

15. Matters of National Environmental Significance

This chapter documents potential impacts of the Mount Peake Project on Matters of National Environmental Significance (MNES) identified under the EPBC Act. The potential impacts and associated management measures identified in this chapter also contribute to the flora and fauna components of the Project risk assessment undertaken in Chapter 5. The Project risk assessment includes consequence, likelihood and residual risk ratings for impacts associated with flora / vegetation and fauna after management measures are implemented.

Detailed assessments of the ecological values of the Project area are provided in Appendices G and H. These contain the results of desktop investigations, field surveys and likelihood of occurrence assessments. The outcomes of this work are presented in this chapter as it relates to MNES. This chapter should be read in conjunction with Chapter 8 (Biodiversity).

15.1 Introduction

The EPBC Act prescribes the Commonwealth's role in environmental assessment, biodiversity conservation and management of MNES. Actions that may have a significant impact on MNES are identified as "controlled actions" and cannot be undertaken without approval under the EPBC Act.

A referral under the EPBC Act was submitted to the DotE on 14 October 2013. The Project (the action) was determined to be a "controlled action" on the 18 November 2013. The controlling provisions were listed threatened species and communities (sections 18 and 18A).

15.2 Impact Assessment

The level of risk posed to the MNES by each source of impact is assessed using standard semi-qualitative risk assessment procedures. The process is consistent with AS / NZS ISO 31000:2009 'Risk Management – Principles and guidelines'. The likelihood of a particular consequence to flora / vegetation and / or fauna from a source of potential impact is determined (five levels, "Rare" to "Almost Certain"), as is the severity of that consequence (five levels, "Minor" to "Critical"). These together determine the level of risk on a scale from "Very Low" to "Extreme". Risk assessments assume that standard mitigation of potential impacts has been implemented. The qualitative assessment matrix, level of likelihood and severity of consequences are defined in Table 15-1 to Table 15-3.

Table 15-1 Qualitative risk analysis matrix

Likelihood of Consequence	Severity of Consequence				
	Critical (5)	Major (4)	Significant (3)	Moderate (2)	Minor (1)
Almost Certain (5)	Extreme	Extreme	High	High	Medium
Likely (4)	Extreme	High	High	Medium	Medium
Possible (3)	Extreme	High	Medium	Medium	Low
Unlikely (2)	High	Medium	Medium	Low	Very Low
Rare (1)	Medium	Medium	Low	Low	Very Low

Table 15-2 Definition of level of likelihood

Level of Likelihood	Definitions
Almost certain	The event is expected to occur in most circumstances (the event is likely to occur once per year).
Likely	The event will probably occur in most circumstances (the event is likely to occur once every 1 – 2 years).
Possible	The event might occur at some time (the event is likely to occur once every 2 – 5 years).
Unlikely	The event could occur at some time (the event is likely to occur once every 5 – 10 years).
Rare	The event may occur only in exceptional circumstances (the event is unlikely to occur in any 10 year period).

Table 15-3 Definitions of levels of consequence

Levels of Consequence	Definitions
Critical	Extensive long term environmental harm and / or harm that is extremely widespread. Impacts unlikely to be reversible within 10 years.
Major	Major or widespread, unplanned environmental impact on or off the site. Significant resources required to respond and rehabilitate.
Significant	Significant, unplanned environmental impact contained within the site or minor impact that is off the site.
Moderate	Moderate, unplanned localised environmental impact contained on-site or with negligible off-site impact.
Minor	Minor environmental impact. Any impacts are contained on-site and short term in nature.

15.2.1 Protected Matters Search Tool results

The PMST database was used to identify MNES within the Project area and a surrounding 10 km buffer. A summary of the MNES search results and the potential impact of the Project is provided in Table 15-4.

15.2.2 Nationally Threatened Species and Ecological Communities

Twenty listed threatened fauna species and one flora species potentially occur within 10 km of the Project area.

Using a combination of literature reviews, species database record searches and habitat assessment, five of these fauna species were determined to be extinct in the wild and eight of these species were determined to be unlikely to utilise this area. Of the remaining seven fauna species, six were deemed possible or present and one with an unknown presence due to its difficulty in detection. Whilst none of these threatened species were observed during field investigations, indirect evidence of presence and / or the presence of some areas of suitable habitat suggests that the Project area could support some of these species. Potential impact assessment using the DotE Significant Impact Guidelines 1.1 (DotE 2013a) was prepared for the bilby, brush-tailed mulgara, black-footed rock-wallaby, southern marsupial mole, princess parrot, night parrot and the great desert skink (Appendix H).

No evidence of the threatened dwarf desert spike-rush was found and records of habitat preference in the Project area indicate that this species would be confined to areas of swamp. Stirling Swamp, 12 km north of the access road, and Mud Hutt Swamp, 7.7 km north of the mine pit, will not be impacted by the Project. Consequently, no assessment against the DotE Significant Impact Guidelines was undertaken.

Table 15-4 Impacts of the Project on Matters of National Environmental Significance

MNES	Risk Rating	Impact of the Project
Listed Threatened Species	High risk	<p>The PMST search identified 20 threatened fauna species and one threatened flora species (dwarf desert spike-rush <i>Eleocharis papillosa</i>). None of the fauna species were observed during the field survey, however there was indirect evidence of mammal presence. There are past records of the bilby (<i>Macrotis lagotis</i>), crest-tailed mulgara (<i>Dasyurus cristicauda</i>), brush-tailed mulgara (<i>Dasyurus blythi</i>) and the black-footed rock-wallaby (<i>Petrogale lateralis</i>) and evidence of suitable habitat within the Project area.</p> <p>All other fauna species have not been recorded in or near the Project area for many years, or have not been recorded there at all. These species, if present, are likely to be very rare. Five of the species are considered to be extinct in the NT under the TPWC Act and eight of the species are unlikely to be present. The southern marsupial mole (<i>Notoryctes typhlops</i>) is a subterranean species and is extremely difficult to detect. Its likelihood of presence is unknown. The remaining seven threatened species are unlikely to occur in the Project area.</p> <p>There was no evidence of the dwarf desert spike-rush during the field survey and it is known to be largely constrained to swamp areas which will not be impacted by the Project.</p> <p>A summary of assessment against significance criteria is provided in Section 15.2.2. Following the application of management measures, any inherent risk to threatened species is expected to be either low or very low.</p>
Listed Threatened Ecological Communities	No	The PMST did not identify any Nationally Threatened Ecological Community in or near the Project area.
Migratory Species Protected under International Agreements	No	The PMST search identified 7 migratory bird species. This included the rainbow bee-eater (<i>Merops ornatus</i>) which is the only migratory species that is known to occur historically within and around the Project area. These migratory species identified are known to occupy a very broad area and most likely do not occur within the Project area and so were not assessed. Assessments of migratory species in terms of the significance criteria are provided in Section 15.2.3
Wetlands of International Importance	No	The PMST did not identify any Ramsar Wetlands of International Importance in or near the Project area.
Commonwealth Marine Areas	No	The PMST did not identify any Commonwealth Marine Areas in or near the Project area.
World Heritage Properties	No	The PMST did not identify any World Heritage properties in or near the Project area.
National Heritage Places	No	The PMST did not identify any registered National Heritage Place in or near the Project area.
The Great Barrier Reef Marine Park	No	The Project area is not located near or adjacent to the Great Barrier Reef Marine Park. It will not impact this marine park.
Nuclear actions	No	No nuclear actions will be undertaken as part of the Project.
A water resource, in relation to coal seam gas development and large coal mining development	No	The Project is not a coal seam gas or large coal mining development.

Greater Bilby

The greatest inherent risk to the potential population of greater bilby is “High” (Table 15-5). A risk of medium or greater was assessed for the potential for habitat clearing, habitat fragmentation, industrial and domestic waste material, unplanned wildfires, introduction of exotic plants and animals and inappropriate / ineffective rehabilitation to cause a population decline and or result in invasive species.

Table 15-5 Greater Bilby risk assessment

Consequence according to the significant impact guidelines	Severity of consequence	Likelihood of consequence	Risk
Lead to a long-term decrease in the size of an important population of a species	Possible	Critical	High
Reduce the area of occupancy of an important population	Unlikely	Minor	Very Low
Fragment an existing population into two or more populations	Unlikely	Minor	Very Low
Adversely affect habitat critical to the survival of a species	Likely	Minor	Low
Disrupt the breeding cycle of an important population	Unlikely	Minor	Very Low
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Possible	Significant	Medium
Result in invasive species that are harmful to the species becoming established	Possible	Critical	High
Introduce disease that may cause the species to decline	Rare	Major	Low
Interfere substantially with the recovery of the species	Possible	Major	Medium

If bilby occur within the Project area, the level of residual risk can be reduced to an acceptably low level by implementing the following measures:

- ▶ a pre-clearance survey followed by staged vegetation clearing, undertaken during seasons that the bilby is less vulnerable;
- ▶ securely fencing domestic wastes to minimise animal pest attraction;
- ▶ Fire Management Plan with mine activity planning, maintenance of fire breaks and controlled burns;
- ▶ implementing an animal pest eradication / control program and monitoring feral fauna numbers;
- ▶ Weed Management Plan with vehicle washdown, weed monitoring and weed control activities; and
- ▶ Rehabilitation Strategy and Mine Closure Plan with progressive rehabilitation.

Brush-tailed Mulgara

The greatest inherent risk to the potential population of brush-tailed mulgara is “High” (Table 15-6). A risk of medium or greater was assessed for the potential for habitat clearing, habitat fragmentation, industrial and domestic waste material, unplanned wildfires, impacts from vehicles / transport, introduction of exotic plants and animals and inappropriate / ineffective rehabilitation to cause a population decline and or result in invasive species.

Table 15-6 Brush-tailed Mulgara risk assessment

Consequence according to the significant impact guidelines	Severity of consequence	Likelihood of consequence	Risk
Lead to a long-term decrease in the size of an important population of a species	Possible	Critical	High
Reduce the area of occupancy of an important population	Unlikely	Minor	Very Low
Fragment an existing population into two or more populations	Unlikely	Minor	Very Low
Adversely affect habitat critical to the survival of a species	Likely	Minor	Low
Disrupt the breeding cycle of an important population	Unlikely	Minor	Very Low
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Possible	Significant	Medium
Result in invasive species that are harmful to the species becoming established	Possible	Critical	High
Introduce disease that may cause the species to decline	Rare	Major	Low
Interfere substantially with the recovery of the species	Possible	Major	Medium

If brush-tailed mulgara occur within the Project area, the level of risk can be reduced to an acceptably low level by implementing the following measures:

- ▶ a pre-clearance survey followed by staged vegetation clearing, undertaken during seasons that the brush-tailed mulgara is less vulnerable;
- ▶ securely fencing domestic wastes to minimise animal pest attraction;
- ▶ Fire Management Plan with mine activity planning, maintenance of fire breaks and controlled burns;
- ▶ Traffic Management Plan with reduced speed limits, minimised night driving, minimised road traffic and road network and monitoring of roadkill;
- ▶ implementing an animal pest eradication / control program and monitoring feral fauna numbers;
- ▶ Weed Management Plan with vehicle washdown, weed monitoring and weed control activities; and
- ▶ Rehabilitation Strategy and Mine Closure Plan with progressive rehabilitation.

Black-footed Rock-wallaby

The greatest inherent risk to the potential population of black-footed rock-wallaby is “Medium” (Table 15-7). A risk of medium was assessed for the potential for domestic wastes, unplanned wildfires, introduction of exotic plants and animals and inappropriate / ineffective rehabilitation to cause a population decline.

Table 15-7 Black-footed Rock-wallaby risk assessment

Consequence according to the significant impact guidelines	Severity of consequence	Likelihood of consequence	Risk
Lead to a long-term decrease in the size of an important population of a species	Possible	Major	Medium
Reduce the area of occupancy of an important population	Unlikely	Minor	Very Low
Fragment an existing population into two or more populations	Unlikely	Minor	Very Low
Adversely affect habitat critical to the survival of a species	Likely	Minor	Low
Disrupt the breeding cycle of an important population	Unlikely	Minor	Very Low
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Possible	Significant	Medium
Result in invasive species that are harmful to the species becoming established	Possible	Major	Medium
Introduce disease that may cause the species to decline	Rare	Major	Low
Interfere substantially with the recovery of the species	Possible	Major	Medium

If black-footed rock-wallaby occur within the Project area, the level of risk can be reduced to an acceptably low level by implementing the following measures:

- ▶ securely fencing domestic wastes to minimise animal pest attraction;
- ▶ Fire Management Plan with mine activity planning, maintenance of fire breaks and controlled burns;
- ▶ implementing an animal pest eradication / control program and monitoring feral fauna numbers;
- ▶ Weed Management Plan with vehicle washdown, weed monitoring and weed control activities; and
- ▶ Rehabilitation Strategy and Mine Closure Plan with progressive rehabilitation.

Southern Marsupial Mole

The greatest inherent risk to the potential population of southern marsupial is “Medium” (Table 15-8). Although not thought to utilise the Project area they have been included due the difficulty in detecting their presence. A risk of medium was assessed for the potential for habitat clearing, habitat fragmentation, industrial and domestic waste material, unplanned wildfires, introduction of exotic plants and animals and inappropriate / ineffective rehabilitation to cause a population decline and or result in invasive species.

If the southern marsupial mole occurs within the Project area, the level of risk can be reduced to an acceptably low level by implementing the following measures:

- ▶ securely fencing domestic wastes to minimise animal pest attraction;
- ▶ Fire Management Plan with mine activity planning, maintenance of fire breaks and controlled burns;
- ▶ implementing an animal pest eradication / control program and monitoring feral fauna numbers;
- ▶ Weed Management Plan with vehicle washdown, weed monitoring and weed control activities; and
- ▶ Rehabilitation Strategy and Mine Closure Plan with progressive rehabilitation.

Table 15-8 Southern Marsupial Mole risk assessment

Consequence according to the significant impact guidelines	Severity of consequence	Likelihood of consequence	Risk
Lead to a long-term decrease in the size of an important population of a species	Unlikely	Moderate	Low
Reduce the area of occupancy of an important population	Unlikely	Minor	Very Low
Fragment an existing population into two or more populations	Unlikely	Minor	Very Low
Adversely affect habitat critical to the survival of a species	Unlikely	Minor	Very Low
Disrupt the breeding cycle of an important population	Unlikely	Minor	Very Low
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	Minor	Very Low
Result in invasive species that are harmful to the species becoming established	Possible	Major	Medium
Introduce disease that may cause the species to decline	Rare	Major	Low
Interfere with the recovery of the species	Unlikely	Significant	Low

Princess Parrot

The greatest inherent risk to the potential population of princess parrot is “Medium” (Table 15-9). A risk of medium was assessed for the potential for domestic wastes, unplanned wildfires, and the introduction of exotic plants and animals to cause a population decline.

Table 15-9 Princess Parrot risk assessment

Consequence according to the significant impact guidelines	Severity of consequence	Likelihood of consequence	Risk
Lead to a long-term decrease in the size of an important population of a species	Unlikely	Minor	Very Low
Reduce the area of occupancy of an important population	Unlikely	Minor	Very Low
Fragment an existing population into two or more populations	Unlikely	Minor	Very Low
Adversely affect habitat critical to the survival of a species	Likely	Minor	Low
Disrupt the breeding cycle of an important population	Unlikely	Minor	Very Low
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	Minor	Very Low
Result in invasive species that are harmful to the species becoming established	Possible	Major	Medium
Introduce disease that may cause the species to decline	Rare	Major	Low
Interfere substantially with the recovery of the species	Unlikely	Minor	Very Low

If the princess parrot occurs within the Project area, the level of risk can be reduced to an acceptably low level by implementing the following measures:

- ▶ securely fencing domestic wastes to minimise animal pest attraction;
- ▶ Fire Management Plan with mine activity planning, maintenance of fire breaks and controlled burns;
- ▶ implementing an animal pest eradication / control program and monitoring feral fauna numbers; and
- ▶ Weed Management Plan with vehicle wash down, weed monitoring and weed control activities.

Night parrot

The greatest inherent risk to the potential population of night parrot is “High” (Table 15-10). A risk of high was assessed for the potential for domestic wastes, unplanned wildfires, and the introduction of exotic plants and animals to cause a population decline.

Table 15-10 Night parrot risk assessment

Consequence according to the significant impact guidelines	Severity of consequence	Likelihood of consequence	Risk
Lead to a long-term decrease in the size of an important population of a species	Possible	Critical	High
Reduce the area of occupancy of an important population	Unlikely	Minor	Very Low
Fragment an existing population into two or more populations	Unlikely	Minor	Very Low
Adversely affect habitat critical to the survival of a species	Likely	Minor	Low
Disrupt the breeding cycle of an important population	Unlikely	Minor	Very Low
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	Minor	Very Low
Result in invasive species that are harmful to the species becoming established	Possible	Critical	High
Introduce disease that may cause the species to decline	Rare	Major	Low
Interfere with the recovery of the species	Unlikely	Minor	Very Low

If the night parrot occurs within the Project area, the level of risk can be reduced to an acceptably low level by implementing the following measures:

- ▶ securely fencing domestic wastes to minimise animal pest attraction;
- ▶ Fire Management Plan with mine activity planning, maintenance of fire breaks and controlled burns;
- ▶ implementing an animal pest eradication / control program and monitoring feral fauna numbers; and
- ▶ Weed Management Plan with vehicle washdown, weed monitoring and weed control activities.

Great desert skink

The greatest inherent risk to the potential population of great desert skink is “High” (Table 15-11). Although not thought to utilise the Project area they have been included due to the difficulty in detecting their presence. A risk of medium or greater was assessed for the potential for habitat clearing, habitat fragmentation, industrial and domestic waste material, unplanned wildfires, introduction of exotic plants and animals and inappropriate / ineffective rehabilitation to cause a population decline.

Table 15-11 Great desert skink risk assessment

Consequence according to the significant impact guidelines	Severity of consequence	Likelihood of consequence	Risk
Lead to a long-term decrease in the size of an important population of a species	Possible	Critical	High
Reduce the area of occupancy of an important population	Unlikely	Minor	Very Low
Fragment an existing population into two or more populations	Unlikely	Minor	Very Low
Adversely affect habitat critical to the survival of a species	Likely	Minor	Low
Disrupt the breeding cycle of an important population	Unlikely	Minor	Very Low
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Possible	Significant	Medium
Result in invasive species that are harmful to the species becoming established	Possible	Critical	High
Introduce disease that may cause the species to decline	Rare	Major	Low
Interfere substantially with the recovery of the species	Possible	Moderate	Low

If the great desert skink occurs within the Project area, the level of risk can be reduced to an acceptably low level by implementing the following measures:

- ▶ a pre-clearance survey followed by staged vegetation clearing, undertaken during seasons that the great desert skink is less vulnerable;
- ▶ securely fencing domestic wastes to minimise animal pest attraction;
- ▶ Fire Management Plan with mine activity planning, maintenance of fire breaks and controlled burns;
- ▶ implementing an animal pest eradication / control program and monitoring feral fauna numbers;
- ▶ Weed Management Plan with vehicle washdown, weed monitoring and weed control activities; and
- ▶ Rehabilitation Strategy and Mine Closure Plan with progressive rehabilitation.

15.2.3 Migratory Species Protected under International Agreements

The PMST database identifies that seven migratory bird species could potentially occur within 10 km of the Project area. Of these, the rainbow bee-eater (*Merops ornatus*) is the only one that is known to occur historically and has been observed within the Project area.

Each of these migratory species occupies a very broad area that includes much if not all of the Australian mainland, and none is linked strongly to habitats in the Project area that are likely to be impacted by the Project. There is no evidence to suggest that the Project area provides “important habitat” for a migratory species, or supports an “ecologically significant proportion” of a migratory species population as defined in the guidelines on significance of impacts to migratory species. Consequently, no specific impact assessment against the DotE Significant Impact Guidelines has been undertaken.

15.3 Summary

Seven threatened fauna species were assessed against the ‘DotE Significant Impact Guidelines 1.1’ (DotE 2013a). Four species were assessed as having a high inherent (without mitigation) risk against one of more of the guidelines from Project-related activities (greater bilby, brush-tailed mulgara, night parrot and the great desert skink), and the remaining three assessed as being at medium risk (black-footed rock-wallaby, southern marsupial mole and the princess parrot).

No flora species were deemed to be at risk from the Project. No listed migratory species were likely to be an “ecologically significant proportion” of a population or to occupy “important habitat”.

The main sources of impact on fauna are expected to be from:

- ▶ clearing of vegetation;
- ▶ unplanned wildfires;
- ▶ collisions between fauna and traffic;
- ▶ introduction and / or spread of weeds and animal pests;
- ▶ industrial and domestic waste; and
- ▶ inappropriate / ineffective rehabilitation.

Management measures are proposed that will reduce the residual risk of impact to EPBC threatened species to either low or very low.