



MIDDLEMOUNT COAL MINE

**SOUTHERN EXTENSION PROJECT
Original EPBC Referral Submission 18/03/2021
(EPBC 2021/8920)**

Koala Greater Glider MNES Assessment



Middlemount Coal Mine Southern Extension Project – EPBC Act Assessment for the Greater Glider and Koala

This assessment has been prepared to support the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Referral for the Middlemount Coal Mine Southern Extension Project (the Action), and provides an assessment of the Action against the Commonwealth *Matters of National Environmental Significance: Significant impact guidelines 1.1* (Department of the Environment [DoE], 2013) for the Greater Glider (*Petauroides Volans*) and Koala (*Phascolarctos cinereus*) (combined populations of Queensland, New South Wales and the Australian Capital Territory).

1. Assessment of Significance – Greater Glider

1.1 Distribution

The Greater Glider is listed as vulnerable under the EPBC Act.

The Greater Glider occurs in forests and woodlands across eastern Australia where it forages on eucalypt leaves and occasionally flowers (Threatened Species Scientific Committee [TSSC], 2016). It requires large tracks of remnant forests which contain old growth trees containing hollows which it uses for denning. Individual home ranges of the Greater Glider are small with an average size of around 1-3 hectares (ha). This species is usually solitary within this home range and is known to be very loyal to their territory (Comport et al., 1996, Pope et al., 2005, TSSC, 2016).

1.2 Threats

A reduction in habitat area and quality is the key existing threat to this species (Department of Planning, Industry and Environment [DPIE], 2020). The increasing level of development results in the following specific threats to the Greater Glider:

- removal and fragmentation of habitat;
- loss of hollow-bearing trees; and
- injury from barbed wire fences.

1.3 Relevance of the Action

The Action would remove approximately 63 ha of known and potential habitat for the Greater Glider, mainly along Roper Creek (Biodiversity Australia, 2020). It is relevant to note that there are existing and approved impacts on the riparian vegetation along Roper Creek associated with the approved Roper Creek Diversions. The Action would realign and extend the approved Roper Creek Diversion 2.

The Action would only temporarily reduce the area of occupancy of the individuals recorded in the Action area, as riparian vegetation would be established along Roper Creek Diversion 2, having the effect of reinstating and reconnecting the extensive Greater Glider habitat surrounding the Action area. For example, the existing Middlemount Coal Mine offsets (including three Commonwealth offset areas) cover an area of approximately 5,861 ha, and include extensive areas of Greater Glider habitat.

It is also relevant to note that the Queensland Department of Environment and Science (DES) approved the Southern Extension Project (i.e. the Action) on 19 April 2021, with a requirement to offset impacts on the Greater Glider. MCPL will therefore expand the existing offset areas to include another 253 ha of habitat for the Greater Glider as part of the State approval process for impacts associated with the Action.

1.4 Survey Results

The Greater Glider has been recorded in the Action area during surveys by Biodiversity Australia (2020), and numerous historic records of this species occur in the surrounding area (including existing Middlemount Coal Mine offset areas).

1.5 Important Population Assessment

The large number of recordings of this species in the surrounding area (including existing Middlemount Coal Mine offset areas) indicate this species is widespread in the local context, and the individuals in the Action area are part of a larger population in the surrounding area that is not near the limit of the species known distribution. Given this, the Greater Glider population utilising habitat within the Action area is not considered to represent an important population of this species as defined in the *Matters of National Environmental Significance Significant impact guidelines 1.1* (DoE, 2013).

1.6 Significant Impact Assessment

The significant impact assessment in Table 1 below has been prepared in consideration of the *Matters of National Environmental Significance: Significant impact guidelines 1.1* (DoE, 2013).

Table 1
Significant Impact Assessment – Greater Glider

Significant Impact Criteria	Details
a) <i>Lead to a long-term decrease in the size of an important population of a species</i>	The Greater Glider population utilising habitat within the Action area is not considered to represent an important population of this species (Section 1.4).
b) <i>Reduce the area of occupancy of an important population</i>	The Greater Glider population utilising habitat within the Action area is not considered to represent an important population of this species (Section 1.4).
c) <i>Fragment an existing important population into two or more populations</i>	The Greater Glider population utilising habitat within the Action area is not considered to represent an important population of this species (Section 1.4).
d) <i>Adversely affect habitat critical to the survival of a species</i>	No critical habitat for the Greater Glider and is present within the Action area according to any databases or registers, including the Register of Critical Habitat maintained by the Minister under the EPBC Act.
e) <i>Disrupt the breeding cycle of an important population</i>	The Greater Glider population utilising habitat within the Action area is not considered to represent an important population of this species (Section 1.4).
f) <i>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</i>	The Action would remove known and potential habitat for the Greater Glider. Although the removal of the habitat within the Action area would have the potential to result in a short term decline in the species in a local context, MCPL would continue to implement the pre-clearance management measures in accordance with the existing Environmental Management Plan, which includes the use of a fauna spotter-catcher.
g) <i>Result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a Vulnerable species, becoming established in the Vulnerable species' habitat</i>	The Action area currently has a number of introduced and invasive species including predators such as the Feral Cat and Wild Dog; and weeds such as Red Natal Grass and Buffel Grass. No new species that would affect the Greater Glider would likely be introduced as a direct result of the Action.
h) <i>Introduce a disease that may cause a species to decline</i>	Due to the nature of the Action, the risk of a new disease being introduced to the locality would be unlikely.
i) <i>Interferes substantially with the recovery of the species</i>	The Action would not interfere substantially with the recovery of the Greater Glider. The Action would remove approximately 63 ha of known and potential habitat for the Greater Glider, mainly along Roper Creek (Biodiversity Australia, 2020). It is relevant to note that there are existing and approved impacts on the riparian vegetation along Roper Creek associated with the approved Roper Creek Diversions. The Action would realign and extend the approved Roper Creek Diversion 2. The Action would only temporarily reduce the area of occupancy of the individuals recorded in the Action area, as riparian vegetation would be established along Roper Creek Diversion 2, having the effect of reinstating and reconnecting the extensive Greater Glider habitat surrounding the Action area.

Significant Impact Criteria	Details
	For example, the existing Middlemount Coal Mine offsets (including three Commonwealth offset areas) cover an area of approximately 5,861 ha, and include extensive areas of Greater Glider habitat. It is also relevant to note that the Queensland Department of Environment and Science (DES) approved the Southern Extension Project (i.e. the Action) on 19 April 2021, with a requirement to offset impacts on the Greater Glider. MCPL will therefore expand the existing offset areas to include another 253 ha of habitat for the Greater Glider as part of the State approval process for impacts associated with the Action.
Conclusion	No significant impact.

2. Assessment of Significance – Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)

2.1 Distribution

The Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) is listed as vulnerable under the EPBC Act.

The listed species range for the Koala is from north-eastern Queensland to the Victorian border, however as a result of translocations, a number of populations can be found outside of this range (Department of Agriculture, Water and the Environment [DAWE], 2020). In Queensland, the distribution of the Koala “ends inland from the east coast: from the Wet Tropics interim biogeographic regionalisation of Australia (IBRA) bioregion, into the Einasleigh Uplands bioregion in the north of the state; from the Central Mackay Coast bioregion, through the Brigalow Belt North bioregion to the Desert Uplands and Mitchell Grass Downs bioregions, and from the Southeast Queensland bioregion, through the Brigalow Belt to the Mulga Lands and Channel Country bioregions in the southwest of the state” (DAWE, 2020).

Koala distribution is highly dependent on altitude (less than 800 metres above sea level), temperature and in some instances, leaf moisture (DAWE, 2020).

2.2 Threats

The key existing threats to the Koala are ongoing habitat loss and fragmentation, vehicle strike and predation by the domestic/feral dog. The DAWE (2020) also recognises the significant threat of extreme environmental conditions (i.e. extreme heat, drought, fire) and disease (in particular *Chlamydia* infections and Koala Retrovirus) to the Koala.

2.3 Relevance of the Action

The Action would remove approximately 63 ha of potential habitat for the Koala, mainly along Roper Creek (Biodiversity Australia, 2020). It is relevant to note that there are existing and approved impacts on the riparian vegetation along Roper Creek associated with the approved Roper Creek Diversions. The Action would realign and extend the approved Roper Creek Diversion 2.

The Action would only temporarily reduce the area of potential Koala habitat in the Action area, as riparian vegetation would be established along Roper Creek Diversion 2, having the effect of reinstating and reconnecting the extensive Koala habitat surrounding the Action area. For example, the existing Middlemount Coal Mine offsets (including three Commonwealth offset areas) cover an area of approximately 5,861 ha, and include extensive areas of Koala habitat.

It is also relevant to note that the DES approved the Southern Extension Project (i.e. the Action) on 19 April 2021, with a requirement to offset impacts on the Koala. MCPL will therefore expand the existing offset areas to include another 253 ha of habitat for the Koala as part of the State approval process for impacts associated with the Action.

2.4 Survey Results

The Koala was detected within the Action area via the identification of a scat. The age of the scat from visual identifiers was estimated at six months old (Biodiversity Australia, 2020). There are other sparse Koala/scat records in the surrounding area (including existing Middlemount Coal Mine offset areas).

The preferred foraging resources for the Koala identified within the Action area were located in sparse and open eucalypt woodland/forest communities, providing an overall scarcity of foraging resources.

2.5 Important Population Assessment

Given the sparse number of recordings of the Koala in the area surrounding the Action (including within existing Middlemount Coal Mine offset areas), any individuals in the Action area and surrounds are unlikely to represent an important population of this species as defined in the *Matters of National Environmental Significance Significant impact guidelines 1.1* (DoE, 2013).

2.6 Significant Impact Assessment

The significant impact assessment for the Koala in Table 2 below has been prepared in consideration of the *Matters of National Environmental Significance: Significant impact guidelines 1.1* (DoE, 2013) and *EPBC Act referral guidelines for the vulnerable koala* (DoE, 2014).

Table 2
Significant Impact Assessment – Koala

Significant Impact Criteria	Details
a) <i>Lead to a long-term decrease in the size of an important population of a species</i>	Any Koala individuals utilising the habitat within the Action area are not considered to represent an important population of this species (Section 2.4).
b) <i>Reduce the area of occupancy of an important population</i>	Any Koala individuals utilising the habitat within the Action area are not considered to represent an important population of this species (Section 2.4).
c) <i>Fragment an existing important population into two or more populations</i>	Any Koala individuals utilising the habitat within the Action area are not considered to represent an important population of this species (Section 2.4).
d) <i>Adversely affect habitat critical to the survival of a species</i>	The Action would remove approximately 63 ha of known/potential habitat for the Koala. Due to limited abundance of preferred browse species and poor soils, the habitat in the Action area is considered lower quality habitat that would only form part of the marginal home range of a Koala. Further, the construction of Roper Creek Diversion 2, along which riparian vegetation would be established, would have the effect of reinstating and re-connecting the Koala habitat within and surrounding the Action area.
e) <i>Disrupt the breeding cycle of an important population</i>	Any Koala individuals utilising the habitat within the Action area are not considered to represent an important population of this species (Section 2.4).
f) <i>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</i>	The Action would remove known and potential habitat for the Koala. Notwithstanding, the removal of the habitat within the Action area unlikely has the potential to result in a short term decline in the species in a local context, as MCPL would continue to implement the pre-clearance management measures in accordance with the existing Environmental Management Plan, which includes the use of a fauna spotter-catcher.

Significant Impact Criteria	Details
g) <i>Result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a Vulnerable species, becoming established in the Vulnerable species' habitat</i>	The Action area currently has a number of introduced and invasive species including predators such as the Feral Cat and Wild Dog; and weeds such as Red Natal Grass and Buffel Grass. No new species that affects the subject species would likely be introduced as a direct result of the Action.
h) <i>Introduce a disease that may cause a species to decline</i>	Due to the nature of the Action, the risk of a new disease being introduced to the locality would be unlikely.
i) <i>Interferes substantially with the recovery of the species</i>	The Action would remove approximately 63 ha of potential habitat for the Koala, mainly along Roper Creek (Biodiversity Australia, 2020). It is relevant to note that there are existing and approved impacts on the riparian vegetation along Roper Creek associated with the approved Roper Creek Diversions. The Action would realign and extend the approved Roper Creek Diversion 2. The Action would only temporarily reduce the area of potential Koala habitat in the Action area, as riparian vegetation would be established along Roper Creek Diversion 2, having the effect of reinstating and reconnecting the extensive Koala habitat surrounding the Action area. For example, the existing Middlemount Coal Mine offsets (including three Commonwealth offset areas) cover an area of approximately 5,861 ha, and include extensive areas of Koala habitat. It is also relevant to note that the DES approved the Southern Extension Project (i.e. the Action) on 19 April 2021, with a requirement to offset impacts on the Koala. MCPL will therefore expand the existing offset areas to include another 253 ha of habitat for the Koala as part of the State approval process for impacts associated with the Action.
Conclusion	No significant impact.

3. References

- Biodiversity Australia (2020) *Middlemount Coal Mine Southern Extension Project Terrestrial Ecology*.
- Comport, S.S., Ward, S.J. & Foley, W.J. (1996) *Home ranges, time budgets and food tree use in a high density tropical population of Greater Gliders, Petauroides volans minor*. Wildlife Research 23, 401-419.
- Department of Agriculture, Water and the Environment (2020) *Species Profile and Threats Database*. Website: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>.
- Department of Planning, Industry and Environment (2020) *BioNet Threatened Biodiversity Data Collection*. Website: <http://www.bionet.nsw.gov.au>.
- Department of the Environment (2013) *Matters of National Environmental Significance: Significant impact guidelines 1.1*.
- Department of the Environment (2014) *EPBC Act referral guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)*.
- Pope, M.L., Lindemayer, D.B., & Cunningham, R.B. (2005) *Patch use by the Greater Glider (Petauroides Volans) in a fragmented forest ecosystem*. Wildlife Research 31, 559-568.
- Threatened Species Scientific Committee (2016) *Conservation Advice Petauroides volans greater glider*. Department of the Environment, Canberra.