN-0001; Rev 1)
DWER	**DWER**: Approval of *Northern Quoll Management Plan* (662MI-5500-PL-EN-0001; Rev 1) (UID-61031; 11/07/2016).	

Stakeholder	Correspondence	Changes
DBCA	**Fortescue**: Meeting with DBCA to discuss management strategies for Northern Quoll at Iron Bridge and contingency action plans (UID-111414; 02/09/2020).	
DWER	**Fortescue:** Submission of *Northern Quoll Management Plan* (662MI-5500-PL-EN-0001; Rev 2A) and *Iron Bridge Conservation Significant Fauna Management Plan* (IB-0000-PL-EN-0001 Rev 0) with the North Star Extension Magnetite Project Extension.	*Northern Quoll Management Plan* (662MI-5500-PL-EN-0001; Rev 2A) *Iron Bridge Conservation Significant Fauna Management Plan* (IB-0000-PL-EN-0001 Rev 0)
DWER	**Fortescue:** Consolidation of the *Northern Quoll Management Plan* (662MI-5500-PL-EN-0001; Rev 2A) into *Iron Bridge Conservation Significant Fauna Management Plan* (IB-0000-PL-EN-0001 Rev 0). Submission of *Iron Bridge Conservation Significant Fauna Management Plan* (IB-0000-PL-EN-0001 Rev 1) with response for information on North Star Extension Magnetite Project Extension.	*Iron Bridge Conservation Significant Fauna Management Plan* (IB-0000-PL-EN-0001 Rev 1)

7 REFERENCES

This Plan and all internal supporting documents will be managed as per Fortescue Document Governance Standards. These may be read in conjunction with this report.

Studies and research

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[2] Davis, R.A. 2024. *Review of Fortescue Annual Fauna Monitoring Program including Conservation Significant Species*.

[3] DPaW, 2014. *Artificial Fauna Habitat Creation.* Unpublished Report, Western Australia Department of Parks and Wildlife.

[4] DPaW, Threatened species workshop - Northern Quoll. 2013. Unpublished workshop notes.

[5] Dunlop, J., Cook, A. & Morris, K., 2014. *Pilbara Northern Quoll Project. Surveying and monitoring Dasyurus hallucatus in the Pilbara*, Western Australia. Department of Parks and Wildlife. https://library.dbca.wa.gov.au/static/FullTextFiles/071905.pdf

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[7] Fortescue Metals Group (2012). *EPBC Listed Threatened Fauna Management Plan - North Star Haematite Projec*t (NS-PL-EN-0003) (Plan under referral EPBC 2012/6530).

[8] Jesse Rowland A C, C. J. H. B. a. S. B., 2020. *Camera traps are an effective method for identifying individuals and determining the sex of spotted-tailed quolls* (*Dasyurus macuylatus gracilis*). Vol 42(3) ed. Australian Mammalogy.

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EPBC Survey Guidelines:

[11] Department of Sustainability, Environment, Water, Population and Communities (2011). *EPBC Act Survey Guidelines for Australia's Threatened Mammals, Guidelines for Detecting Mammals Listed as Threatened Under the EPBC Act 1999.* Australian Government.

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[13] Department of Water, Heritage and the Arts (2010). *EPBC Act Survey Guidelines for Australia's Threatened Bats, Guidelines for Detecting Bats Listed as Threatened Under the EPBC Act 1999.* Australia Government.

[14] Department of Water, Heritage and the Arts (2010). *EPBC Act Survey Guidelines for Australia's Threatened Birds, Guidelines for Detecting Birds as Threatened Under the EPBC Act 1999.* Australian Government.

Conservation Advice:

[15] Threatened Species Scientific Committee (2016). *Conservation Advice, Macrotis lagotis (Greater Bilby).*

[16] Threatened Species Scientific Committee (2016). *Conservation Advice, Rhinonicteris aurantia (Pilbara form) (Pilbara Leaf-nosed Bat).*

[17] Threatened Species Scientific Committee (2016). *Conservation Advice, Macroderma gigas (Ghost Bat).*

[18] Threatened Species Scientific Committee (2020). *Conservation Advice, Falco hypoleucos (Grey Falcon)*

[19] Threatened Species Scientific Committee (2008). *Conservation Advice, Lialis olivaceus barroni (Olive Python – Pilbara subspecies).*

Recovery Plans:

[20] Department of Climate Change, Energy, the Environment and Water (2020) *Recovery Plan for the Greater Bilby (Macrotis lagotis).*

[21] Northern Territory Department of Natural Resources, Environment and the Arts (2006). *National Recovery Plan for the Greater Bilby Macrotis lagotis.*

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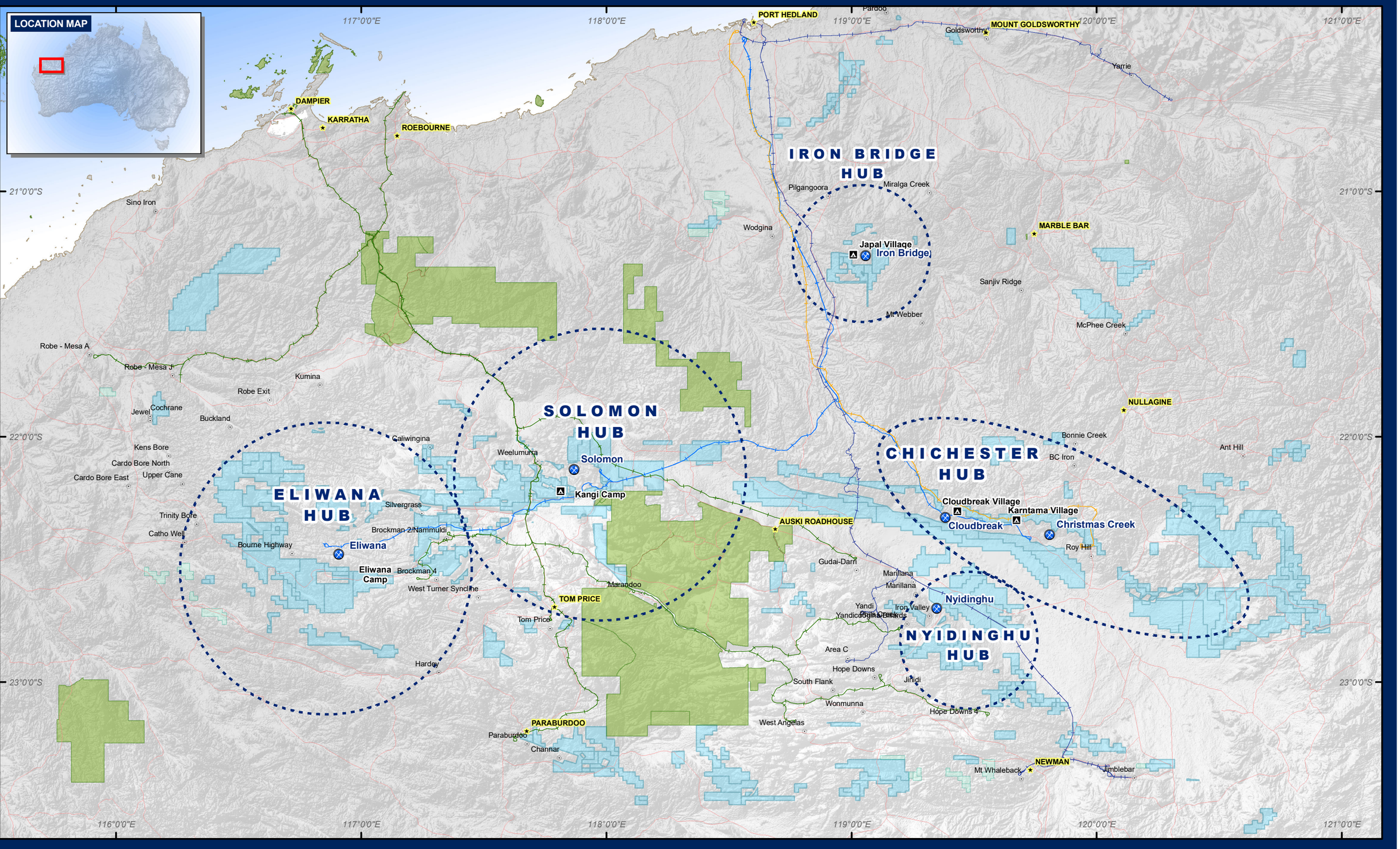
[31] Environmental Protection Authority (2024). *Instructions: How to prepare Environmental Protection Act 1986 Part IV environmental management plans*.

DOCUMENT CONTROL

Iron Bridge Conservation Significant Fauna Plan		
Status	IFU - Issued for Use	10-Mar-25
Summary of Changes	Supersedes *Northern Quoll Management Plan* (662MI-5500-PL-EN-0001) once this Plan is approved.	
Author	Jane Humphrey	Signature
Checked or Squad Review# (if applicable)	Squad check	Signature
Approved	Jane Humphrey	Signature
Next Review Date (if applicable)	11-Mar-30	

FIGURE 1 PROJECT LOCATION



LEGEND

- Towns
- Project Area
- FMG Camp
- Other Mines & Prospects
- Roads
- FMG Rail Alignments
- BHP
- Rio Tinto
- Roy Hill
- FMG Non-managed Exploration Tenements
- FMG Managed Exploration Tenements
- Reserves

Data Sources:
Tenements, sourced from DMIRS, 2024.
Roads, Towns, Reserves, Landgate.
3rd Rail, RTIO. BHPB, RHIO.
DEM, GA.

N W E S

0 20 40 60 80 100
Kilometres

Requested By: J. Humphrey
Drawn By: S.Costello
Revised By: scostello
Approved By: N/A
Scale: 1:1,600,000
Coordinate System: GCS GDA 1994
Document Name: 100_MP_OP_0058.010_r7

Date: 16/08/2024
Size: A3L
Revision: 7
Confidentiality: 0

FMG ExplorationTenements and Project Areas

August 2024

Fortescue

FIGURE 2 NORTHERN QUOLL IMPACT AREA

710,000

720,000

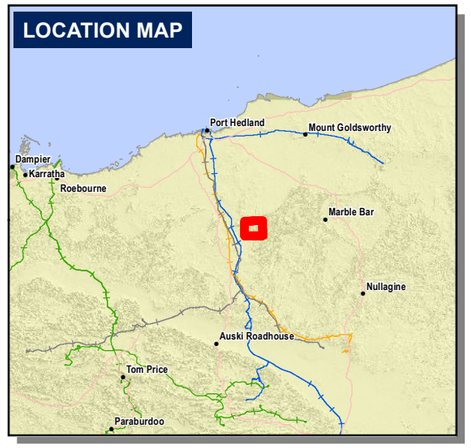
7,650,000

7,650,000

710,000

720,000

LOCATION MAP



LEGEND

- Mine Developement Envelope
- Revised Proposal Area
- Disturbance Footprint

Northern Quoll Habitat

- direct impact area (within disturb. footprint)
- indirect impact area (within 500m from disturb. footprint)
- no impact area

Data Source(s):
All data, FMGL, 2021

N

0 0.5 1 1.5 2 2.5
Kilometres

Northern Quoll Impact Area

Requested By: Todd Edward
Drawn By: Sang Li
Revised By: sanli
Approved By:
Scale: 1:58,624
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 662NS_0000_MP_EN_0226.001_r0

Date: 5/08/2021
Size: A3L
Revision: 0
Confidentiality: 0

GDA94

Iron Bridge

FIGURE 3 NORTHERN QUOLL MONITORING SITES

710,000

720,000

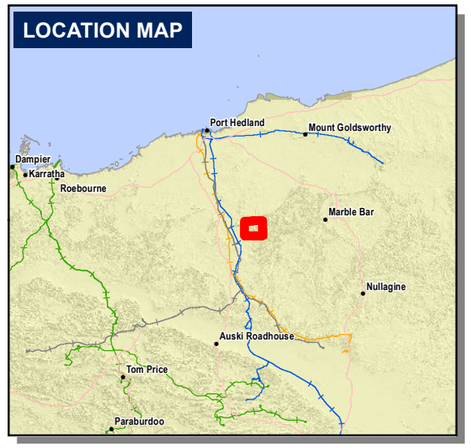
7,650,000

7,650,000

710,000

720,000

LOCATION MAP



LEGEND

- Mine Developement Envelope
- Revised Proposal Area
- Disturbance Footprint
- Monitoring Sites
- Indicative Monitoring Site

Northern Quoll Habitat

- direct impact area (within disturb. footprint)
- indirect impact area (within 500m from disturb. footprint)
- no impact area

Data Source(s):
All data, FMGL, 2021

N

0 0.5 1 1.5 2 2.5
Kilometres

Northern Quoll Impact Monitoring Sites

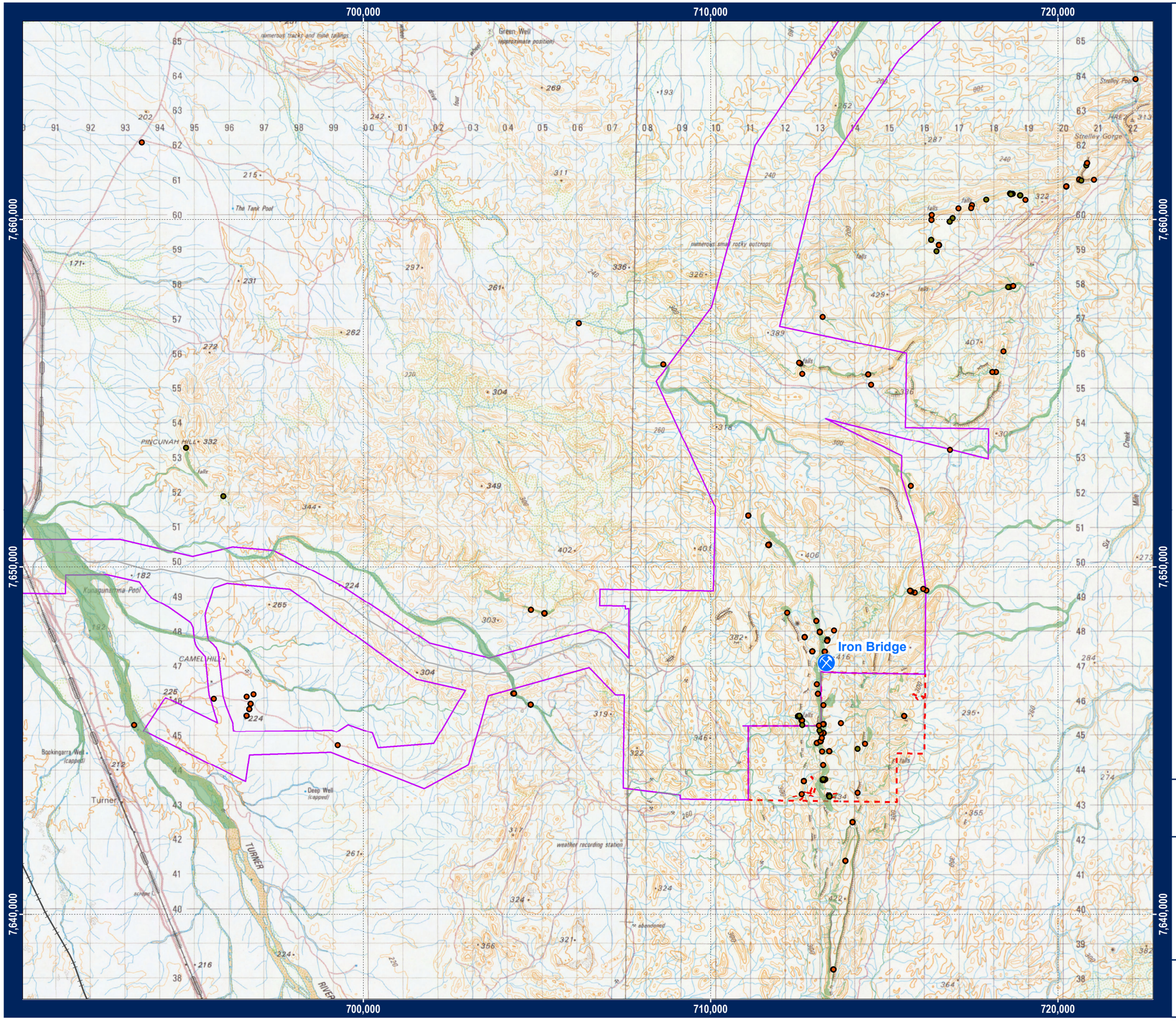
Requested By: Todd Edward
Drawn By: Sang Li
Revised By: sanli
Approved By:
Scale: 1:58,624
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 662NS_0000_MP_EN_0226.002_r0

Date: 5/08/2021
Size: A3L
Revision: 0
Confidentiality: 0

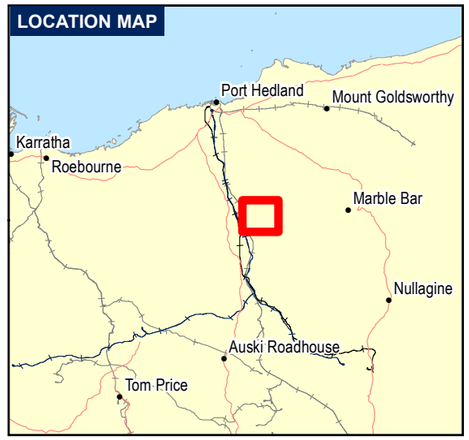
GDA94

Iron Bridge

FIGURE 4 CONSERVATION SIGNIFICANT BAT MONITORING SITES



LOCATION MAP



LEGEND

- Ghost Bat records
- Pilbara Leaf-nosed Bat records
- FMG Rail Alignments
- Roads
- Bat Habitat
- Proposed Amendment
- MS 993 Boundary

Data Source(s):
Topo, Landgate
All other Data, FMG, 2023

N

0 1 2 3 4
Kilometres

Fauna Monitoring: (Bats)
Iron Bridge

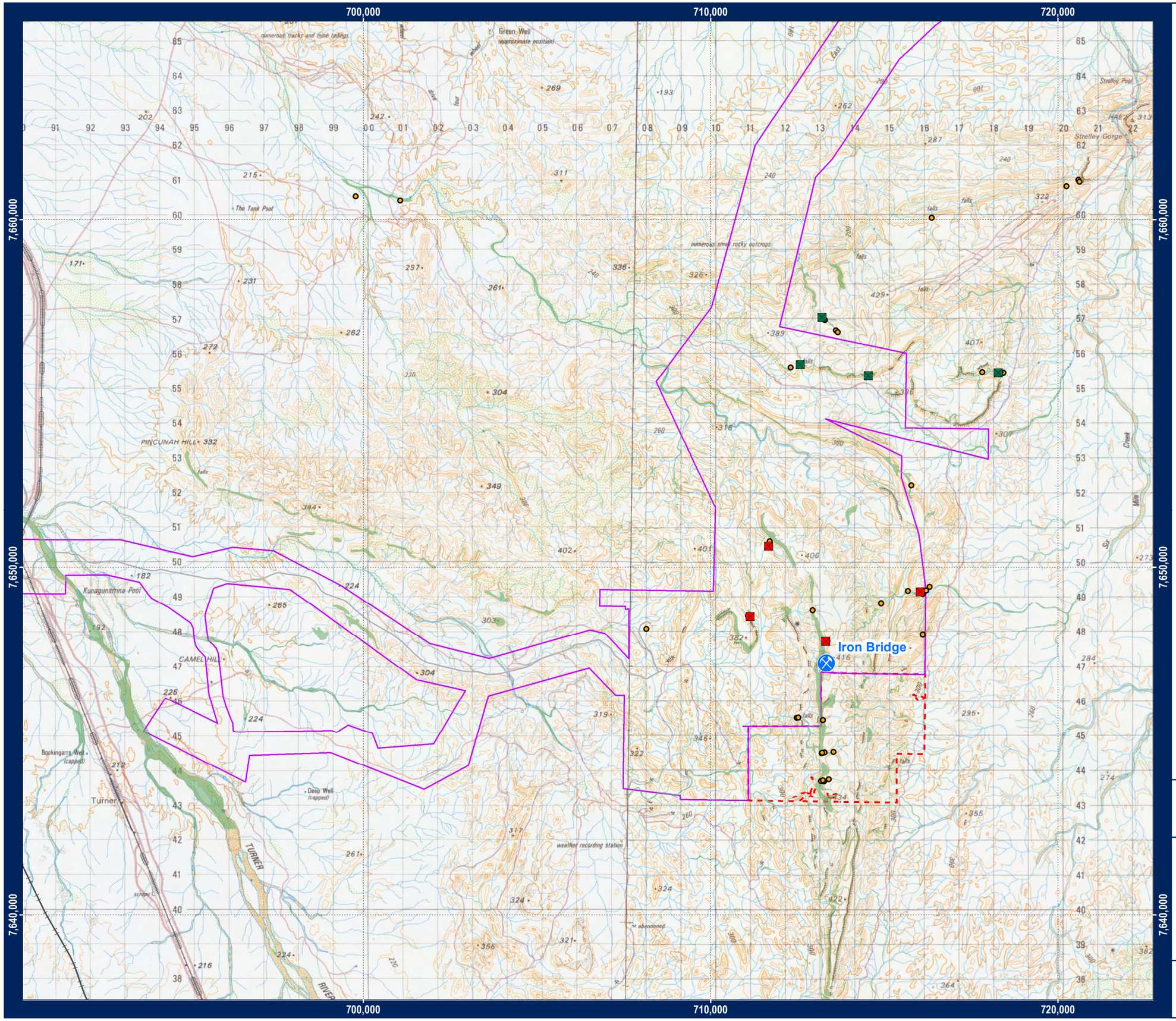
Requested By: J. Humphrey
Drawn By: Riz. R
Revised By: rriaz
Approved By:
Scale: 1:105,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 662NS_0000_MP_EN_0322.001_r0

Date: 11/08/2023
Size: A3L
Revision: 0
Confidentiality: 1

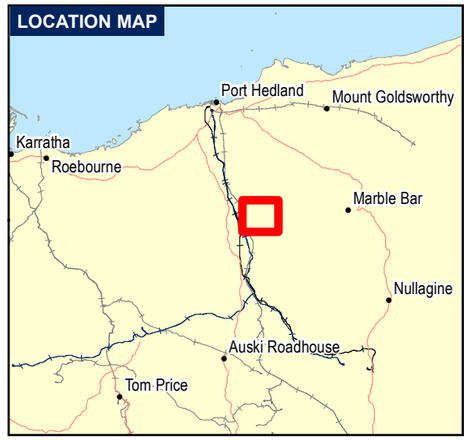
GDA94

FMG Fortescue

FIGURE 5 PILBARA OLIVE PYTHON MONITORING SITES



LOCATION MAP



LEGEND

- Pilbara Olive Python records
- FMG Rail Alignments
- Roads
- Pilbara Olive Python Habitat
- Proposed Amendment
- MS 993 Boundary

Pilbara Olive Python Sites

- Impact
- Reference

Data Source(s):
Topo, Landgate
All other Data, FMG, 2023

N

0 1 2 3 4
Kilometres

Fauna Monitoring: (Pilbara Olive Python)

Iron Bridge

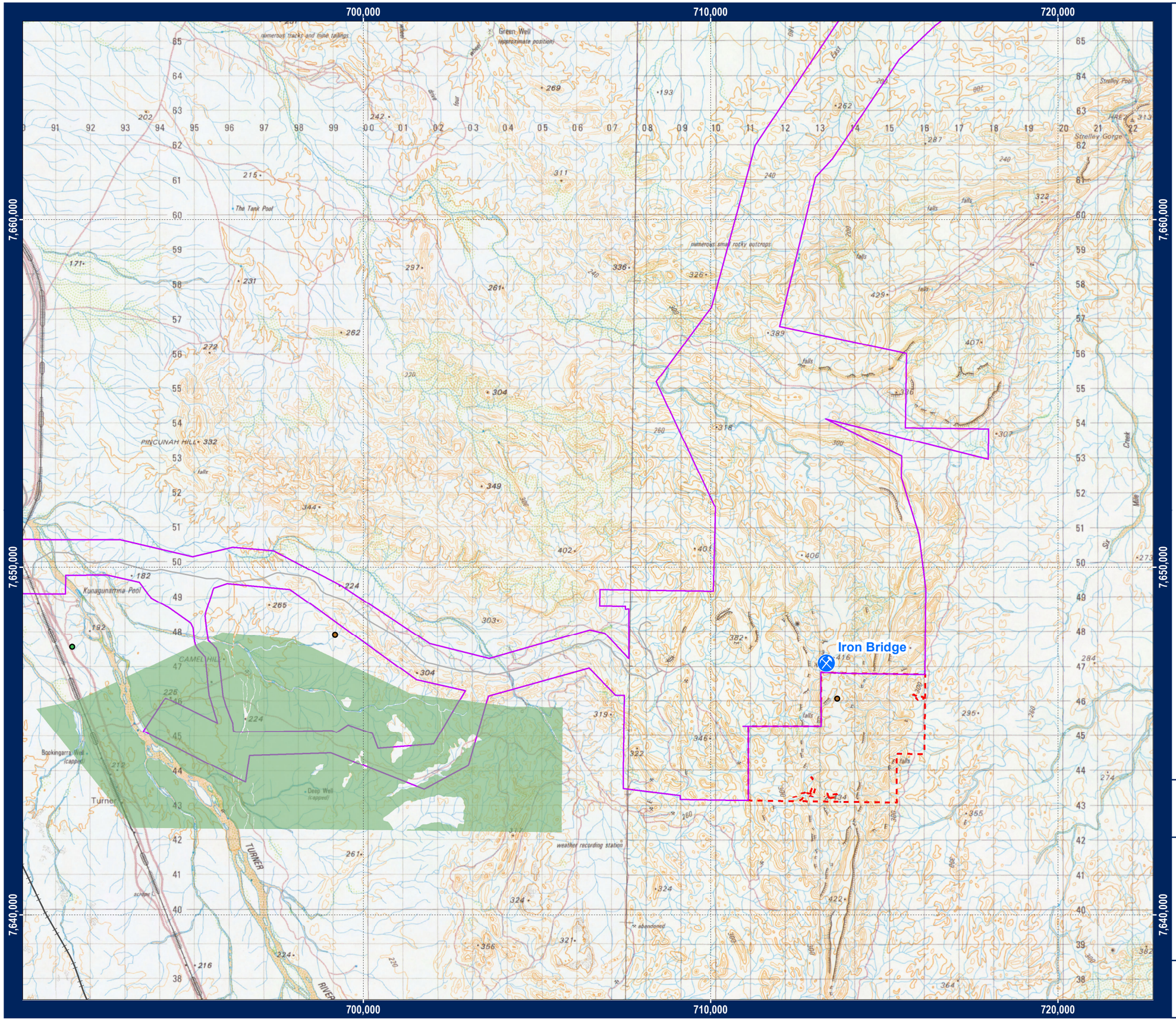
Requested By: J. Humphrey
Drawn By: Riz. R
Revised By: rriaz
Approved By:
Scale: 1:105,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 662NS_0000_MP_EN_0322.003_r0

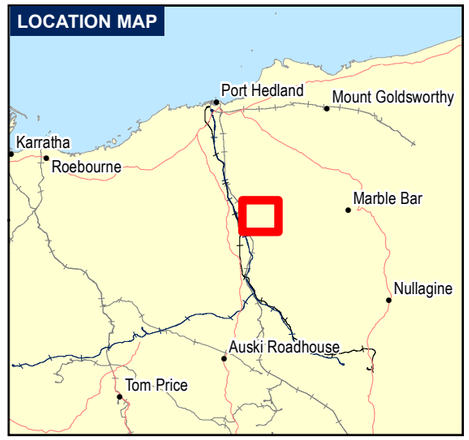
Date: 14/08/2023
Size: A3L
Revision: 0
Confidentiality: 1

GDA94

FMG Fortescue

FIGURE 6 CONSERVATION SIGNIFICANT BIRD MONITORING SITES





LEGEND

- Fork-tailed Swift records
- Grey Falcon records
- Peregrine Falcon records
- FMG Rail Alignments
- Roads
- Bird Habitat Proposed
- Amendment
- MS 993 Boundary

Data Source(s):
Topo, Landgate
All other Data, FMG, 2023

N

0 1 2 3 4
Kilometres

Fauna Monitoring: (Birds)
Iron Bridge

Requested By: J. Humphrey
Drawn By: Riz. R
Revised By: rriaz
Approved By:
Scale: 1:105,000
Coordinate System: GDA 1994 MGA Zone 50
Document Name: 662NS_0000_MP_EN_0322.004_r0

Date: 14/08/2023
Size: A3L
Revision: 0
Confidentiality: 1

GDA94

Fortescue

APPENDIX A LEGISLATIVE CONTEXT

Legislation	Application
Biosecurity and Agriculture Management Act 2007 (WA)	Prevention of new animal and plant pests and diseases from entering the State and management of and limitation to the spread of those pests and diseases already present.
Biodiversity Conservation Act 2016 (WA)	Conservation and protection of biodiversity and biodiversity components.
Conservation and Land Management Act 1984 (WA)	Provides for the vesting or reservation of land for conservation purposes, and the ability to enter into agreements with private landholders and pastoral lessees. It establishes a number of statutory bodies including the Conservation Commission of Western Australia.
Environment Protection Act 1986 (WA)	State environmental impact assessment and Ministerial approval process.
Environment Protection and Biodiversity Conservation Act 1999 (Cth)	Assesses the conservation significance of fauna species and forms the framework for significant species protection at the Federal level.

APPENDIX B ACRONYMS AND DEFINITIONS

Acronym / Term	Definition
BMS	Business Management System. System used for managing business records, including recording incidents and feral animals and conservation significant animals.
Conservation significant fauna	Defined as those listed as critically endangered, endangered, vulnerable or migratory under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 or as a Schedule species in accordance with the Biodiversity Conservation Act 2016 or as a significant fauna in accordance with the *Technical Guidance - Terrestrial Vertebrate fauna surveys for environmental impact assessment* (EPA, 2020). Species of national conservation significance listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) are classified as: • Critically Endangered - If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future. • Endangered - If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future. • Vulnerable - If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future. • Migratory: o migratory species which are native to Australia and are included in the appendices to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals Appendices I and II); o migratory species included in annexes established under the Japan-Australia Migratory Bird Agreement (JAMBA) and the China-Australia Migratory Bird Agreement (CAMBA); and o native, migratory species identified in a list established under, or an instrument made under, an international agreement approved by the Minister, such as the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA). Four classes (Schedules 1-4) of rare and endangered fauna are recognised under the *Biodiversity Conservation Act* 2016. Three other classes (Schedules 5-7) recognised under the Act are relevant to this plan. These are: • Schedule 1: Fauna that is rare or likely to become extinct as critically endangered fauna (CR). • Schedule 2: Fauna that is rare or likely to become extinct as endangered fauna (EN). • Schedule 3: Fauna that is rare or likely to become extinct as vulnerable fauna (VU). • Schedule 4: Fauna presumed to be extinct (EX). • Schedule 5: Migratory birds protected under an International Agreement (MI). • Schedule 6: Fauna that is of special conservation need as conservation dependent fauna (CD). • Schedule 7: Other specially protected fauna (OS).
Cth	Commonwealth of Australia
DBCA	Department of Biodiversity, Conservation and Attractions
DPaW	Department of Parks and Wildlife Service (part of DBCA)
DWER	Department of Water and Environmental Regulation
Environmental exclusion zone	Geospatial locations of features that have legislative or other assigned protection (e.g., areas that are not permitted by Ministerial Statement to be disturbed).
EP Act	*Environmental Protection Act* 1986
EPA	Environmental Protection Authority

EPBC Act	*Environmental Protection and Biodiversity Conservation Act* 1999
GIS	Geographic information system
LUC	Land Use Certificate. A certificate issued through a web-based system to confirm that proposed land use activities adhere to the correct approvals granted by Government departments. A LUC is required whenever any work (e.g., access, ground disturbance, maintenance, rehabilitation) is undertaken. The LUC has sensitivity checks against GIS spatial data to determine if the area proposed for works intersects with any mapped constraints, including conservation significant fauna, and environmental exclusion zones datasets. Depending on the type of constraint, proposed works will be referred for assessment or blocked. The LUC is then assessed by key Fortescue stakeholders (e.g., Tenure, Environment, Heritage, Water Infrastructure) to determine if the activities can be approved. Approval may be unconditional, or subject to conditions.
MS	Ministerial Statement
PaWS	Parks and Wildlife Service (within the Department of Biodiversity, Conservation and Attractions)

APPENDIX C ROLES AND RESPONSIBILITIES

All Fortescue employees and contractors are required to comply with the requirements of this Plan.

Accountability for fulfilling the requirements of this Plan is dependent on the stage of project development (construction, operations, decommissioning) and the project type (rail or mine).

During construction stages, whether activities are undertaken by an external service provider or internal Fortescue personnel, the Project Director (rail or mine) will be accountable for ensuring the requirements of this Plan are met.

During operational, decommissioning and closure stages, the General Manager (rail or mine) will be accountable for ensuring the requirements of this Plan are met.

Where responsibilities are delegated, this must be clearly recorded and communicated.

The RASCI framework should be utilised to delegate roles, responsibilities, and review and approval levels. RASCI is used to denote:

R-Responsible	Those who do the work to achieve the task.
A-Accountable	Those who are ultimately accountable for the completion of the deliverable or task and the one to whom the Responsible person is accountable.
S-Supportive	Resources allocated to the Responsible person and who will also assist in completing the task.
C-Consulted	Those whose opinions are sought, two-way communication.
I-Informed	Those whom are kept informed, one-way communication.

APPENDIX D NORTHERN QUOLL CENSUS DATA

Microchip/ID	sex	date	Record	site		trap	Easting	Northing	WAM Tissue No.	Weight (g)	short peds (mm)	head length (mm)	Scrotum (mm)	Caudal (mm)	health rating	Comments	Vegetation Condition	Local impacts	Rainfall seasonality
Impact sites																			
2011				**Old site nan**	**New site nearby**														
M1	Male	8-Jul-11	capture	A	-	C04	711537	7651137	TM381	705	33.2	77.3	-	17.5	**5**	No signs of fighting	Excellent	Low, cleared tracks	Dry
		9-Jul-11	recapture	B	NS I1	C13	712167	7650597											
		10-Jul-11	recapture			C11	712029	7650678											
		11-Jul-11	recapture			C11	712029	7650678											
		12-Jul-11	recapture			C13	712167	7650597											
		13-Jul-11	recapture			C11	712029	7650678											
		14-Jul-11	recapture			C11	712029	7650678											
M2	Male	8-Jul-11	capture	A	-	C06	711648	7651037	TM382	615	32.7	70.1	-	13.5	**3**	Thin fur, few signs of fighting	Excellent	Low, cleared tracks	Dry
		10-Jul-11	recapture			C06	711648	7651037											
		12-Jul-11	recapture			C02	711578	7651211											
M5	Male	10-Jul-11	capture	C	NS I2	C23	712918	7648805	TM385	595	34.6	70.9	-	16.4	**55**	No signs of fighting	Excellent	Low, cleared tracks	Dry
		11-Jul-11	recapture			C24	713028	7648914											
		12-Jul-11	recapture			C23	712918	7648805											
		13-Jul-11	recapture			C22	712893	7648932											
F6	Female	10-Jul-11	capture	B	NS I1	C10	711957	7650706	TM386	330	30.8	63.5	-	15	**5**	No signs of fighting	Excellent	Low, cleared tracks	Dry
		12-Jul-11	recapture			C11	712029	7650678											
		14-Jul-11	recapture			C13	712167	7650597											
M7	Male	11-Jul-11	capture	A	-	C03	711476	7651205	TM387	630	35.4	75	--	17.1		Pouch not developed	Excellent	Low, cleared tracks	Dry
		12-Jul-11	recapture			C03	711476	7651205											
		13-Jul-11	recapture			C02	711578	7651211											
M10	Male	13-Jul-11	capture	B	NS I1	C14	712257	7650549	TM390	778	40	75.7	-	18.5		No signs of fighting	Excellent	Low, cleared tracks	Dry
		14-Jul-11	recapture			C14	712257	7650549											
2014																			
941000016595571	Female	27/08/2014	capture	NQ I1		21	712261	7650571	WAMTS326	395	2.75	5.7	N/A	11	2.5	-	Very good	Some noise and dust from nearby mining activities	Dry
		29/08/2014	recapture			17	712230	7650449											
		30/08/2014	recapture			5	712303	7650321											
941000016595479	Female	29/08/2014	capture	NQ I2		18	712924	7648751	WAMTS326	360	3.77	4.68	N/A	17	3.5	appears to have been mated, no young in pouch, large scars on both thighs, small patch of hair missing on back	Very good	Some noise and dust from nearby mining activities	Dry
941000016202872	Male	25/08/2014	capture	NQ I2		21	712261	7650571	WAMTS326	275	36.5	6.9	-	11.5	4	Slender and small	Very good	Some noise and dust from nearby mining activities	Dry
		26/08/2014	recapture			18	712924	7648751											
		27/08/2014	recapture			17	712924	7648726											
		28/08/2014	recapture			16	712928	7648696									Very good	Some noise and dust from nearby mining activities	Dry
		29/08/2014	recapture			14	712934	7648633											
		30/08/2014	recapture			14	712934	7648633											
		31/08/2014	recapture			7	713050	7648530											

Microchip/ID	sex	date	Record	site	trap	Easting	Northing	WAM Tissue No.	Weight (g)	short peds (mm)	head length (mm)	Scrotum (mm)	Caudal (mm)	health rating	Comments	Vegetation Condition	Local impacts	Rainfall seasonality
941000016595484	Male	31/08/2014	capture	NQ I2	18	712924	7648751	WAMTS326	640	3.2			20		signs of combat suggesting reproductive	Very good	Some noise and dust from nearby mining activities	Dry
941000016595499	Male	29/08/2014	capture	Site office	Additiona	712658	7650700	WAMTS326	530	3.73	5.9	-	15	3.5	-	Very good	Some noise and dust from nearby mining activities	Dry
		30/08/2014	recapture	NQ I2	18	712924	7648751											
941000016595477	Male	26/08/2014	capture	NQ I2	6	713065	7648513	WAMTS326	800	3.85	7.9	-	15.5	4	Equipped with radio collar	Very good	Some noise and dust from nearby mining activities	Dry
		28/08/2014	recapture	NQ I3	4	713383	7647871											
		30/08/2014	recapture		6	713319	7647876											
		31/08/2014	recapture		6	713319	7647876											
941000016595575	Female	25/08/2014	capture	NQ I3	5	713352	7647875	WAMTS326	375	2.7	6.2	N/A	15.5	3.5	Healing wound	Very good	Some noise and dust from nearby mining activities	Dry
		27/08/2014	recapture		4	713383	7647871											
		29/08/2014	recapture		12	713192	7647903											
		30/08/2014	recapture		5	713352	7647875											
941000016595478	Male	25/08/2014	capture	NQ I4	17	715813	7649275	WAMTS326	560	2.13	6.29	1.6	7	3.5	reproductive male, signs of combat, missing fur on head and tail	Very good	Some noise and dust from nearby mining activities	Dry
		29/08/2014	recapture		15	715837	7649277											
941000016595496	Male	26/08/2014	capture	NQ I4	19	715772	7649294	WAMTS326	370	3.45	69.5	-	11	4.5	-	Very good	Some noise and dust from nearby mining activities	Dry
		27/08/2014	recapture		19	715772	7649294											
		28/08/2014	recapture		15	715837	7649277											
		29/08/2014	recapture		15	715837	7649277											
2015																		
941000016202842	Female	24/08/2015	capture	NQ I2	1	712924	7648751		345	33	-	-	13	4	missing fur on both sides indicating signs of mating	-	-	-
		25/08/2015	recapture		5	712934	7648633											
941000016595571	Female	22/08/2015	capture	NQ I1	2	712296	7650382		410	30			13	4	mated and has missing furn in sides			
941000017452055	Female	25/08/2015	capture	NQ I1	24	712443	7650130		403	32			15	4	developed pouch with small embryos in it. some sores and signs of fighting but pretty good			
941000017452056	Male	26/08/2015	capture	NQ I1	11	712350	7650282		524	36			14	3	some fighting and mating			
941000017452060	Male	23/08/2015	capture	NQ I4	6	716171	7649355		565	36	76		12	3.5	skinny			
		24/08/2015	recapture		6	716171	7649355											
		25/08/2015	recapture		5	716198	7649334											
941000017452061	Male	22/08/2015	capture	NQ I3	7	713295	7647886		613	36	84		15	3	wounds			
941000017452063	Female	25/08/2015	capture	NQ I4	8	716106	7649354		347	31			10	4	None			
941000017452064	Female	24/08/2015	capture	NQ I3	9	713264	7647912		445	40.8			15	4	developed pouch, no embryos			
		22/08/2015	capture		13	715935	7649279											

Microchip/ID	sex	date	Record	site	trap	Easting	Northing	WAM Tissue No.	Weight (g)	short peds (mm)	head length (mm)	Scrotum (mm)	Caudal (mm)	health rating	Comments	Vegetation Condition	Local impacts	Rainfall seasonality
941000017452071	Male	23/08/2015	recapture	NQ I4	13	715935	7649279		547	48.9			15.5	3.5	mating and fighting; some hair loss			
		25/08/2015	recapture		19	715813	7649275											
		26/08/2015	recapture		18	715815	7649288											
		27/08/2015	recapture		21	715772	7649294											
Control sites																		
2011				**Old site nan**	**New site nearby**													
M3	Male	9-Jul-11	capture	D	-	C28	713394	7643895	TM383	590	35.6	71.3	-	15.5	**5**	No signs of fighting	Excellent	Low, cleared tracks	Dry
		10-Jul-11	recapture			C28	713394	7643895										
		11-Jul-11	recapture			C31	713490	7643914										
		12-Jul-11	recapture			C29	713410	7643903										
		13-Jul-11	recapture			C32	713551	7643910										
		14-Jul-11	recapture			C30	713423	7643918										
M4	Male	10-Jul-11	capture	E	NS C2	C36	713311	7644664	TM384	727	36.1	80	-	15.6	5	Coat thick with no patches, some body fat	Excellent	Low, cleared tracks	Dry
		11-Jul-11	recapture			C37	713278	7644659										
		12-Jul-11	recapture			C39	713233	7644651										
		13-Jul-11	recapture			C36	713311	7644664										
		14-Jul-11	recapture			C37	713278	7644659										
M8	Male	11-Jul-11	capture	S4	-	C47	713117	7646259	TM388	605	34.5	78.5	-	13.4	5	some body fat, no missing fur	Excellent	Low, cleared tracks	Dry
		12-Jul-11	recapture			C47	713117	7646259										
		13-Jul-11	recapture			C48	713098	7646325										
F9	Female	11-Jul-11	capture	E	-	C36	713311	7644665	-	320	32.1	59.2	-	14.8	5	Pouch not developed	Excellent	Low, cleared tracks	Dry
AAM1	Male	25-Jul-11	capture	S9	NS C4	C135	718348	7655633	TM391	660	35.9	83.2	-	-	4.5	No signs of fighting	Excellent	Low, cleared tracks	Dry
AAM2D	Male	27-Jul-11	capture	S3	NS C3	C75	713229	7657185	TM392	795	35.2	74.3	-	17.9	4	No signs of fighting	Excellent	Low, cleared tracks	Dry
AAM2B	Male	27-Jul-11	capture	S9	NS C4	C140	718069	7655602	TM393	575	35.8	68	-	-	4.5	No signs of fighting	Excellent	Low, cleared tracks	Dry
AAF3	Female	25-Jul-11	capture	S8	-	C124	718914	7658171	TM394	385	33	62.6	N/A	-	4.5	Pouch not developed	Excellent	Low, cleared tracks	Dry
AAF4	Female	25-Jul-11	capture	S8	-	C127	718680	7658073	TM395	405	30	68.5	-	-	4.5	Pouch not developed	Excellent	Low, cleared tracks	Dry
		28-Jul-11				C132	718628	7658202								Pouch not developed	Excellent	Low, cleared tracks	Dry
AAM5	Male	26-Jul-11	capture	S9	NS C4	C140	718069	7655602	TM396	690	36.6	74.6	-	-	4.5	No signs of fighting	Excellent	Low, cleared tracks	Dry
		27-Jul-11	recapture			C139	718134	7655582		705									
		28-Jul-11	recapture	S8	-	C128	718659	7658149		685									
		29-Jul-11	recapture			C126	718765	7658124		680									
		26-Jul-11	recapture	S9	NS C4	C140	718069	7655602		690									
AAM6	Male	26-Jul-11	capture	S8	-	C124	718914	7658171	TM397	800	36.6	80.8	-	-	4.5	No signs of fighting	Excellent	Low, cleared tracks	Dry
		27-Jul-11	recapture			C127	718680	7658073		780									
		28-Jul-11	recapture			C126	718765	7658124		830									
		29-Jul-11	recapture			C128	718659	7658149		-									

Microchip/ID	sex	date	Record	site		trap	Easting	Northing	WAM Tissue No.	Weight (g)	short peds (mm)	head length (mm)	Scrotum (mm)	Caudal (mm)	health rating	Comments	Vegetation Condition	Local impacts	Rainfall seasonality
AAM7	Male	29-Jul-11	capture	S8	-	C124	718914	7658171	TM398	730	37.6	78.2	-	-	4.5	No signs of fighting	Excellent	Low, cleared tracks	Dry
AAM8	Male	27-Jul-11	capture	S8	-	C126	718765	7658124	TM399	610	36.2	75	-	-	4.5	No signs of fighting	Excellent	Low, cleared tracks	Dry
		29-Jul-11	recapture			C127	718680	7658073											
AAM9	Male	24-Jul-11	capture	S8	-	C127	718680	7658073	TM400	655	36.8	74.5	-	-	4.5	No signs of fighting	Excellent	Low, cleared tracks	Dry
2014																			
941000016595482	Male	26/08/2014	capture	NQ C1		4	713392	7646226	WAMTS326	860	40	67.8	-	16.5	-	adult male, reproductive	Very good	Low, some noise from nearby mine activities, cleared tracks	Dry
		28/08/2014	recapture			17	713099	7646318											
		27/08/2014	recapture			18	713087	7646363											
941000016595486	Female	24/08/2014	capture	NQ C1		9	713247	7646030	WAMTS326	340	17.4	54.4	N/A	17.4	4	-	Very good	Low, some noise from nearby mine activities, cleared tracks	Dry
		25/08/2014	recapture			5	713371	7646193											
		28/08/2014	recapture			9	713247	7646030											
941000016595485	Male	26/08/2014	capture	NQ C2		19	713106	7644714	WAMTS326	580	38	65.5	-	12	3.5		Very good	Low, some noise from nearby mine activities, cleared tracks	Dry
941000016595495	Male	28/08/2014	capture	NQ C2		10	713236	7644684	WAMTS326	635	34	65	-	16.5	3.5	Average, missing fur on tail	Very good	Low, some noise from nearby mine activities, cleared tracks	Dry
		30/08/2014	recapture			21	713223	7644656											
941000016595497	Female	28/08/2014	capture	NQ C2		4	713509	7644697	WAMTS326	385	26	6	N/A	11.5	4	No pouched young	Very good	Low, some noise from nearby mine activities, cleared tracks	Dry
		29/08/2014	recapture			8	713322	7644657											
		30/08/2014	recapture			8	713322	7644657											
941000016595498	Female	28/08/2014	capture	NQ C2		18	713101	7644777	WAMTS326	365	28	51	N/A	14	3.5	-	Very good	Low, some noise from nearby mine activities, cleared tracks	Dry

Microchip/ID	sex	date	Record	site	trap	Easting	Northing	WAM Tissue No.	Weight (g)	short peds (mm)	head length (mm)	Scrotum (mm)	Caudal (mm)	health rating	Comments	Vegetation Condition	Local impacts	Rainfall seasonality
941000016202871	Male	24/08/2014	capture	NQ C2	19	713106	7644714	WAMTS326	725	27.5	70	-	16.5	5	-	Very good	Low, some noise from nearby mine activities, cleared tracks	Dry
		25/08/2014	recapture		8	713322	7644657											
		28/08/2014	recapture	NQ C1	18	713087	7646363											
941000016595535	Male	25/08/2014	capture	NQ C3	1	713202	7657203	WAMTS326	560	23.5	61	17	14	3	-	Excellent	Low, some cleared tracks	Dry
941000016595534	Male	25/08/2014	capture	NQ C4	3	718449	7655567	WAMTS326	480	20	51	17	9.2	3.5	Young male, missing fur on tail but no sign of fighting	Excellent	Low, some cleared tracks	Dry
		26/08/2014	recapture		4	718429	7655572											
		27/08/2014	recapture		4	718429	7655572											
		28/08/2014	recapture		5	718387	7655606											
2015																		
941000016595486	Female	23/08/2015	capture	NQ C1	25	713219	7646475		420	32			17	4	recapture from prev year			
		24/08/2015	recapture		17	713099	7646318											
		23/08/2015	recapture		18	713087	7646363											
941000016595497	Female	24/08/2015	capture	NQ C2	6	713503	7644693		446	35			15	4	None			
		25/08/2015	recapture		14	713283	7644663		451									
941000016595533	Female	23/08/2016	capture	NQ C1	11	713191	7646070		337	27			13	4	None			
		26/08/2016	recapture		11	713191	7646070		335									
941000017452062	Male	23/08/2015	capture	NQ C4	7	718404	7655595		406	36			16	3	fur missing			
		24/08/2015	recapture		17	718182	7655616											
		26/08/2016	recapture		21	718110	7655604											
		27/08/2015	recapture		25	718062	7655604											
941000017452068	Male	22/08/2015	capture	NQ C4	9	718359	7655616		662	37.2			17.5	3.5	None			
		26/08/2015	recapture		7	718404	7655595											
985170002967064	Male	21/08/2015	capture	NQ C4	1	718547	7655513		489	37	80		13	2.5	few fight wounds			
		25/08/2015	recapture		6	718424	7655577											
		26/08/2015	recapture		12	718289	7655612											
985170002971079	Male	21/08/2015	capture	NQ C4	8	718381	7655612		522	35	70		12	3	fighting wounds			
		22/08/2015	recapture		4	718464	7655559											
		23/08/2015	recapture		4	718464	7655559											
		24/08/2015	recapture		13	718272	7655599											
		25/08/2015	recapture		10	718338	7655602											
		26/08/2015	recapture		5	718445	7655570											
		27/08/2015	recapture		13	718272	7655599											

APPENDIX E NORTH STAR NORTHERN QUOLL RADIO TRACKING RESULTS 2011-2016

705000 708000 711000 714000 717000 720000

7653000

7650000

7647000

7644000

Legend

- Northern Quoll location (6 week period)
- North Star Magnetite Project Part IV boundary
- Northern Quoll habitat direct impact area
- Northern Quoll habitat indirect impact area
- Infrastructure area

ecologia ENVIRONMENT

0 1 2

Kilometres

Absolute Scale - 1:45,000

N

Previous North Star Northern Quoll radio tracking and behaviour results

Figure: Appendix B
Project ID: 1649

Drawn: BG
Date: 17/09/2015

Coordinate System
Name: GDA 1994 MGA Zone 50
Projection: Transverse Mercator
Datum: GDA 1994

A3

712000
713000
714000
7651000
7650000
7649000

Night 10 (Fix #30)
MC I8
MC I6
Night 19 (Fix #57)
Night 23 (Fix #68)
Night 11 (Fix #33)
Night 6 (Fix #17)
Night 5 (Fix #14)
Night 24 (Fix #70)
Night 14 (Fix #40)
Night 11 (Fix #31)
MC I7
NS NQ I1
Night 9 (Fix #10)
Night 8 (Fix #9)
Night 7 (Fix #8)
Night 13 (Fix #15)
Night 14 (Fix #16)
Night 11 (Fix #14)
Night 6 (Fix #7)
Night 9 (Fix #11)
Night 3 (Fix #4)
Night 4 (Fix #6)
Night 2 (Fix #3)
Night 1 (Fix #2)
Night 1 (Fix #1)
Night 11 (Fix #13)
Night 4 (Fix #5)

LEGEND

Point Linkage

Individual

Female Northern Quoll (Collar #3,Freq:150.139)

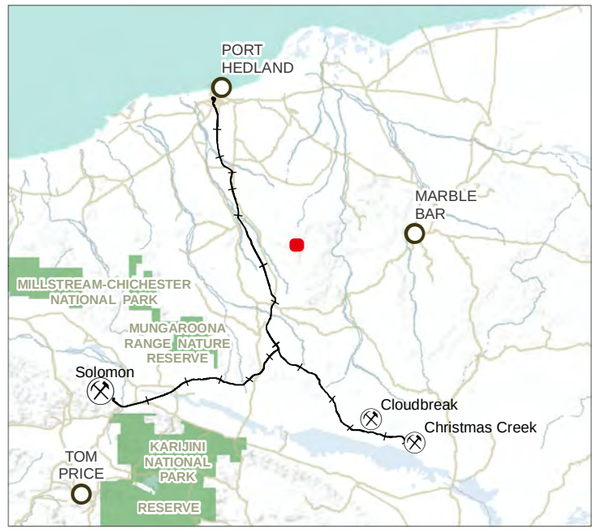
Male Northern Quoll (Collar #1,Freq:150.99)

Monitoring Sites

Motion Camera

Northern Quoll

OVERVIEW



Service Layer Credits: Sources: Esri, USGS, NOAA

ecoscape

AUTHOR: CP
DATE: SEP-15 PROJECT NO: 3501-15

NORTH STAR NORTHERN QUOLL WINTER MONITORING

CLIENT: FORTESCUE

COLLAR DATA

MAP 1

SCALE 1:10,000 @ A3

0 250 500 M