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CZR Resources. Robe Mesa Iron Ore Project

Fauna species Matters of National Environmental Significance (MNES)

Threats and mitigation

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The Robe Mesa Iron Ore Project area supports (or is highly likely to support) four fauna species that are MNES, with these species potentially being sufficiently abundant in the area for the risk of impacts to be of concern. These and other significant species, and the fauna assemblage in general, are discussed comprehensively by Kristancic *et al.* (2024). A threat assessment for these species is presented in Table 1. Key points from this threat assessment are:

- Personnel awareness important to manage impacts for most species, and in particular the Olive Python and Northn Quoll.
- Mortality during construction and ongoing mortality are risks for the Olive Python and possibly the Northern Quoll.
- Hydrological change, such as alteration of flow and impacts on pools, is a concern for the Olive Python.
- Altered fire regimes are a concern for all four MNES, mainly due to the risk of loss of foraging habitat from extensive wildfire.
- Disturbance is a concern mainly for the two bat species where they use temporary roosts along the mesa edge, in particular in the western valley.

Table 1. Threat assessment for MNES

Species and threatening process	Threat	Mitigation
Pilbara Olive Python		
Habitat loss leading to population decline	Negligible. Small area of impact across a broad landscape, with little impact on favoured habitat (some loss at river crossing of access road).	Minimise clearing footprint.
Habitat loss leading to population fragmentation	Minor. Some fragmentation possible where access road crosses Mungarathoona and Warramboo Creeks, and location of infrastructure may limit movement of animals between the mesa and the drainage system.	Maintain access under road at drainage crossings, to allow movement across the mesa edge and drainage lines.
Degradation of habitat due to weed invasion	Nil	
Mortality during construction	Minor to Major. Risk mainly from night-time vehicle movements and possibly during construction at main river crossing.	Investigate vehicle management measures to reduce risk of vehicle strike, particularly at night when pythons most likely to be active. Pre-clearing checks along creek lines and ramp site. Erect wildlife crossing signs.
Ongoing mortality	Minor to Major. Risk from night-time vehicle movements. Possibility of pythons entering parked-up equipment.	Investigate vehicle management measures to reduce risk of vehicle strike, particularly at night when pythons most likely to be active. Vehicle checks especially if machinery parked near creek lines.

Species and threatening process	Threat	Mitigation
		Ensure culverts can act as underpasses to encourage pythons to go underneath roads. (i.e. steep batter along roads may encourage pythons to travel at base of batter and enter culverts). Personnel awareness of terrestrial fauna values in the area.
Species interactions	Negligible. Possible effect if feral animals become established.	Record the presence of feral animals on site and implement control measures if there is an increase. Personnel awareness of terrestrial fauna values in the area.
Hydrological change	Minor to Major. Water movement along drainage lines could be altered.	Ensure earthworks and roads minimise any obstruction to natural surface water flow.
Altered fire regimes	Minor. Fire, especially in riparian areas, could reduce cover and cause mortality.	Manage hot works to reduce fire risk. Ensure adequate firefighting equipment and personnel are available on site.
Amenity disturbance (dust, noise, light).	Negligible. No impacts anticipated.	
Northern Quoll		
Habitat loss leading to population decline	Minor. Very small loss of potential denning habitat (mesa edge and major drainage lines) but some loss of foraging habitat in mine and infrastructure areas. Given the average home range size (35ha females; 100ha males), the combined mine and nearby	Minimise clearing footprint. Progressively rehabilitate where possible and retain habitat within infrastructure areas. The species will readily use infrastructure for shelter and will forage around buildings.

Species and threatening process	Threat	Mitigation
	infrastructure area of 157ha located mostly across foraging habitat should directly impact only a small number of animals. Extensive regional foraging habitat will remain. Some habitat loss will be temporary.	
Habitat loss leading to population fragmentation	Negligible to Minor. The mine and infrastructure area may restrict movement of Northern Quoll across the landscape, although the species is highly mobile and will thus have some ability to move through infrastructure areas. Roads not expected to form barriers (hence risk of roadkill; see below)	Minimise clearing footprint. Rehabilitate where possible and retain habitat within infrastructure areas. Culverts under roads (with possible directional fencing if required) should be established to facilitate movement (using wide with steep batter to guide animals to entrance).
Degradation of habitat due to weed invasion	Negligible. Buffel Grass is already well-established and the risk of further spread of weeds is low with management.	Implement standard soil hygiene practices to prevent spreading or introducing weeds. Control weeds in rehabilitated areas
Mortality during construction	Minor. Some risk to individuals when works conducted in potential denning habitat (primarily the mesa edge).	Investigate cage-trapping for two or three nights before clearing along mesa edge. Captured animals would need to be held until major ground disturbance complete.
Ongoing mortality	Minor. Risk from night-time vehicle movements. Possibility of sheltering in parked-up equipment.	Investigate vehicle management measures to reduce risk of vehicle strike, particularly at night when quolls most likely to be active. Vehicle checks especially if machinery parked for extended periods.

Species and threatening process	Threat	Mitigation
		Establish culverts (and possible fencing) to act as underpasses and encourage quolls to go underneath roads. Using steep batters along roads may also encourage animals to travel at base of batter and enter culverts. Personnel awareness of terrestrial fauna values in the area.
Species interactions	Negligible. Possible effect if feral animals become established.	Record the presence of feral animals on site and implement control measures if there is an increase. Personnel awareness.
Hydrological change	Negligible. Northern Quoll would be affected only if very major changes to hydrology were to occur.	Ensure earthworks and roads minimise any obstruction to natural surface water flow.
Altered fire regimes	Minor to Moderate. Risk from extensive wildfires as this would reduce carrying capacity of landscape.	Manage hot works to reduce fire risk. Ensure adequate firefighting equipment and personnel are available on site.
Amenity disturbance (dust, noise, light, vibration).	Negligible. The species appears tolerant of disturbance.	As a precaution, control dust, noise, light and vibration. Lighting should not be directed into natural areas and should use non insect-attracting fittings (avoids impacting on insect populations and reduces the attractiveness of infrastructure areas to Northern Quoll and other fauna that may forage on insects around lights).
Ghost Bat		
Habitat loss leading to population decline	Negligible.	Minimise clearing footprint especially along mesa edge.

Species and threatening process	Threat	Mitigation
	Loss of small area of foraging habitat not close to a major roost. No loss of roosting habitat expected.	
Habitat loss leading to population fragmentation	Nil. A strong-flying species expected to fly over or around development areas.	
Degradation of habitat due to weed invasion	Negligible. Buffel Grass is already well-established and the risk of further spread of weeds is low with management.	Implement standard soil hygiene practices to prevent spreading or introducing weeds. Control weeds in rehabilitated areas.
Mortality during construction	Nil to negligible. Very slight chance of an individual making temporary use of a roost site along the mesa edge near where development proposed.	Maintain watch when beginning disturbance. Personnel awareness.
Ongoing mortality	Negligible. Possible risk from fencing.	Minimise the use of barbed wire fencing.
Species interactions	Nil.	
Hydrological change	Nil.	-
Altered fire regimes	Minor to major. Risk from extensive wildfires as this would reduce carrying capacity of landscape, possibly affecting maternity roost to south.	Manage hot works to reduce fire risk. Ensure adequate firefighting equipment and personnel are available on site.
Amenity disturbance (dust, noise, light, vibration).	Negligible to Minor. Possibility of disturbance affecting use of nearby temporary roosts (mainly in western valley). Slight chance of Ghost Bats being	Prevent disturbance in western valley area. Manage use of lighting.

Species and threatening process	Threat	Mitigation
	attracted to infrastructure area by lights, and/or by insects attracted to lights.	Lighting should not be directed into natural areas and should use non insect-attracting fittings
Pilbara Leaf-nosed Bat		
Habitat loss leading to population decline	Negligible. Loss of small area of foraging habitat not close to a major roost. No loss of roosting habitat expected.	Minimise clearing footprint especially along mesa edge.
Habitat loss leading to population fragmentation	Nil. A moderately strong-flying species expected to fly over or around development areas.	
Degradation of habitat due to weed invasion	Negligible. Buffel Grass is already well-established and the risk of further spread of weeds is low with management.	Implement standard soil hygiene practices to prevent spreading or introducing weeds. Implement weeds in rehabilitated areas
Mortality during construction	Nil to negligible. Very slight chance of an individual making temporary use of a roost site along the mesa edge near where development proposed.	Maintain watch when beginning disturbance. Personnel awareness.
Ongoing mortality	Negligible. Possible risk from fencing.	Minimise the use of barbed wire fencing.
Species interactions	Nil.	
Hydrological change	Nil (assuming no major impacts on drainage and riverine pools and vegetation).	-
Altered fire regimes	Minor to major.	Manage hot works to reduce fire risk.

Species and threatening process	Threat	Mitigation
	Risk from extensive wildfires as this would reduce carrying capacity of landscape, possibly affecting maternity roost to south.	Ensure adequate firefighting equipment and personnel are available on site.
Amenity disturbance (dust, noise, light, vibration).	Negligible to Minor. Possibility of disturbance affecting use of nearby temporary roosts (mainly in western valley). Slight chance of Pilbara Leaf-nosed Bat being attracted to infrastructure area by lights, and/or by insects attracted to lights.	Prevent disturbance in western valley area. Manage use of lighting. Lighting should not be directed into natural areas and should use non insect-attracting fittings