MNES Significant Impact Assessment Report

BM Alliance Coal Operations Pty Ltd

Peak Downs Mine Powerline Realignment Project

Peak Downs Mine

BE200178.01

CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

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1 INTRODUCTION

BM Alliance Coal Operations Pty Ltd (BMA, the Proponent) owns and operates Peak Downs Mine (PDM), an open cut coal mining operation near Moranbah, Queensland. The Proponent plans to progress mining at PDM within Mining Lease (ML) 1775 in an easterly direction in line with its current regulatory authorisations for mining. This has triggered the need to realign the existing 66 kilovolt (kV) power line (the Project) ahead of pit progression. The existing 66 kV power line is located within ML 1775, running in a north-south direction adjacent to the shared mining lease boundary of ML 1775 and ML 70411.

1.1 Project Location

The Project is located adjacent to the northern side of PDM and is approximately 22 kilometers (km) south-east of the township of Moranbah in central Queensland (**Figure 1**). It lies within land described as Lot 8 on SP 277384, located within the Isaac Regional Council Local Government Area (LGA) and the Brigalow Belt North Bioregion. For the purposes of this report, the Project area is the location where the proposed power line realignment and associated activities will be sited, and the Study area is the area assessed by supporting ecological studies, which captures the Project area and nearby surrounding land (**Figure 1**).

1.2 Project Description

There are currently three existing mine pits at PDM, 7 North, 5 North and 2 North (7N, 5N and 2N respectively), which are progressing to the east. As a result, the current 7N/5N/2N power lines require realignment in order to allow for the pit to progress. The pit progression towards the power lines is approaching exclusion limits to blasting for mining activities. Therefore, the power lines are required to be relocated to the east of their current alignment. The relocation of these power lines is necessary to support continued mining activities at PDM. Without relocation of the power lines, existing mining activities would be severely constrained due to a lack of supporting power requirements.

The proposed realignment of the 7N/5N/2N power line for the Project is comprised of the following three components:

- 7N power line realignment – entirely outside of a mining lease
- 5N power line realignment – partly within ML 70411, partly outside a mining lease
- 2N power line realignment – entirely within ML 70411

The Project will consist of the following activities:

- A corridor up to 50 m wide along the main axis of the proposed power line's main axis
- A series of stub lines with 30 m wide corridors, perpendicular to the power line's main axis
- An access track up to 10 m wide along the main corridor and stub line corridors
- Excavating and pouring foundations for the power line towers
- Assembly and erecting the power line steel work including installation of stay anchors
- Stringing electrical cables, conductors and earth wires along the power line towers
- Tensioning of electrical cables to achieve minimum ground clearance
- Connection of conductor bridges and droppers
- Testing, commissioning and connection with the main site

The Project area that contains the power line corridors and associated infrastructure is 83.39 hectares (ha). Disturbance types and extents within the Project area are described in **Section 4.1**.

1.3 Scope and Purpose of Assessment

The Proponent has engaged Epic Environmental Pty Ltd (Epic) to undertake an assessment of the likelihood of significant impacts to Matters of National Environmental Significance (MNES) to occur as a result of the Project. This report presents the approach, findings and conclusions of the assessment, and includes the information necessary to determine whether the Project requires referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for assessment by the Department of Climate Change, Energy, the Environment and Water (DCCEEW). Should a referral be submitted, this report would provide supporting information as part of the application documents.

617500E
620000E
622500E
625000E
7547500N
7545000N
7542500N
7540000N

7 North Pit
6 North Pit
5 North Pit
3 North Pit
2 North Pit
1 North Pit

MLA 700065
ML 70389
ML 70411
ML 1775
ML 70412
ML 70463
ML 70403

Peak Downs - Dysart Road
Aurizon Goonyella Coal Chain (Oaky Creek)

0 0.5 1 km
N
Scale: 1:35,000@ A3
Datum: GDA2020
Projection: MGA zone 55

Data Source:
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Legend

- Study area
- Project area
- Mining leases
- State controlled roads
- Railways

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Peak Downs Power Line Realignment
MNES Impact Assessment

Figure 1
Study area and Project area location

1.4 Assessment Method

The assessment is based on recent Project field-based mapping of environmental values and reporting provided by Ausecology including:

- 7N-5N-2N Powerline Alignment MNES Ecological Report (June 2024) (Ausecology 2024a)
- Peak Downs Mine 7N-5N-2N Power line Project Off-lease – MSES Technical Memo (July 2024) (Ausecology 2024b)

The reporting encompasses data largely collected during field surveys undertaken for the Project by Ausecology in 2019, 2022 and 2023. The purpose of these surveys was to document the existing ecological values of the Study area (refer **Figure 1**) and to inform the potential impact of the Project.

As such, this assessment is not intended to present a full summary of the ecological values present within the Study area. The Project's MNES Ecological report (Ausecology 2024a) should be reviewed in conjunction with this MNES Significant Impact Assessment Report.

This assessment includes an updated desktop review of publicly available information to ensure all ecological values of conservation significance (listed MNES) considered currently relevant to the Study area are identified. This includes species and vegetation communities of conservation significance that potentially occur within the Study area and surrounds.

Publicly available information sources accessed for this assessment included the following:

- DCCEEW Protected Matters Search Tool area search with a 10 km buffer placed around the Study area
- Species Profile and Threats (SPRAT) Database administered by DCCEEW
- Queensland Government Wildlife Online database:
  - 25 km buffer placed around the central coordinates: -22.1912 Latitude, 148.1874 Longitude
- The Atlas of Living Australia (ALA) species database is a web-based search tool that is a partnership between CSIRO, Australian museums, herbaria and other biological collections, and the Australian Government

Copies of the search results are provided in **Appendix A**.

The significant impact assessment has been completed for MNES identified to be relevant to the Project area and surrounds, and was carried out in accordance with the *MNES significant impact guidelines 1.1* (MNES Guidelines) (DoE 2013a) (**Section 5**).

2 RELEVANT LEGISLATION

2.1 Commonwealth Legislation

2.1.1 *Environment Protection and Biodiversity Conservation Act 1999*

The EPBC Act is the key piece of Commonwealth legislation governing environmental protection in Australia. Administered by the DCCEEW, the EPBC Act defines and protects nine MNES including:

- World heritage properties
- National heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Listed threatened species and ecological communities
- Migratory species protected under international agreements
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mines)
- A water resource in relation to coal seam gas development and large coal mining development

Under Part 3 of the EPBC Act, a person must not undertake an action (e.g. a project, a development, an undertaking, an activity or a series of activities, or an alteration of any of these things) that will have, or is likely to have, a significant impact on a protected matter, without approval from the Minister.

Guidance is provided on assessing the potential for a project to impact on MNES through subordinate referral and impact assessment guidelines, particularly the MNES Guidelines for assessing impacts on threatened species and vegetation communities.

If after all reasonable avoidance and mitigation measure have been taken, there is still a residual impact on a protected matter, an offset may be required where the impact is, or is likely to be, significant.

2.1.2 Environmental Offsets Policy 2012

The EPBC Act *Environmental Offsets Policy October 2012* (EOP) provides upfront guidance on the role of offsets in environmental impact assessments, and how DCCEEW considers the suitability of a proposed offset. The EOP aims to improve environmental outcomes through the consistent application of best practice offset principles, provide more certainty and transparency, and encourage advanced planning of offsets.

3 REVIEW RESULTS

3.1 Matters of National Environmental Significance – PMR Report

The DCCEEW Protected Matters Report (PMR) identifies MNES protected under the EPBC Act that are considered as potentially occurring within the Study area and surrounds. The updated PMR identified three categories of MNES potentially present within the Study area or surrounds (as summarised in **Table 1**). A copy of the PMR is provided in **Appendix A**.

Table 1. EPBC Act PMR summary

MNES	PMR search result and relevance to assessment area
World heritage properties	Not applicable
National heritage properties	Not applicable
Wetlands of international importance	Not applicable
Great Barrier Reef Marine Park	Not applicable
Commonwealth marine area	Not applicable
Listed threatened ecological communities (TECs)	Three ecological communities listed as threatened predicted to be present
Listed threatened species	Twenty-eight threatened species including four flora and 24 fauna species listed as threatened predicted to be present (refer **Appendix A**)
Laited migratory species	Ten species listed as migratory predicted to be present (refer **Appendix A**)

3.2 Matters of National Environmental Significance - ground-truthed data

The Study area (as depicted in **Figure 1**) and surrounds have been the subject of a number of ecology surveys in recent years including surveys carried out by Ausecology in 2019, 2022 and 2023, as well as studies carried out by Eco Logical (2016 and 2020), AECOM (2020) and ERM (2021). These studies are detailed in the *7N5N2N Power line alignment MNES ecological report* (Ausecology 2024a). **Appendix B** depicts threatened species records derived from the surveys undertaken within and surrounding the Study area, as sourced from Ausecology (2024a). The Ausecology (2024a) report details the methods used for the Project surveys and how the survey effort relates to Commonwealth survey guidelines (where these apply).

The following sections summarise the results of the Ausecology (2024a) report. Only MNES considered potentially present are discussed. For a complete discussion including a likelihood of occurrence assessment of all species/TECs predicted to occur from database sources, refer to Ausecology (2024a).

3.2.1 Threatened Ecological Communities

Two TECs were identified as present within the Study area (**Figure 2**):

- Brigalow (*Acacia harpophylla* dominant and codominant) (Brigalow TEC) – Brigalow occurs as remnant, but more commonly regrowth communities (RE 11.4.8 and 11.4.9) in the eastern and north-western portions of the Study area. Assessments of these communities were carried out with regard to the diagnostic criteria and condition thresholds in the Approved Conservation Advice for the TEC (DoE 2013b). The assessments confirmed the presence of Brigalow TEC only in portions of the western extent of the Study area (**Plate 1**)
- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin (Natural Grasslands TEC) – native grassland communities (RE 11.4.4 and 11.8.11) occur as large patches in the western portion of the Study area. Assessments of these communities were carried out with regard to the description and condition thresholds in the Commonwealth listing advice for the TEC (TSSC 2009). The assessments confirmed the presence of Natural Grasslands TEC only in portions of the overall extent of mapped grassland areas (**Plate 2**). These comprised patches considered to meet 'best quality' or 'good quality' condition class as defined by TSSC (2009)

617500E 620000E 622500E 625000E

7547500N 7545000N 7542500N

Harrow Creek

J B Gully

MLA 700065

See inset 1

See inset 2

Inset 1

Inset 2

ML 70389

MLA 700065

Peak Downs - Dysart Road

ML 70411

ML 1775

ML 70403

Peak Downs - Dysart Road

Aurizon Goonyella Coal Chain (Oaky Creek)

11.3.25 11.5.3 11.3.4 11.8.11 11.4.9 11.8.5 11.4.8/11.4.9 11.4.4 11.9.2 11.3.2 11.4.8

0 0.5 1 km

Scale: 1:30,000@ A3
Datum: GDA2020
Projection: MGA zone 55

Data Source:
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© State of Queensland (Department of Transport and Main Roads) 2023
© Google Satellite Imagery © 2024 Airbus
© Auecology - PDM_MNES_20240613.gdb

epic ENVIRONMENTAL

Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- State controlled roads
- Railways

Vegetation management watercourses and drainage features v7.0

- Major
- Minor

Threatened ecological communities

- Brigalow TEC
- Natural Grasslands TEC

Ground-truthed regional ecosystems

- Remnant
- High-value regrowth
- Regrowth
- Non-remnant

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MNES Impact Assessment

Figure 2
Ground-truthed vegetation communities within Study Area

Plate 1. Example of Brigalow TEC (RE 11.4.9) within the northern portion of the Study area

Plate 2. Example of Natural Grassland TEC (RE 11.4.4) from the Study area

3.2.2 Threatened Species

The threatened species' likelihood of occurrence assessment is located in Appendix B of Ausecology (2024a). The potential for species to occur were categorised as follows:

- **Known to occur** - the species or population has been observed within the Study area
- **Likely to occur** - the Study area is within the species' known distribution, suitable habitat occurs within the area and the species is known to occur in the region. Species not confirmed as occurring in the Study area
- **Potential to occur** - the Study area is within the species' known distribution, marginal habitat occurs within the area and the species is known to occur in the region. Species not confirmed as occurring within 10 km but recorded within 50 km of the Study area
- **Unlikely to occur** - low probability that the species will occur as it is outside the species known distribution, low quality habitat occurs within the Study area or the species is not known to occur within the region. No confirmed species records within 50 km of the Study area

The results of the Ausecology (2024a) assessment are summarised in the following sections.

3.2.2.1 Threatened Flora

A single flora species listed as Endangered under the EPBC Act is considered as a **potential** occurrence only (i.e. is not considered likely to occur) within the Study area, *Dichanthium queenslandicum*. There is a recent record (2022) located 1.5 km east of the eastern portion of the Study area and several records in the wider area (ALA 2024) (**Figure 3**). Suitable habitat is present (natural grasslands), however the grasslands in the Study area were generally observed as severely impacted by cattle grazing. The species is considered as potentially occurring only in areas identified as the Natural Grasslands TEC.

610000E 615000E 620000E 625000E 630000E 635000E

7555000N 7550000N 7545000N 7540000N 7535000N

Peak Downs Highway
Peak Downs - Dysart Road
Aurizon Goonyella Coal Chain (Oaky Creek)
MLA700065
ML 70403
ML 70389
ML 70412
ML 70463
ML 70411
ML 1775

0 1 2 km

Scale: 1:100,000@ A3
Datum: GDA2020
Projection: MGA zone 55

Data Source:
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Filepath: ...BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\5. MNES impact assessment\Rev 0\Figure 3 Threatened species database records (ALA 2024) within 10 km of Project.qgz

epic ENVIRONMENTAL

Legend

- Study area
- Project area
- Project area buffer (10km)
- Mining leases
- State controlled roads
- Railways

Atlas of Living Australia database records

- King Bluegrass *(Dichanthium queensladicum)*
- Koala *(Phascolarctos cinereus)*
- Ornamental Snake *(Denisonia maculata)*
- Squatter Pigeon *(Geophaps scripta scripta)*
- Sharp-tailed Sandpiper *(Calidris acuminata)*

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MNES Impact Assessment

Figure 3
Threatened species database records (ALA 2024) within 10 km of Project

3.2.2.2 Threatened fauna

Seven fauna species listed as threatened under the EPBC Act are considered as known, likely, or potentially occurring within the Project area or surrounding Study area. These species are summarised in **Table 2** and addressed in detail in Ausecology (2024a). Four of the species have been previously recorded within 10 km of the Project (ALA 2024) (**Figure 3**). Suitable habitat for threatened species was mapped for the Study area based on the habitat definitions described in *Habitat descriptions for 12 threatened species specific to central Queensland Version 5* (Kerswell et al 2020). The derived habitat (refer **Appendix C**) mapping forms the basis for the impact assessment within this report.

Table 2. Threatened fauna considered as occurring or may occur in the Study area (Ausecology 2024a)

Species	EPBC Act status	Likelihood of occurrence notes
Squatter Pigeon (southern) (*Geophaps scripta scripta*)	Vulnerable	**Known to occur.** Species recorded to the immediate southeast and west of the Study area during field survey effort for the Project (refer **Appendix B**). Species recorded in Study area during survey work for a different project (Aurecon 2013). Suitable woodland habitat present.
Australian Painted Snipe (*Rostratula australis*)	Endangered	**Likely to occur**. No Project records but confirmed record reported approximately 2 km north of the Study area (E2M 2021; refer **Appendix B**). Intermittent foraging habitat present within small, isolated patches of ephemeral wetland within the Study area.
Sharp-tailed Sandpiper (*Calidris acuminata*)	Vulnerable, Migratory	**Potential to occur**. Single ALA (2024) database record from 2001 located 5 km south of Study Area. Suitable habitat present within small isolated patches of ephemeral wetland within the Study area.
White-throated Needletail (*Hirundapus caudacutus*)	Vulnerable, Migratory	**Likely to occur**. No Project records. Few database records in wider region but species may utilise airspace above the Study area.
Koala (*Phascolarctos cinereus*)	Endangered	**Known to occur.** Individuals and signs of presence (scats) recorded in Study area including in relatively close proximity (within 150 m) to western portion of the Project area (refer **Appendix B**). Suitable eucalypt woodland habitat occurs in the Project area.
Greater Glider (*Petauroides volans*)	Endangered	**Known to occur.** Individuals recorded in Study area including in relatively close proximity (within 100 m) to the Project area (refer **Appendix B**). Suitable eucalypt woodland habitat occurs in the western portion of the Project area.
Ornamental Snake (*Denisonia maculata*)	Vulnerable	**Likely to occur**. Habitat occurs within the Study area. Confirmed record approximately 3 km south-east of the Study area from surveys in wider area (refer **Appendix B**). No Project-specific species records.

3.2.3 Migratory Fauna

Three additional bird species listed only as Migratory under the EPBC Act are considered as known or likely to occur within the Project area or surrounding Study area (Ausecology 2024a) These species are summarised below and addressed in detail in Ausecology (2024a):

- Fork-tailed Swift (*Apus pacificus*) – **Known to occur**. Previously observed flying over Study area (AECOM 2020)
- Caspian Tern (*Sterna caspia*) – **Likely to occur**. Observed just outside the Study area over a dam. Suitable habitat would become temporarily available within the Study Area after significant rainfall events
- Rufous Fantail (*Rhipidura rufifrons*) - **Known to occur**. Previously observed within the Study area (AECOM 2020)

These species are addressed in further detail in Ausecology (2024a, 2024b).

3.2.4 MNES Species Not Covered in Ausecology (2024a)

There are two threatened fauna species identified as having the potential to occur in the updated PMR generated as part of this assessment which are not covered in Appendix B of the Ausecology (2024a) assessment: Diamond Firetail (*Stagonopleura guttata*) (Vulnerable) and Grey Snake (*Hemiaspis damelii*) (Endangered).

These species and their potential to occur in the Study area are addressed in **Table 3**.

Table 3. Likelihood of occurrence of threatened fauna not considered in Ausecology (2024a)

Species and EPBC Act Status	Data source	Ecology and distribution	Likelihood of occurrence
Diamond Firetail (*Stagonopleura guttata*) Vulnerable	PMR	Occurs in lightly timbered habitats with high grass coverage. May occur in farmlands with scattered trees. Diet largely comprises grass seed. Once occurred as far north as Cardwell in Queensland but now only occurs in the far south of the state. Prefers areas with a low density of trees, little fallen timber or leaf litter and a heavy grass cover (Garnett & Baker 2021; DCCEEW 2023a).	**Unlikely to occur**. Not observed during surveys for the Project or other survey activities in the wider area. Species predicted as 'may occur' only in region (DCCEEW 2024). There are no records within 150 km of the Study area. There are only widely scattered records located north of the Capricorn Highway (which is 140 km south of the Study area) and these are all older than 1977. Further south there are sparsely scattered records although all of these are older records (pre-1982). The only recent record is from 2020 and located over 350 km to the south in Expedition Range National Park. Even this record appears very isolated from other recent records which are much further south (ALA 2024). It would appear the species may only have occurred as occasional vagrant individuals in the region in the past. The Study area is very unlikely to be within the range of the species currently.
Grey Snake (*Hemiaspis damelii*) Endangered	PMR	Occurs on floodplains (Ehmann 1992) and is often found in seasonally inundated areas, preferring cracking, flood-prone clay or loam soils and areas with gilgais. The preferred habitat for the species in southern Queensland is woodlands featuring Brigalow, *Casuarina cristata* and *Eucalyptus populnea* (Hobson 2012) on dark, cracking clay soils (Hobson 2012; DCCEEW 2022a). The species is often found in riverine habitats near watercourses, natural levees, gullies and ditches (Ehmann 1992; DCCEEW 2022a).	**Unlikely to occur**. Not observed during surveys for the Project or other survey activities in the wider area. The Study area is located on the north-west edge of the species predicted potential range and is considered as 'may occur' only (DCCEEW 2024). The nearest records are three records located 80 km south of the Project. All three records are from the 'Queensland historical fauna database' one of which is dated from 1870 (the remaining records are undated) (ALA 2024). There are no other records closer than 160 km to the Project. There are no records at all east, north or west of the Project (ALA 2024). There may be suitable clay floodplain habitat present in the Study area but much of this has been subject to disturbance and there seems little indication the species has ever occurred this far north.

4 POTENTIAL PROJECT IMPACTS AND MITIGATION MEASURES

4.1 Potential Project Impacts

The Project's potential to directly and/or indirectly impact MNES, including TECs and habitat for threatened flora and fauna, is described in the following subsections.

The proposed Project area (where direct impacts are limited to) is 83.39 ha and is shown in **Figure 1**. Given the relatively benign nature of the Project's operation phase, the majority of impacts (if not all) are expected to occur during Project construction, which comprises the following:

- Clearing of woody vegetation for a corridor up to 50 m wide located along the proposed power line's main axis, extending 12.66 km in length in an approximate north-west to south-east direction. Existing ground cover present in the Project area will be retained (i.e. there will be no topsoil disturbance and the root mass will remain intact), with the exception of the access track addressed below. Outside of the access track, grass slashing may occur in the corridor where required for safe access during construction
- Clearing of woody vegetation along a series of eight stub lines with corridors up to 30 m wide, located perpendicular to the southern side of the power line's main axis. The stub lines vary in length from 160 m to 1,500 m, with an overall length of 7.78 km (i.e. the total Project area length is approximately 20 km). As per the main corridor, ground cover within the stub lines will be retained through slashing only (where necessary), with the exception of the access track addressed below
- Clearing and grubbing of an access track up to 10 m wide along main corridor and stub line corridors to provide access for vehicles, plant and project materials. This will remove the ground cover present potentially including the root mass. On completion of construction this will be allowed to regenerate naturally. Where practicable during construction, the width of the access track may be reduced to further avoid MNES. A permanent formed access track will not be retained for the operation of the power line infrastructure, with only slashing required to maintain the track and ensure safe access
- Excavating and pouring foundations for the power line towers will be located within the 10 m wide access track area. Power line towers are generally located 165 m apart for the majority of the alignment
- Assembly and erecting the power line steel work including installation of stay anchors
- Stringing electrical cables, conductors and earth wires along the power line towers
- Tensioning of electrical cables to achieve minimum ground clearance
- Connection of conductor bridges and droppers
- Testing, commissioning and connection

The operational phase of the Project is anticipated to require little maintenance. Occasional slashing of ground cover within the main corridor and stub line corridors may be carried out when required and the entire area will be subject to continued cattle grazing as occurs currently.

4.1.1 Clearing of Vegetation

The clearing of woody vegetation is a direct impact of the Project on the ecological values of the Project area. Land clearance is listed as a key threatening process under the EPBC Act. The removal of habitat affects local populations of flora and fauna dependent on that habitat. These impacts are immediate and may be significant in the short-term for species that may use the impacted area. Impacts may persist in the long-term if habitat created during rehabilitation of impacted habitats does not closely resemble pre-disturbance ecosystems.

The Project area encompasses a total of 83.39 ha of which 52.91 ha is identified as modified non-remnant lands with little value to MNES (**Plate 3**). The Project will impact 8.67 ha of woody vegetation in remnant vegetation communities and a further 21.81 ha of immature and low-growing woody regrowth (**Table 4**). Much of this has been impacted by previous clearing to some degree, and some communities (such as RE 11.8.5) provide a very sparse open woodland canopy cover (**Plate 4**). The woody regrowth present within the Project area is considered to be of 'non-remnant' status under State vegetation mapping definitions (e.g. Neldner et al. 2023).

Plate 3. Non-remnant lands in south of Project area

Plate 4. *E. orgadophila* open woodland (RE 11.8.5) in north of Project area

Project infrastructure has been located away from sensitive ecological values as much as is feasible. The Project design layout has been subject to several revisions in order to further avoid identified higher value habitats. Through this process, the impact on Brigalow TEC has been largely avoided. Impacts on the Natural Grasslands TEC and habitat for *D. queenslandicum* have been substantially reduced through the elimination of 'clearing and grubbing' works through the majority of the Project area where this community occurs. A 10 m wide track within the Project area will be grubbed and graded for construction (thereby removing root mass of grasses). The disturbance associated with footings (minor earthworks and concreting) for the poles will also be located within the 10 m wide access track. Overall, this will disturb 0.57 ha of Natural Grasslands TEC. The access track will not be actively rehabilitated on completion of construction but will be allowed to regenerate naturally, with only intermittent slashing undertaken where required to maintain safe access.

The remainder of the Project area will be subject to removal of woody vegetation (where present) and slashing where required for safe access during construction, i.e. outside of the 10 m wide access track existing grass cover and root stock will be retained. Post construction, the Project area will be subject to maintenance slashing (when required) and will remain subject to cattle grazing (as is currently the case).

The predicted extent of overall impact to vegetation communities and their relevance to MNES is provided in **Table 4**. The extent of impact is based on the results of the ground-truthed vegetation mapping and onsite habitat assessments (Ausecology 2024a, 2024b).

Table 4. Ground-truthed RE mapping occurring within Project area and impacted by vegetation clearing (Ausecology 2024b)

RE	Description	MNES values	Extent (ha)
Remnant			
11.3.4	*Eucalyptus tereticornis* woodland to open forest on Cainozoic alluvial plains and terraces	Koala Greater Glider Squatter Pigeon	0.01
11.3.25	*Eucalyptus tereticornis* woodland to open forest on fringing levees and banks of major rivers and drainage lines	Koala Squatter Pigeon Greater Glider (partial)	0.34
11.4.4	*Dichanthium* spp. +/- *Astrebla* spp. tussock grassland on flat to gently undulating clay plains	Grassland TEC *D. queenslandicum*	0.20[1]
11.5.3	*Eucalyptus populnea* woodland +/- other eucalypts on flat to gently undulating plains formed from Cainozoic sediments	Koala Squatter Pigeon Greater Glider (partial)	6.83
11.8.5	*Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands	Koala Squatter Pigeon	0.92
11.8.11	Grassland dominated by *Dichanthium sericeum*, *Aristida* spp., *Astrebla* spp. and *Panicum decompositum* on moderately shallow to deep cracking clay soils	Grassland TEC *D. queenslandicum*	0.37[1]
		Total remnant	**8.67**
Regrowth and non-remnant vegetation			
11.4.8	*Eucalyptus cambageana* and *Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains	No values present	1.68
11.4.8/11.4.9	See above and below	No values present	10.52
11.4.9	*Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains	Brigalow TEC (partial) Ornamental Snake (partial)	0.82
11.8.5	*Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands	Koala Squatter Pigeon	7.08
11.9.2	*Eucalyptus melanophloia* and/or *E. orgadophila* woodland to open woodland on undulating plains with cracking clay or texture contrast soils	Squatter Pigeon	1.71
-	Non-remnant	Squatter Pigeon (partial)	52.91
		Total regrowth and non-remnant	**74.72**
		Total	**83.39**

Notes

[1]Impacts to grassland REs is limited only to the construction access track where grubbing and grading will occur in an area up to 10 m wide

The regrowth vegetation within the Project area provides more limited value for MNES. For example, very little of the regrowth Brigalow communities present are of a condition that would be characterised as the Brigalow TEC. Habitat for Greater Glider has been characterised by the presence of foraging habitat within or adjacent to large hollow-bearing trees which generally do not occur in regrowth areas. The habitat condition characteristics used to describe the habitat present within the Study area is detailed in Ausecology (2024a). The extent of MNES values identified within the Project area that are assessed for potential impacts is provided in **Table 5** and depicted in **Figure 2** (TECs) and **Appendix C** (species habitat mapping).

Table 5. Extent of ground-truthed habitat for MNES within the Project area (Ausecology 2024a)

MNES values	Project impact extent (ha)
TECs	
Natural Grassland TEC	0.57
Brigalow TEC	0.04
Threatened species habitat	
D. queenslandicum	0.57
Squatter Pigeon	22.77
Koala	17.57
Greater Glider	6.42
Ornamental Snake	0.19

The Project area occurs in a predominantly disturbed landscape impacted by cattle grazing activities, and is adjacent to existing mining-related disturbance. Nevertheless, substantial remnant vegetation present in the Survey area (outside the project area) and wider area will remain undisturbed and continue to provide habitat for MNES. To provide context to the localised impact associated with the Project a preliminary analysis of Queensland Department of Resources (DoR) vegetation community (RE) mapping was carried out. The analysis indicates there is over 25,000 ha of remnant vegetation located within a 10 km radius of the Project area. These communities are depicted by broad vegetation category in **Figure 4**.

Assessment of the available RE data indicates there is over 18,700 ha of remnant eucalypt woodland habitat within a 10 km radius of the Project area which is potentially suitable for Koala and Squatter Pigeon. Squatter Pigeon may utilise an additional 2,600 ha of acacia woodlands occurring on appropriate sandy/coarse soils. Furthermore, there is an estimated 11,000 ha of suitable habitat available for Greater Glider within 10 km of the Project area based on the eucalypts the species is associated with (as detailed in Eyre et al. 2022). The proposed disturbance of remnant vegetation associated with the Project (8.67 ha of remnant vegetation) is a very minor area given the extent remaining in the wider area.

4.1.2 Habitat Fragmentation, Connectivity and Edge Effects

Highly fragmented habitats support fewer species than connected blocks of habitat of the same size. This is because fragmentation restricts dispersal of fauna and plant seeds between available habitat. The impacts of habitat fragmentation depend on the degree to which dispersal is inhibited by habitat gaps, the size of the remaining habitat fragments, and ecological attributes of the species.

Much of the landscape associated with the Project area has been heavily impacted by tree clearing for cattle grazing purposes. A number of extant communities are either grasslands (RE 11.4.4 and 11.8.11) or comprise a very open canopy (RE 11.8.5). The Project infrastructure has been situated in areas already cleared of vegetation wherever possible. There will be minor clearing of remnant woody vegetation required. This impact will be linear and up to 50 m in width. Most of the MNES species with potential to be present are mobile species that will not be impacted by the Project. There will be little impact to landscape connectivity and habitat fragmentation as a result of the Project for these species. However, there is potential for Greater Glider to be impacted where the species habitat is intersected by the north-western section of the Project area (refer **Table 10** for further detail).

The habitats that remain extant in the Study area are already subject to the potential for edge effects caused by increased exposure to wind and sun (caused by previous tree clearing and thinning practices) as well as substantial weed invasion observed in the ground cover. As noted above, some of the vegetation communities present are already very open in structure. These are unlikely to be subject to edge effects as a result of the Project. The Project is proposing to clear a relatively minor extent of wooded habitat in an already disturbed landscape and is considered to have a negligible impact on increasing the impact of edge effects within the local area.

4.1.3 Fauna Mortality

Clearing of vegetation for the Project presents a risk of direct mortality or injury to fauna. Fauna of low mobility are at risk of injury or death from tree felling and heavy machinery/vehicular movements during the construction of the Project. The operational phase is unlikely to add to this impact due to the benign nature of the Project operation.

Tree clearing will only occur within designated areas and only during designated time periods. The extent of habitat providing potential fauna hollows is relatively limited. A suitably qualified fauna spotter-catcher/s will be present during vegetation clearing to eliminate incidences of fauna mortality during tree clearing (refer **Section 4.2**). Educating employees and contractors with regard to fauna and flora will further reduce direct mortality as part of the Project.

4.1.4 Weeds and Pest Animals

Introduced weeds have the potential to impact on terrestrial ecological values as native flora can become displaced through competition with weed species, and adversely affected by browsing and soil trampling caused by feral herbivores. Native fauna populations, particularly small to medium sized species, may be impacted by predation from introduced carnivores, such as feral cats. Wild dog and feral cats were recorded onsite and Red Fox is also likely present. These are indirect impacts which are already present and likely have been exacerbated by existing cattle grazing activities within and near the Project area.

The Project area (and broader Study area) is often dominated by Buffel Grass in the ground layer throughout and Parthenium was observed to be common. Both are weed species and Parthenium is listed as a Weed of National Significance.

The following activities associated with the Project have the potential to promote the proliferation of weeds and pests within the Project area (and Study area), or introduce new weeds and pests from surrounding areas:

- The use of construction machinery, plant and materials sourced from outside the region and increased vehicular traffic in general may introduce and spread weed seeds if biosecurity hygiene measures are not in place
- Land clearance favours the establishment of weeds due to increased light and soil disturbance
- Inappropriate disposal and storage of putrescible wastes may attract feral animals

Clearing of ground cover within the entire Project area will be minimal and restricted to the 10 m wide access track. This will minimise the potential for weeds to establish within the Project area (where they do not already occur). The main threat is the introduction of new weeds to the area via contaminated vehicles or soils. Impacts will be managed by implementing simple biosecurity hygiene and control measures during Project activities which are already utilised as part of environmental management systems associated with the operation of PDM. The pests and weeds currently occurring within the Project area (and Study area) are not expected to significantly proliferate in response to the Project activities.

NOTE: State mapping has been shown for the area surrounding the Study area to provide context on the availability of habitat in the wider region. State mapping is also shown within the Project area for continuity with the broader region (noting that ground-truthed mapping has superseded this mapping as described in the report)

610000E 615000E 620000E 625000E 630000E 635000E

7555000N 7550000N 7545000N 7540000N 7535000N

Peak Downs Highway
Peak Downs - Dysart Road
Aurizon Goonyella Coal Chain (Oaky Creek)
ML 70403
ML 70412
ML 70463
MLA 700065
ML 70389
ML 70411
ML 1775

0 1 2 km

Scale: 1:100,000@ A3
Datum: GDA2020
Projection: MGA zone 55

Data Source:
© The State of Queensland (Department of Resources) 2023
© State of Queensland (Department of Transport and Main Roads) 2023
© Google Satellite Imagery © 2024 Airbus

epic ENVIRONMENTAL

Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- State controlled roads
- Railways

Regional ecosystems v13 within 10 km of Project (by broad vegetation category)

- Acacia forest / woodland
- Eucalypt woodland
- Grassland
- Semi-evergreen vine thicket
- Non-remnant

BM Alliance Coal Operations Pty Ltd
Peak Downs Power Line Realignment
MNES Impact Assessment

Figure 4
Remnant vegetation occurring within 10 km of the Project area (DoR 2024) by broad vegetation category

4.1.5 General Impacts

The Project is being constructed to service the expansion of the adjacent PDM which is currently located approximately 2 km south-west distant from the Project area at its farthest point. PDM is a large mining operation that already likely generates (and mitigates in accordance with the PDM's Environmental Authority obligations) a range of indirect impacts that already occur in the local landscape in which the Project is situated. As stated already, the majority of impacts associated with the Project will be restricted to the construction phase only. The following general impacts are addressed for the purpose of providing a complete assessment of the Project.

4.1.5.1 Airborne Dust, Noise and Lighting

Earthworks and vehicular traffic associated with Project construction and operation can generate dust, particularly during dry weather (Field et al. 2010). Dust can have both a physical and chemical impact on plants, either through the smothering of leaves, whereupon the rate of deposition is important, or through chemical changes to the soil or directly to the plant surface. Dust can form a hard crust on the leaf surface, increasing leaf temperature and increasing susceptibility to drought. Dust can also have adverse impacts on plant photosynthesis, respiration, transpiration and productivity (Farmer 1993; Chaston & Doley 2006). Nevertheless, evidence of potential impacts on entire vegetation communities is scarce. The clearing of ground cover within the entire Project area will be minimal and restricted to the 10 m wide access track. This will minimise the extent of exposed soils potentially subject to dust entrainment during dry and windy weather. The proposed access track will be allowed to regenerate naturally on completion of Project construction. Therefore the impact of dust settlement from the Project is considered temporary and negligible at worst.

Understanding of the impacts of noise on fauna is limited. There are no current government policies or guidelines that recommend noise thresholds or limits for development activities to mitigate potential harm to fauna. Noise may affect wildlife through a variety of impacts such as: interfering with communication calls; interfering with foraging/defence through cloaking the sound of predators and prey; causing general stress or avoidance reactions; or changes in reproductive or nesting behaviours. Excessive noise may lead some species to avoid noisy areas, which could result in the localised fragmentation of habitat at the species or individual territory level. Radle (2007) states the consensus that terrestrial fauna will avoid any industrial plant or construction area where noise or vibration presents an annoyance to them. Nevertheless, many animals may interpret a new noise as a potential danger at first, but rapidly understand the noise is not associated with any threats (Radle 2007).

Artificial lighting may have a range of impacts across different groups of taxa and between species within these groups. Some taxa such as rodents may avoid brightly lit areas at night. Alternatively, nocturnal fauna such as many microbat species, frogs and some reptiles may congregate at artificial lights to feed on insects attracted to light (Perry et al. 2008; Rich & Longcore 2006). Although, other microbat species may avoid well-lit areas (Threlfall et al. 2013). Artificial light can alter foraging and calling by frogs and probably impairs their vision (Buchanan 1993) and may lead to individuals being killed by vehicles when attracted to lights for feeding on invertebrates.

Overall, noise impacts from the Project to surrounding habitat will be almost entirely restricted to that emitted during construction activities. Construction activities will be carried out during daylight hours where practicable. Any lighting required as part of construction activities will be temporary and designed to only provide minimum lighting. Given PDM is located close to the Project and already generates noise and lighting impacts, the potential additional impacts from the Project are considered temporary (construction only) and negligible at worst.

4.1.6 Fire

The Project is located within largely cleared grazing lands with tracts of sclerophyll woodlands mainly in the west. The woodland areas have potential to be impacted by accidental fires caused by Project activities. Fire hazard mapping for Queensland indicates the mapped woodlands within the Study area as having a 'medium potential bushfire intensity'. Fire is noted as a threatening process on the Brigalow TEC which occurs within the Project area (and broader Study area). Fire management is an integral component of existing environmental

management activities associated with PDM. Impacts will be managed by extending these management measures to the Project activities.

4.1.7 Water Quality

The Project only requires minor excavation works (for power pole footings) and will have no impact on groundwaters. Clearing requiring disturbance of topsoil has also been minimised to the 10 m wide access track. The Project will require clearing along four minor drainage lines including three stream order 1 and one stream order 2 creek lines. Power line poles will be located outside of drainage lines. Only two of these currently retain woody vegetation cover. All of the creeks are considered highly ephemeral in nature and all drain north from PDM itself (i.e. there is very little catchment draining through the Project area and any flows would be minor in extent and short-lived).

The Project has potential to impact surface water and associated aquatic ecology values through a variety of processes:

- During construction disturbance, uncontrolled sedimentation of watercourses (particularly during and following heavy rainfall events) can impact aquatic values by smothering stream beds with fine material, and decreasing bed roughness and reducing habitat diversity
- Similarly, uncontrolled sedimentation movements associated with construction disturbance may lead to localised increased turbidity and suspended solids which may negatively impact fish and macroinvertebrates (through reduced respiratory and feeding efficiency), and adversely affect submerged aquatic plants as light penetration (required for photosynthesis) is reduced
- Poorly designed and constructed waterway crossings may create waterway barriers that prevent or impede movements of aquatic fauna
- Waterway crossings may cause bank instability if remediation works are not adequately designed and implemented. This may lead to bank erosion (causing impacts to instream sedimentation and turbidity) and adverse impacts to riparian vegetation

The Project will develop and implement erosion and sediment controls for the Project in line with BMA's ESCP implemented at the adjacent PDM.

4.2 Proposed Mitigation Measures

The Proponent will commit to a range of measures to minimise impacts to MNES and general ecological values associated with the Project area and broader Study area. The design process for the Project has gone through several revisions based on the results of ecological assessments carried out since 2019. The revisions have sought to reduce the area of impact to areas representing habitat for MNES as much as is feasible. This has been demonstrated through avoidance and minimising of vegetation clearing in TECs and threatened fauna habitat across the majority of the Project area. Where avoidance is not possible, a range of mitigation strategies will be implemented as detailed in **Table 6**. MNES-specific measures are detailed in **Sections 5.2 to 5.5**.

Table 6. Proposed mitigation measures for general impacts resulting from Project works

Impact	Management measure	Project timing
Vegetation clearing	Where possible the overall Project area will be refined and minimised further during the final design process and onsite 'micro-siting' during construction.	Final design and construction
	Project employees and contractors will be made aware of environmental obligations and compliance requirements through the induction program.	Project induction
	Vegetation clearing extents will be clearly demarcated.	Prior to clearing
	Disturbance to ground cover and topsoil will be restricted entirely to the designated 10 m wide access track. All other areas will only be subject to woody vegetation removal and slashing.	Construction

Impact	Management measure	Project timing
	Disturbed areas (i.e. 10 m wide access track) that are no longer required will be allowed to naturally regenerate. These areas will be subject to ongoing weed management.	Following construction
Fauna mortality	Qualified fauna spotter catchers will maintain records of fauna encountered during clearing.	Pre-construction
	Fauna spotter-catchers (licensed) will inspect sites prior to vegetation clearing. Fauna habitat shelter features (large hollows) will be clearly marked where they are unable to be accessed/inspected prior to tree felling.	Prior to clearing
	Clearing works will incorporate procedures for tree felling that will minimise potential impacts on resident fauna where habitat shelter features are identified.	Prior to clearing
	Procedures will be in place where injured fauna are encountered during clearing works. Local wildlife carer and/or veterinarian will be identified prior to works being carried out and be notified that clearing works are being carried out (prior to clearing).	Ongoing
	Onsite speed limits will be established to limit the potential for vehicle collisions.	Ongoing
Threatened flora and fauna	Threatened fauna and flora management will be in place as per existing management procedures carried out for the PDM.	Pre-construction
	Construction project inductions will outline species of significance that may occur on the Project area.	Project induction
	Qualified fauna spotter catchers will be present during clearing and maintain records of fauna encountered during clearing.	Construction
	The Project design process will incorporate the use of low light spill lighting components and directional lighting (away from adjacent fauna habitat) where night lighting is considered necessary (only for construction).	Final design
	All Project-associated construction/operational machinery will be maintained as per manufacturer design specifications to ensure project noise is minimised.	Ongoing
Airborne dust	Monitoring of weather conditions will be carried out to inform Project activities and planning during dry and high-wind weather conditions.	Ongoing
	Ensure employees are made aware of potential dust generating activities and mitigation measures to prevent nuisance.	Ongoing
	Dust from areas likely to be a source of airborne dust (such as tracks) will be suppressed during construction using water trucks/wetting to keep dust related impacts to a minimum.	During construction - as required
	Onsite speed limits will be established to minimise dust caused by vehicle movements.	Ongoing
	Disturbed areas (i.e. 10 m wide access track) that are no longer required will be allowed to naturally regenerate.	Ongoing
Weeds and pests	The existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. Measures will be in line with current best management practices associated with PDM.	Pre-construction
	Vehicle wash-downs will be required for all new vehicles (including earthmoving and other construction machinery) entering the Project area. This may be done by self-assessment.	Ongoing

Impact	Management measure	Project timing
	Disposal and storage of putrescible wastes must be undertaken appropriately to ensure feral animals aren't attracted to the Project area.	Ongoing
	Disturbed areas (i.e. 10 m wide access track) that are no longer required will be allowed to naturally regenerate and will be subject to ongoing weed management and maintenance activities.	Following construction
Fire	Monitoring of weather conditions will be carried out to inform Project activities and planning during high fire-risk weather conditions.	Ongoing
	The Project will maintain communications with the PDM Environmental Management Team regarding Project activities and bushfire hazard conditions.	Ongoing
	Work sites will include designated smoking areas.	Ongoing
	Onsite fire-fighting equipment will be regularly maintained. Staff will be trained in the appropriate use of fire-fighting equipment.	Ongoing
Surface water	Erosion and sediment controls for the project will be developed and implemented in line with the BMA's ESCP in place for the adjacent PDM.	Pre-construction
	Applicable Project materials/chemicals will be stored offsite within existing storage/bunded sites in the PDM mine infrastructure area.	Ongoing
	Washdowns and refuelling will be carried out offsite within existing designated areas at the PDM mine infrastructure area.	Ongoing
	Spill response equipment (e.g. booms and absorbent materials) will be available and staff will be trained in the appropriate use of spill response equipment.	Ongoing
	Wherever possible works within a watercourse will be conducted in the following order of preference: • Conducting works when no water is present • Conducting works in times of no flow	Construction
	Disturbed areas at watercourse crossing sites (i.e. 10 m wide access track) that are no longer required will be allowed to naturally regenerate.	Following construction
	Bed level crossings, where required, will be installed to minimise potential impacts to passage by aquatic biota.	Ongoing

4.3 Alignment Optimisation and Avoidance Measures

The Project has been through a design refinement process which included the relocation and refinement of the power line to avoid or minimise impacts to ground-truthed MNES wherever possible. The original disturbance impact included a corridor up to 60 m wide for both the main lines and the stub lines. The width of the main line has been reduced by 10 m (now 50 m wide) while the width of the stub lines has been reduced by 30 m (now 30 m wide). The main line width is required to remain at 50 m and could not be reduced any further due to safety and design requirements which are managed under BMA's internal procedure policies for a 66 kV power line.

Significant design changes have occurred to avoid fragmenting patches of potential habitat through shifting the alignment to the edges of these patches where possible. This includes shifting the alignment to almost completely avoid impacting on the Natural Grassland TEC. The current alignment avoids the clearing of mature trees as much as practical to minimise potential impact to Greater Glider and Koala, should the species occur. Further, where necessary clearing could not avoid ground-truthed MNES potential habitat, proposed disturbance has been limited to marginal habitat as much as practicable.

To minimise the proposed vegetation clearing impacts, activities involving grubbing and topsoil removal will be restricted to the construction access track situated within the power line corridor (i.e., located within the above-nominated widths for main lines and stub lines), which will be up to 10 m wide. Topsoil and natural grassland will remain intact within the remaining width of the corridor, with only trees and shrubs required to be removed to reduce the fire hazard and maintain safe operational clearance for the power lines. Regarding the Natural Grassland TEC, this results in a significantly reduced permanent impact, where the original extent to be impacted was 2.55 ha, which through the avoidance and mitigation process has been reduced to 0.57 ha.

Importantly, the 10 m wide construction access track will not be formalised as a gravel access track which would typically result in preventing the vegetation regrowth. Instead, it will be allowed to regenerate naturally following completion of construction of the power lines, and will be subject to weed management to support the regeneration of the natural grassland. During the operational life of the power line, the entire area will be managed through slashing and grazing to keep fuel loads controlled in the corridor and to allow continued maintenance access.

Overall, the refinement of the alignment has minimised the direct impact to vegetation communities that have been ground-truthed as potential habitat for MNES.

5 PROJECT ASSESSMENT FOR SIGNIFICANT IMPACTS ON MNES

Based on desktop and field survey observations a number of MNES are considered applicable to the Project comprising two TECs, eight species listed as threatened and three species listed as migratory under the EPBC Act:

- Threatened Ecological Communities
  - Known to occur:
    - Brigalow TEC – Endangered
    - Natural grasslands TEC – Endangered

- Threatened species:
  - Known to occur:
    - Squatter Pigeon (southern) – Vulnerable
    - Koala – Endangered
    - Greater Glider – Endangered
  - Likely occurs:
    - Ornamental Snake – Vulnerable
    - Australian Painted Snipe – Endangered
    - White-throated Needletail – Vulnerable, Migratory
  - Potentially occurs:
    - Sharp-tailed Sandpiper – Vulnerable, Migratory
    - *Dichanthium queenslandicum* - Endangered

- Migratory species:
  - Known to occur:
    - Fork-tailed Swift
    - Rufous Fantail
  - Likely occurs:
    - Caspian Tern

An assessment of the potential for significant impacts resulting from the Project activities was carried out only on those MNES considered as potentially subject to notable impacts. The assessments have been carried out in accordance with the *MNES significant impact guidelines 1.1* (MNES Guidelines) (DoE 2013b).

5.1 Significant Impact Assessment – Criteria Definitions

With regard to species listed as vulnerable, an assessment may require an evaluation of the likely importance of the population of vulnerable fauna species associated with the Project area (action area for the purpose of EPBC Act considerations) and immediate surrounds. Under four of the nine assessment criteria identified within the MNES Guidelines, vulnerable species are considered as subject to significant impacts when an 'important population' is impacted.

An 'important population' for vulnerable species as defined within the MNES Guidelines is as follows:

- 'An important population is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:
  - Key source populations either for breeding or dispersal
  - Populations that are necessary for maintaining genetic diversity and/or
  - Populations that are near the limit of the species range

Given the specificity of the above definition and the often scarce ecological information and occurrence records available for many threatened species and populations in Australia, it is difficult to determine either of:

- Attributes such as breeding and dispersal behaviour and whether the population is a 'key source' or
- The genetic diversity of individuals inhabiting a regional population or sub-population

A single assessment criterion (for vulnerable, endangered and critically endangered species) refers to impacts on 'habitat critical to the survival of a species or ecological community' (critical habitat) which is defined under the MNES guidelines as areas that are necessary:

- For activities such as foraging, breeding, roosting, or dispersal
- For long-term maintenance of the species or ecological community
- To maintain genetic diversity and long-term evolutionary development and/or
- For the reintroduction of populations or recovery of the species or ecological community

Such habitats may be, but are not limited to:

- Habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community

Many species do not have approved recovery plans and 'habitat critical to the survival of a species' is generally not identified in available literature. For species that have a wide distribution/occurrence, habitat considered as that necessary for 'foraging, breeding, roosting or dispersal' is a broad definition that is not necessarily analogous with the definition of critical at a species level. Given the relative lack of information that is often available, significance of impacts to threatened species has been based on the professional expertise of the assessment personnel and the latest available information relating to species habitat and ecological requirements and distribution.

5.2 MNES Not Subject to Significant Impact Assessment

While the following MNES are considered to have at least some potential to occur, the proposed impacts are not considered to be of a scale that warrants an assessment using the MNES Guidelines significant impact criteria. These MNES are briefly discussed in the following sections.

5.2.1 Brigalow TEC

The Project occurs in a highly disturbed landscape impacted by cattle grazing activity and Brigalow has been subject to substantial impact from past clearing as a result. The Project area (and broader Study area) also suffers from infestation of invasive weeds including Buffel Grass (*Cenchrus ciliaris*), *Harrisia martinii* and *Parthenium hysterophorus* (Ausecology 2024a). The Project area has been substantially revised during the design process and has minimised impact on occurrences of Brigalow TEC where possible. The Project proposes to impact approximately 380 m^2 of Brigalow TEC (0.04 ha) located along 60 m of the edge of a much larger patch (29.10 ha) (**Figure 2**). The patch comprises Brigalow regrowth with varying infestations of weedy ground cover (Ausecology 2024a).

Ground cover will be retained throughout the Project area except for the temporary ground cover removal along a 10 m wide access track. This disturbance will be allowed to naturally regenerate following completion of construction. The clearing within the small area of the TEC will not cause fragmentation of a larger patch. The Project does not require landform earthworks that may influence abiotic factors (such as groundwater levels or changes to surface water flows). The main impact from the Project will be during construction and is therefore considered temporary in nature. The proposed clearing is very minor in extent and there is no reason to believe the Project would have a significant impact on Brigalow TEC, and it is not referred to further in this assessment.

5.2.2 Ornamental Snake

The Project area and broader Study area are mapped as occurring within the known/likely distribution of the Ornamental Snake (DCCEEW 2024). The species was not recorded within the Study area during Project-specific surveys. However, individuals were recorded by Ausecology approximately 3 km south-east of the Study area during recent surveys for the Project (refer **Appendix B**). The Project will directly impact 0.19 ha of marginal habitat for the species as per the habitat definitions of Kerswell et al. (2020) (Ausecology 2024a). Marginal habitat is described as "*areas currently or previously dominated by brigalow or coolibah communities where gilgais or soil cracks are infrequent or are shallow or non-remnant areas where threats are high (high*

abundance of weed incursion and cattle compacting soils) but the species still have potential to occur." No preferred or suitable habitat was observed within the Project area (refer Figure C1 in **Appendix C**).

There are no identified important populations or definitions of habitat critical to the survival of Ornamental Snake. The *Draft referral guidelines for the nationally listed Brigalow Belt reptiles* (Referral guidelines) (DCCEEW 2023b) considers the presence of important habitat for this species a surrogate for an important population. The Referral guidelines describe important habitat as 'gilgai depressions and mounds'. The Project area only intersects habitat mapped as marginal for the species. As such, important habitat is not considered to occur.

The Referral guidelines note that clearing of two or more hectares of important habitat may comprise a high risk of a significant impact on the species. Clearing one hectare or less is considered a low risk of significant impact on the species. Given the Project is proposing to clear 0.19 ha of marginal habitat for Ornamental Snake a significant impact is considered very unlikely to occur and the species is not referred to further hereafter.

5.2.3 Australian Painted Snipe, Caspian Tern and Sharp-tailed Sandpiper

Australian Painted Snipe and Caspian Tern are considered likely to occur and Sharp-tailed Sandpiper is considered a possible occurrence as associated with the Study area assessed for the Ausecology (2024) studies. Caspian Tern has been recorded relatively close to the Study area in association with a large dam, but habitat within the Study area itself appears minor with suitable habitat becoming temporarily available only after significant rainfall events. Potential wetland habitat for these species is generally limited within the Study area to a single artificial and ephemeral wetland area (**Figure C1** in **Appendix C**). This area is relatively small and would be considered only as occasional foraging habitat for Australian Painted Snipe (suitable habitat features for breeding are not present) (Ausecology 2024a). Other potential ephemeral wetlands comprising gilgais are not intersected by the Project (refer Figure C1 in **Appendix C**).

The waterbody is located within 30 m of existing industrial disturbance (explosives yard). A single 30 m wide stub line intersects the edge of the wetland area. No power line footings are located within the wetland area. Clearing for the 10 m wide access track will be located outside (east of) the waterbody. Following construction of the power line there will be no more disturbance on the wetland area. There is no other suitable habitat located within the Study area or surrounds. A significant impact is not considered possible for any of these three species, therefore they are not addressed further in this assessment.

5.2.4 Aerial Foraging Bird Species

Fork-tailed Swift and White-throated Needletail are almost entirely aerial in their foraging and resting habits when in Australia (i.e. they are rarely recorded roosting). They are found over a variety of habitats, including open areas, modified lands and the ocean but are most often observed over wooded areas (Higgins 1999). The airspace above the Project area will only comprise ephemeral foraging habitat. The Project requires negligible clearing of woody vegetation and there is abundant woodland habitat in the wider area surrounding the Project area. The Project will have negligible (if any) impact on the availability of potential foraging habitat for either species.

5.3 Significant Impact – Threatened Ecological Communities

5.3.1 Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin - Endangered

The Natural Grassland TEC occurs as three separate patches comprising RE 11.8.11 and 11.4.4 which are intersected by the western portion of the Project area. Onsite classification of the native grassland habitat considered these patches to be of 'best quality' or 'good quality' (Ausecology 2024a) under the condition classes described in the Approved conservation advice for the Natural Grassland TEC (TSSC 2009).

There is 57.46 ha of Natural Grassland TEC located within the overall Study area. The Project area has been refined to minimise impacts and as a result proposes a temporary impact to an overall maximum area of 0.57 ha of the TEC spread across the four RE patches (**Figure 2**). The disturbance impact will be restricted to a 10 m wide access track subject to clearing and grubbing and used for locating the power line poles. The cleared

track will be allowed to regenerate naturally on the completion of construction of the Project, and will be subject to ongoing weed management in line with activities at PDM. The remainder of the Project area will be subject to slashing only (where necessary) which will not remove the grass species currently present. It is noted the Project area and broader Study area are subject to cattle grazing currently and this will continue on completion of construction works.

Table 7 provides an assessment of the potential for significant impacts on the Natural Grassland TEC based on the Project area using the assessment criteria for endangered ecological communities outlined in the MNES Guidelines.

Table 7. Significant impact criteria assessment: Natural Grassland TEC

Criteria	Endangered ecological communities assessment
Reduce the extent of an ecological community	The Natural Grassland TEC is known to occur within the Project area. The Project area will result in temporary clearing of 0.57 ha of Natural Grassland TEC. The clearing will occur as a narrow linear (up to 10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. The Project clearing is minor in overall extent and the impact is considered temporary. As such, in the longer term (i.e. following construction) the Project will not reduce the extent of an ecological community.
Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	The Project area will result in temporary clearing of 0.57 ha of the Natural Grassland TEC. The clearing will occur as a narrow linear (up to 10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. Although some fragmentation may occur the Project impact is considered minor and temporary. As such, in the longer term (i.e. following construction) the Project is not considered to result in increased fragmentation of Natural Grassland TEC.
Adversely affect habitat critical to the survival of an ecological community	There is no definition of habitat critical to the survival of the Natural Grassland TEC. As such, it is uncertain the Project would adversely affect habitat critical to the survival of the Natural Grassland TEC. The proposed Project clearing within the TEC is minor in overall extent and the impact is considered temporary. Cleared areas will be allowed to naturally regenerate following construction. The Project is considered unlikely to adversely affect habitat critical to the survival of Natural Grassland TEC.
Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	The Project impact is relatively benign being largely associated with limited tree clearing and more restricted clearing of the ground layer. The Project will not impact groundwater levels or surface water flows. Areas subject to clearing for the access track will be allowed to regenerate following construction. There is no reason to believe the Project will modify or destroy abiotic factors necessary for the survival of the Natural Grassland TEC.
Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	The Project area will result in temporary clearing of 0.57 ha of Natural Grassland TEC. This impact occurs as a narrow linear (up to 10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. The majority of the Project area is located within areas that have been cleared of vegetation and with a heavy cover of the introduced Buffel Grass. The Project does not require activities such as regular burning or timber harvesting. The Project will not cause a substantial change in the species composition of the Natural Grassland TEC

Criteria	Endangered ecological communities assessment
Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community including but not limited to: • Assisting invasive species, that are harmful to the listed ecological community, to become established, or • Causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	The *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads* (DSEWPC 2011) is considered relevant to this community. Cane Toads are likely to be common in the Study area and were observed on most surveys carried out by Ausecology from 2021 – 2023. Weed and pest management measures will be developed and implemented for the construction and operation phases of the Project avoid or minimise the introduction or spread of weeds and pests. The Project occurs within a landscape subject to cattle grazing impact and invasion by Buffel Grass and Parthenium. The plan will ensure that no herbicides are used which may be deleterious to an occurrence of the Natural Grassland TEC. The Project is considered unlikely to cause a substantial reduction in the quality or integrity of an occurrence of Natural Grassland TEC.
Interfere with the recovery of an ecological community	There is no adopted recovery plan for the Natural Grassland TEC. The Project proposes to cause a temporary impact to 0.57 ha of the TEC. There is 54.76 ha of the TEC within the surrounding Study area. This impact occurs as a narrow linear (10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. There is no reason to believe the minor extent of temporary clearing required will interfere with the recovery of Natural Grassland TEC.
Assessment result	**Based on the MNES criteria assessment above it is considered a significant residual impact to the Natural Grassland TEC is unlikely to occur as a result of the Project.**

5.4 Significant Impact – Threatened Species

5.4.1 *Dichanthium queenslandicum* – Endangered

Ecology

King blue-grass is a perennial grass species that occurs in association with other blue grass species (*Dichanthium* and *Bothriochloa* species) on black cracking clay soils. It is generally confined to native blue grass grassland communities on black clays (derived from basalt) on undulating plains. Associated species include: *Aristida leptopoda*, *Bothriochloa erianthoides*, *Dichanthium sericeum*, *Digitaria brownii*, *Digitaria divaricatissima*, *Ipomoea lonchophylla*, *Iseilema vaginiflorum*, *Panicum decompositum*, *Panicum queenslandicum* and *Paspalidium globoideum* (TSSC 2013; DESI 2024).

The species occurs in three widely separated regions including the Dalby area in southern Queensland, the Central Highlands from Glenden south to Rolleston and west to Clermont, and isolated records north of Hughenden and Charters Towers. The Central Highlands region is the main stronghold for the species (TSSC 2013; ALA 2024).

Association with the Study area

The species was not recorded during Project surveys despite targeted searches. There is a 2022 record located 2.5 km east of the eastern extent of the Project area. There is also a 2012 record located 10 km north and a 2011 record located 12 km north-west of the western extent of the Project area (ALA 2024).

Although suitable habitat is identified as occurring within the Project area it was observed that much of the area has been severely impacted by cattle grazing. Introduced species are also common including Buffel Grass and Parthenium (Ausecology 2024a). As such, the species is only considered as *potentially* present in the

Project area and broader Study area (rather than likely to occur) within occurrences of the Natural Grasslands TEC where the ground cover retains native grass species.

DCCEEW approved species documents

There is no approved recovery plan or threat abatement plan adopted for the species under the EPBC Act.

The *Approved conservation advice for Dichanthium queenslandicum (King blue-grass)* (DSEWPC 2013) identifies the following threats to the species:

- Clearing of habitat for agriculture, mining, road infrastructure and other development
- Cropping impact
- Livestock grazing impact (the species does not tolerate continual heavy stocking rates)
- Weed invasion by species including Parthenium, Buffel Grass and Zinnia (*Zinnia peruviana*) threatens the species habitat values (Butler 2007)

There is no definition of critical habitat for the species in the available literature. There is 57.46 ha of potential habitat (i.e. Natural Grassland TEC) located within the overall Study area. The Project area proposes a temporary impact to a maximum area of 0.57 ha of suitable habitat for *Dichanthium queenslandicum* (**Figure** 2).

The disturbance impact will be restricted to a 10 m wide access track subject to clearing and grubbing and used for locating the power line poles. The cleared track will be allowed to regenerate naturally on the completion of construction of the Project. The remainder of the Project area will be subject to slashing only (where necessary) which will not remove the grass species currently present. It is noted the Study area is subject to cattle grazing currently and this will continue on completion of construction works.

Table 8 provides an assessment of the potential for significant impacts on *Dichanthium queenslandicum* from the Project activities using the assessment criteria for Endangered species outlined in the MNES Guidelines.

Table 8. Significant impact criteria assessment: *Dichanthium queenslandicum*

Criteria	Endangered species assessment
Lead to a long-term decrease in the size of a population of the species	The species was not recorded within the Study area despite targeted surveys. Nevertheless, there are recent records of the species located nearby to the Study area. Most areas of potential habitat within the Study area were observed to be heavily impacted by cattle and weed invasion and were considered unsuitable for the species occurrence. Potential habitat for the species was identified within areas identified as Natural Grassland TEC. The Project area will result in temporary clearing of 0.57 ha of potential habitat for the species. The clearing will occur as a narrow linear (10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species currently present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. The Project clearing is minor in overall extent and the impact is considered temporary. As such, the Project is highly unlikely to reduce the size of a population of *Dichanthium queenslandicum* (should a population actually occur within the Project area).
Reduce the area of occupancy a population	The species has not been recorded within the Study area despite targeted survey effort, but may potentially occur within areas identified as Natural Grassland TEC. The Project area will result in temporary clearing of 0.57 ha of potential habitat for the species. The clearing will occur as a narrow linear (10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) and will not remove existing groundcover. Following completion of construction, the access track will be allowed to regenerate naturally. A population has not been identified, the Project clearing extent is minor and will be allowed to regenerate following construction. The Project is considered highly unlikely

Criteria	Endangered species assessment
	to reduce the area of occupancy of a population of *Dichanthium queenslandicum* (should a population actually occur within the Project area).
Fragment an existing population into two or more populations	Proposed clearing impact for the Project is linear and narrow (10 m wide). Following completion of construction, the access track will be allowed to regenerate naturally and slashed as part of ongoing management measures. The Project does not require elements that will represent a barrier to the species ability to disperse across the local landscape. The Project will not fragment an existing population of *Dichanthium queenslandicum* (should a population actually occur within the Project area).
Adversely affect habitat critical to the survival of the species	There is no definition of habitat critical to the survival of this species. The species has not been recorded in the Study area but is associated with Natural Grassland TEC which does occur within the Project area and broader Study area. The proposed Project clearing within the TEC is minor in overall extent and the impact is considered temporary. Cleared areas will be allowed to naturally regenerate following construction. The Project is considered unlikely to adversely affect habitat critical to the survival of *Dichanthium queenslandicum*.
Disrupt the breeding cycle of a population	The species has been recorded flowering throughout the year (QH 2012). It is not known if the species actually occurs in the Project area or wider Study area. Proposed clearing impact for the Project is linear and narrow (10 m wide). The Project does not require elements that will represent a barrier to the species ability to disperse across the local landscape. It is considered highly unlikely the Project will disrupt the breeding cycle of a population of *Dichanthium queenslandicum* (should a population actually occur within the Project area).
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Project impact is relatively benign being largely associated with restricted and temporary impact on the ground layer. There will be no impact to habitat factors such as surface water flows and other potential general impacts on flora species (such as dust settlement) will be temporary and considered minor at worst. Proposed clearing impact for the Project is linear and narrow (10 m wide). Following completion of construction, the access track will be allowed to regenerate naturally. It is unlikely the Project will modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species habitat	Buffel Grass and Parthenium are both considered a threat to the species and were commonly recorded in the Study area during Project surveys. Buffel Grass was reported as often dominating the ground layer throughout the Study area (Ausecology 2024a). During the construction and operational phases of the Project, the existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. The Project is highly unlikely to result in the introduction of a novel invasive species, or proliferation of an existing invasive species in the species' habitat.
Introduce disease that may cause the species to decline	There are no identified introduced diseases or pathogens associated with this species. The Project activities do not require the importation of soils or other biological matters into the Study area. Machinery imported from outside the region for Project earthworks, transportation and other construction activities will be managed in accordance with the existing BMA Weed and Feral Animal Management procedure to reduce the risk on introducing pathogens. It is highly unlikely the Project activities will result in the introduction of a disease causing the species to decline.
Interfere with the recovery of the species	There is no recovery plan for this species. The Approved conservation advice for the species (DSEWPC 2013) identifies the following priority actions as relevant to the species and the Study area:

Criteria	Endangered species assessment
	• Identify high conservation value populations and monitor known populations including the effectiveness of applied management actions • Develop and implement a regional weed management plan for the control of Parthenium and Parkinsonia (*Parkinsonia aculeata*) • Develop a stock management plan for road easements and stock routes • Raise awareness of the species including engagement, improving land management and arranging conservation agreements with relevant landowners The Project is considered highly unlikely to interfere with the actions identified above. The Project will not substantially interfere with the recovery of the species.
Assessment result	**Based on the assessment above it is considered highly unlikely a significant residual impact to *Dichanthium queenslandicum* will occur as a result of the Project.**

5.4.2 Koala – Endangered

Ecology

Koalas have a distinct association with eucalypt woodland and forest habitats comprising suitable food trees, mainly of the following genus: Eucalyptus, Corymbia, Angophora and Melaleuca (Moore & Foley, 2000; Martin et al. 2008). They are not necessarily restricted to bushland areas and are known to occur and breed where suitable tree species occur within farmland and the urban environment (Dique et al. 2004). Similarly, movement is not confined to vegetated corridors, as they also move across cleared rural land and through suburbs (Martin et al. 2008). They may use a variety of trees, including many non-eucalypts, for feeding, shelter and breeding purposes (Dique et al. 2004; Martin et al. 2008).

They are known to have localised and variable preferences throughout their range, favouring some tree species over others (Pahl & Hume 1990). At the local level they are known to prefer individual trees. It has been suggested this could be a response to a number of factors such as high leaf moisture and/or nitrogen content, and low levels of toxic chemical compounds which are expressed by eucalypts as a result of herbivory (Pahl & Hume 1990; Hume & Esson 1993; Moore & Foley 2000).

Breeding occurs in spring / summer when males become territorial. Young permanently leave the pouch after seven months but may continue to ride on the mothers back until approximately 12 months. After this time adolescent females may remain in the natal habitat. Males generally disperse to new territories from one to three years of age (Dique et al. 2003; Martin et al. 2008).

Association with the Study area

At least one Koala individual and signs of presence (scats or tree scratches) have been recorded close (approximately 100 m) to the Study area. Additional individuals have been recorded in the surrounding wider area associated with PDM during the surveys by Ausecology (from 2019 to 2023) and other consultants, mainly to the south of the Study area (refer Figure A-3 in **Appendix B**). With regard to the Study area, an individual and signs of presence were recorded in close proximity in the wooded area in the west in riparian Queensland Blue Gum (*Eucalyptus tereticornis*) open forest (RE 11.3.25) and Poplar Box (*E. populnea*) dominated woodland (RE 11.5.3).

Project specific habitat mapping indicates the Project area will impact up to 17.57 ha of Koala habitat (refer **Figure C2** in **Appendix C**) comprising the following habitat areas as defined by Kerswell et al. (2020):

- 6.72 ha of preferred habitat – eucalypt woodlands with likely connection to groundwater and frequent palatable food trees (RE 11.3.25, 11.3.4 and 11.5.3)
- 0.45 ha of suitable habitat – other eucalypt woodlands connected to preferred habitat and at least one palatable food tree present (RE 11.5.3)
- 10.40 ha of Marginal habitat – other fragmented and sparse woodlands with some food trees and subject to water stress and/or periodic high intensity fires (remnant and non-remnant sparse *E. orgadophila* woodland - RE 11.8.5)

DCCEEW approved species documents

The *National recovery plan for the Koala Phascolarctos cinereus combined populations of Queensland, New South Wales and the Australian Capital Territory* (the Koala Recovery Plan) (DAWE 2022a) was approved on 8th April 2022. The Koala Recovery plan notes the following threats to the species:

- Habitat loss, fragmentation and modification including the impact of native forestry activities
- Drought, extreme heat events including associated with climate change
- Altered fire regimes
- Mortality from dog attack and vehicle collisions
- Diseases including Chlamydia and Koala retrovirus
- Plant pathogens impacting Koala habitat such as Myrtle Rust

The *Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory* (DAWE 2022b) notes (with relevance to Queensland) the priority management actions associated with the south-east Queensland population and that sub-populations on the western edge of the species range may be 'climate-sensitive' and comprise genes adapted to environmental extremes which may prove critical to populations elsewhere in the future through translocation programs.

The Koala Recovery plan does not specifically identify any areas comprising 'valued populations' of Koala but does note an imperative to conserve populations:

- That may act as source populations to adjacent areas
- Occur in areas of climatic refugia (specifically from droughts and heat waves)
- Genetically diverse
- Contain adaptive genes to potential environmental stressors or
- Are geographical or environmental outliers

Koalas and signs of presence have been observed close to the Study area in recent years. The woodlands associated with the area comprise widespread communities much of which is disturbed and located within a heavily cleared landscape. Based on the habitat mapping definitions used for the Project (Kerswell et al. 2020) portions of the Project area may impact habitats with access to groundwater which may potentially act as 'climate refuge' habitat for Koala.

Similarly, the Koala Recovery plan does not provide a clear description of 'habitat critical to the survival' of Koala but does note that evaluation of the following may be required:

- Is the habitat used during periods of stress (fire, floods or drought)
- Is the habitat used for breeding, foraging, social behaviour or dispersal
- Is an important population present
- Does the habitat support genetic diversity
- Is the habitat used as a corridor
- Is the habitat necessary to maintain the long-term future of Koala

The Koala Recovery plan also notes that in order to halt the decline and promote recovery of the species the following activities should be avoided:

- Clearing of habitat used by Koalas for feeding and resting
- Reducing connectivity between patches used by Koala
- Clearing habitat used during extreme events
- Avoiding activities that will expose Koalas to additional threats

The overall Study area is largely disturbed by past vegetation clearing or thinning for cattle grazing. The Project will not erect structures that will provide an impermeable barrier to movement across the landscape. The Project will not increase additional threats to the species in the area. Evidently the species occurs in the local region (based on records near to the Study area) and uses the habitat for foraging and possibly breeding. The Project area for the most part avoids impacting preferred Queensland Blue Gum dominated habitat (0.04 ha) but does impact 6.72 ha of habitat that may be considered as a refuge during drought or extreme heat events (habitats likely connected to groundwater). Given the species is known to occur, the habitat identified within the Project area may be broadly interpreted as habitat critical to the survival of the species.

The Project is proposing to impact up to 17.57 ha of potential habitat for Koala (Ausecology 2024a). A preliminary analysis based on existing Queensland vegetation (RE) mapping indicates there is approximately 18,800 ha of potential eucalypt dominated habitat (as defined above) occurring within a 10 km radius of the Project area. As such, the Project proposes to impact 0.09% of potential available habitat within the wider area.

Table 9 provides an assessment of the potential for significant impacts on Koala from the Project activities using the assessment criteria for Endangered species outlined in the MNES Guidelines.

Table 9. Significant impact criteria assessment: Koala

Criteria	Endangered species assessment
Lead to a long-term decrease in the size of a population of the species	Koala individuals and signs of presence were recorded in close vicinity to the western portion of the Study area (and Project area). The species was also identified as occurring in the wider region. Preferred forage tree species in inland Queensland includes habitat supporting Queensland Blue Gum. The Project area has minimised clearing of such habitat to 0.04 ha. The Project will impact 7.13 ha of habitat comprising Poplar Box as the dominant canopy species and 10.40 ha of *E. orgadophila* dominated habitat. Both are considered locally important Koala trees in the Brigalow Belt Bioregion (Youngentob et al. 2021). There is abundant eucalypt-dominated habitat in the surrounding area that will remain undisturbed. The majority of the Project area that will be impacted comprises grassland habitat sometimes with scattered regrowth Brigalow (which is not a forage tree for Koala). With site specific measures in place (such as pre-clearance inspections and vehicle speed limits) mortality events are considered highly unlikely. A fauna spotter will be present during vegetation clearing within suitable habitat for Koala to eliminate any potential impact on Koala individuals (should any be present at the time). Indirect impacts to Koala habitat from Project activities (such as noise, lighting and dust settlement) will be temporary (during construction only) and have a very minor impact at worst. The Project is considered highly unlikely to lead to a long-term decrease in the size of a population of Koala.
Reduce the area of occupancy a population	The species is known to occur in the local area near to the Project. For the most part the Project area is devoid of eucalypt vegetation which may support the species. The Project proposes to clear 17.57 ha of potential habitat for Koala. This area is spread across scattered patches largely in the western extent of the Project area. There is abundant similar habitat located adjacent to the Project area and in the surrounding area which will remain undisturbed. The majority of the Project area does not comprise forage habitat for Koala. The project is considered highly unlikely to reduce the area of occupancy of a population of Koala.
Fragment an existing population into two or more populations	Koalas are a mobile species known to traverse long distances (up to 20 km) during dispersal movements (DCCEEW 2022b). Clearing for the Project is linear and does not require elements that will represent a barrier to the species movement across the Project area and surrounds. The Project will not fragment an existing population of Koala.
Adversely affect habitat critical to the survival of the species	Under the broad descriptions provided in the Koala Recovery plan habitat critical to the survival of the species is present. The Project area is currently proposing to impact 6.72 ha of habitat which may be interpreted as a refuge during drought conditions (i.e. vegetation with access to groundwater). The Project area will impact a maximum area of 17.57 ha of potentially suitable habitat for the species. There is approximately 18,800 ha of eucalypt dominated habitat mapped as occurring within 10 km of the Project area.

Criteria	Endangered species assessment
	Nevertheless, given critical habitat is considered as occurring there is potential for the Project to adversely affect habitat critical to the survival of Koala.
Disrupt the breeding cycle of a population	The Project will impact habitat in which Koala may occur. Pre-clearing inspections by a suitably qualified Fauna Spotter Catcher will be carried out to identify presence of Koala and where required, the Spotter Catcher will monitor individuals within the Project area during clearing activities. Measures will be in place where Koalas are identified within or adjacent to the Project area. This will include suspending clearing where individuals are found within designated clearing areas. Clearing will recommence only when the individual has been allowed to vacate the area of its own volition. It is considered unlikely the Project will disrupt the breeding cycle of a population of Koala.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Project proposes to clear 17.57 ha of potential habitat for Koala. There is abundant potential habitat located in the wider area which will remain undisturbed. The Project impacts largely occur in unsuitable grasslands and regrowth acacia vegetation. The Project will not impact the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species habitat	Weed invasion is not considered a threat to the species. Feral dogs are considered a threat to the species and were recorded in the local area during project surveys (Ausecology 2024a). During the construction and operational phases of the Project, the existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. The Project is highly unlikely to result in the introduction of a novel invasive species, or proliferation of an existing invasive species in the Project area or surrounds.
Introduce disease that may cause the species to decline	Myrtle rust may impact a range of eucalypt species and may be a potential threat to habitat for Koala (DAWE 2022a). The Project activities do not require the importation of soils or other biological matters into the Project area. Machinery imported from outside the region for Project earthworks, transportation and other construction activities will be managed in accordance with the existing BMA Weed and Feral Animal Management procedure to reduce the risk on introducing pathogens. It is highly unlikely the Project activities will result in the introduction of a disease causing the species to decline.
Interfere with the recovery of the species	The Koala Recovery plan outlines a number of recovery strategies and actions for the species including the following: • Identify nationally important populations and strategic areas for restoration, climate/fire refugia and movement corridors • Coordinate research programs including implementing a national monitoring program • Increase the area of protected Koala habitat through incorporation into State protected areas and on private lands and improve land management practises • Ensure koala conservation is integrated into policy, and statutory and land-use plans • Develop and implement strategic restoration of habitat including through natural resource management and land care groups and develop revegetation and restoration guidelines • Develop a strategy of active management practices Koala metapopulations including monitoring population health, fire management, and guidelines for managing Koala translocations and post-care release of individuals (DAWE 2022a) The majority of the Project area and broader Study area has been heavily impacted by previous grazing practices. There is abundant habitat present in the surrounding area which will remain undisturbed. With mitigation measures in place during construction works the proposed impact is minor in extent and is considered unlikely to interfere

Criteria	Endangered species assessment
	substantially with the management actions identified above or the recovery of the species.
Assessment result	**Based on the assessment above it is considered there is *potential* for a significant impact to Koala to occur as a result of the Project through impact on habitat considered critical to the survival of the species.**

5.4.3 Greater Glider – Endangered

Ecology

The Greater Glider is typically found in mature eucalypt forests and woodlands with a variety of eucalypt species and a high density of large tree hollows (van der Ree et al. 2004). Large hollows in old trees are preferred as daytime shelter sites (Goldingay 2012). Sites with a high abundance of suitable hollows appear to support higher populations. Eyre (2006) reported a single individual required three living hollow-bearing trees per hectare to be present in an area. Suitable trees with large hollows used for den sites were found to be largely trees with a diameter of 50 cm or greater (Smith et al. 2007). Its diet is largely composed of eucalypt leaves and occasionally flowers. Greater Glider utilises small home ranges of between 1 ha and 4 ha recorded in more productive forests (Gibbons & Lindenmayer 2002). In more open and dry habitats it has been recorded using home ranges up to 16 ha in size (Smith et al. 2007).

Females breed at two years of age and may produce a single young each year from March to June (Woinarski et al. 2014). Recent genetic evidence indicates the species may comprise three separate species with individuals in the Study area potentially representing Central Greater Glider (currently *P. volans armillatus*) (McGregor et al. 2020). The central and southern species occur across eastern Australia and is generally associated with the Great Dividing Range and habitat to the east towards the coast. Occurs from central Victoria north to approximately Ayr. The southern range of the Central Greater Glider is uncertain but may be around the Queensland – New South Wales border (McGregor et al. 2020).

Association with the Study area

Greater Glider has been recorded close (approximately 100 m) to the Project area and as well as in the surrounding wider area associated with PDM during surveys by Ausecology (from 2019 to 2023) and other consultants (refer Figure A-3 in **Appendix B**). With regard to the Study area, several individuals were recorded in close proximity in the wooded area in the west in riparian Queensland Blue Gum open forest (RE 11.3.25) and Poplar Box dominated woodland (RE 11.5.3). All individuals were recorded outside the Project area.

In Queensland the species has been commonly recorded using Queensland Blue Gum for denning and foraging purposes and it is evidently a favoured species. The species association with Poplar Box is much less certain (refer Table 4 in Eyre et al. 2022). Other eucalypts recorded in the Project area include *Eucalyptus orgadophila*, *E. cambageana*, *Corymbia tessellaris* and *C erythrophloia* (data supplied by Ausecology 2024a). Of these, the Greater Glider is only associated with *C. tessellaris* (refer Table 4 in Eyre et al. 2022).

Much of the Project area was unsuitable for Greater Glider as it comprised either grasslands, unsuitable woody regrowth, isolated small patches, or other unsuitable habitats such as Brigalow communities or very sparse woodlands (such as RE 11.8.5). Project specific habitat mapping indicates the Project area will impact up to 6.42 ha of Greater Glider habitat (refer **Figure C1** in **Appendix C**) comprising the following habitat areas as defined by Kerswell et al. (2020):

- 6.00 ha of preferred habitat – connected eucalypt woodlands with one or more food trees and more than two hollow bearing trees per hectare with hollows medium-large in size (>10 cm entrance) (RE 11.3.25, 11.3.4 and 11.5.3)
- 0.42 ha of suitable habitat – other eucalypt woodlands connected to preferred habitat with at least one food tree present but not more than two hollow bearing trees per hectare with hollows medium-large in size (RE 11.5.3)

DCCEEW approved species documents

There is no approved recovery plan or threat abatement plan adopted for the species under the EPBC Act.

The *Conservation advice for* Petauroides volans *(Greater Glider (southern and central))* (DCCEEW 2022b) identifies the following threats to the species:

- Inappropriate fire regimes leading to high intensity and widespread bushfires impacting populations and habitat values (removing old growth trees with hollows)
- Habitat clearing and fragmentation of habitat for development, agriculture and forestry harvesting
- Climate change impacts to weather patterns increasing the potential for bushfire, heat stress for individuals and declining forage tree moisture levels
- Predation by, or competition for hollows from native species such as owls and cockatoos
- Predation from feral cats and European Red Fox

The Conservation Advice for the species identifies five 'broadly defined' habitat types that may provide habitat critical to the survival of the species:

- Large contiguous areas of eucalypt forest, which contain mature hollow-bearing trees and a diverse range of the species' preferred food species in a particular region
- Smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonization
- Cool microclimate forest/woodland areas (e.g. protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes)
- Areas identified as refuges under future climate changes scenarios
- Short-term or long-term post-fire refuges (i.e. unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas (DCCEEW 2022b)

As noted, large hollow bearing trees occur to a limited extent within the western portion of the Project area. This portion of the Project area intersects a tract of eucalypt forest which extends to the north and west from the area. The Project area is not located in a cool micro-climate woodland and there is no reason to believe the area would be a refuge from wildfires. The woodlands located within the Project area are generally sparse and it is uncertain if they comprise a 'diverse' range of preferred food tree species.

The Project will impact up to 6.42 ha of suitable eucalypt vegetation. This includes 0.04 ha of the more favoured Queensland Blue Gum vegetation (RE 11.3.4 and 11.3.25) with the remainder comprising Poplar Box vegetation (RE 11.5.3) (a species which appears less favoured). There is little evidence this habitat may be considered as habitat critical to the survival of the species. A preliminary analysis based on existing Queensland vegetation (RE) mapping indicates there is approximately 11,000 ha of potential preferred or suitable habitat (as defined above) occurring within a 10 km radius of the Project area. As such, the Project proposes to impact 0.06% of potential available habitat within the wider area. It is noted the extent to which the habitat in the wider area is suitable (i.e. availability of large tree hollows) is unknown.

Table 10 provides an assessment of the potential for significant impacts on Greater Glider from the Project activities using the assessment criteria for Endangered species outlined in the MNES Guidelines.

Table 10. Significant impact criteria assessment: Greater Glider

Criteria	Endangered species assessment
Lead to a long-term decrease in the size of a population of the species	The species has been recorded close to the Project area as well as in the wider area during surveys in recent years. Known preferred tree species which are present includes Queensland Blue Gum and *Corymbia tesselaris*. Large hollow-bearing trees are limited to the western extent of the Project area. The Project proposes clearing up to 6.42 ha of potential habitat for the species. Only 0.04 ha comprises REs associated with Queensland Blue Gum. There is abundant similar habitat in the surrounding area that will remain undisturbed. Existing Queensland Government vegetation mapping indicates there is over 11,000 ha of potential habitat located within 10 km of the Project area.

Criteria	Endangered species assessment
	A fauna spotter-catcher will be present to mark trees with suitable large hollows prior to clearing and present during vegetation clearing to inspect hollows in felled trees. Indirect impacts to Greater Glider habitat from Project activities (such as noise, lighting and dust settlement) will be temporary and have a very minor impact at worst. Given the availability of eucalypt habitat surrounding the Project it is considered unlikely to lead to a long-term decrease in the size of a population of Greater Glider.
Reduce the area of occupancy a population	The species has been recorded close to the Project area as well as in the wider area during surveys in recent years. The Project proposes to clear up to 6.42 ha of potential habitat for Greater Glider. There is abundant similar habitat in the wider area (within 10 km) which will remain undisturbed. Although the Project will reduce the area of available foraging habitat in the local area, given the abundant identical habitat in the surrounding area, the clearing is not considered to be of a scale to reduce the area of occupancy of a population of Greater Glider and thereby cause a significant impact.
Fragment an existing population into two or more populations	The Project area comprises linear disturbance of 50 m (main corridor) and 30 m (stub line corridors). Cleared corridors within forested lands are considered a barrier to dispersal for Greater Glider (Taylor and Goldingay 2009). Glide distances associated with the species will be influenced in particular by the height of the launch site as well as other temporal factors such as weather conditions. Project-specific Greater Glider tree assessments were carried out by Ausecology. The assessments included measurements of tree height, species and diameter at breast height. Average tree height within RE 11.5.3 was 16.8 m with a maximum height of 27.8 m recorded. Horizontal glide distance for Greater Glider was calculated via a Taylor & Goldingay (2009) study of the species' ability to cross road infrastructure in south-east Queensland. Based on the site data the local glide distance would be limited to 27.8 m. As such, the width of the main corridor and stub line corridors appear likely to prevent the species ability to traverse from one side to the other. It is noted the species was only recorded to the north of the Project area. It is not known if the species occurs to the south and would traverse the proposed Project area. An approximate length of 800 m along the western extent of the Project area will bisect mapped Greater Glider habitat. This has potential to isolate 20 ha of mapped preferred or suitable habitat for the species from contiguous habitat located north of the Project area. Although, it is noted the species has not been recorded to the south of the Project area during Project surveys, the Project has some potential to fragment an existing population of Greater Glider.
Adversely affect habitat critical to the survival of the species	Based on the broad definitions within the conservation advice for the species, it is uncertain the project area supports habitat critical to the survival of the species. The Project proposes to impact up to 6.42 ha of suitable eucalypt habitat. Nevertheless, there is abundant identical habitat in the surrounding area. The Project is considered unlikely to adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	There is some *potential* for the Project to impact potential den trees during tree clearing. Young are born from March to June (Baker and Gynther 2023). Pre-clearing inspections by a suitably qualified Fauna Spotter Catcher will be carried out to identify trees with large hollows which may provide roosting habitat for Greater Glider. Measures will be in place where suitable hollows are identified within the Project area. This will include felling trees in a manner such that injury to potential hollow occupants will be minimised. The Fauna Spotter Catcher will have further procedures in place should Greater Glider occur within trees felled for the Project construction, including salvage and relocation protocols. There is a minor potential for the Project to disturb Greater Glider individuals with young during construction, but this is considered unlikely to result in disruption to the breeding cycle of a population.

Criteria	Endangered species assessment
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Project proposes to clear up to 6.42 ha of suitable habitat for Greater Glider. There is abundant similar habitat located in the wider area which will remain undisturbed. The Project is not considered likely to impact the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species habitat	Weed invasion is not considered a threat to the species. Feral dogs and cats are considered a threat to the species and were recorded in the local area during project surveys (Ausecology 2024a). During the construction and operational phases of the Project, the existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. The Project is highly unlikely to result in the introduction of a novel invasive species, or proliferation of an existing invasive species in the Study area or surrounds.
Introduce disease that may cause the species to decline	There are no known vectors of disease or pathogens associated with the species. The Project activities do not require the importation of soils or other biological matters into the Study area. Machinery imported from outside the region for Project earthworks, transportation and other construction activities will be managed in accordance with the existing BMA Weed and Feral Animal Management procedure to reduce the risk on introducing pathogens. It is highly unlikely the Project activities will result in the introduction of a disease causing the species to decline.
Interfere with the recovery of the species	The Approved conservation advice identifies a number of conservation and recovery actions for the species including the following: • Identify strategic areas for restoration, climate/fire refugia and movement corridors • Protect unburnt habitat to support populations following bushfires • Protect hollow-bearing trees on private property, roadside reserves and along roads and avoid fragmentation/loss of habitat due to development of transport infrastructure • Where threats from cats and Red Fox are locally significant implement control measures (especially in unburnt areas) • Investigate the feasibility of reintroductions and translocation of the species • Define appropriate levels of timber harvesting exclusion where these activities occur within the species distribution • Develop fire management guidelines for land managers and implement applied research to assess the impact of fires and management activities on the species habitat • Information and research priorities undertaken to improve knowledge of the species and populations including genetic sampling, monitoring surveys across the species range (DCCEEW 2022b) The Project will result in the clearing of up to 6.42 ha of habitat for Greater Glider. The Project may also result in the further isolation of approximately 20 ha of habitat, although it is not known if the species utilises this area. Nevertheless, there is extensive potential habitat surrounding the project area and the proposed extent of impact will be minor. The project is considered unlikely to interfere substantially with the management actions identified above or the recovery of the species.
Assessment result	**Based on the assessment above it is considered there is some *potential* for a significant impact to Greater Glider through fragmentation of existing suitable habitat for the species.**

5.4.4 Squatter Pigeon (southern) – Vulnerable

Ecology

The Squatter Pigeon is largely a terrestrial pigeon species, foraging and breeding on the ground. The species mainly occurs in dry grassy eucalypt woodlands and open forests (Frith 1982; Crome and Shields 1992). It may also inhabit Callitris/Acacia dominated woodlands and has been reported from open plains in its historical southern range (Frith 1982). Most individuals live in sandy sites within 3 km of a permanent water source (Blakers et al. 1984). They remain common in heavily grazed country in tropical Queensland (Reis 2012) but they are typically more common in ungrazed lands (Woinarski and Ash 2002; Reis 2012). This species mainly feeds on grass seed although insects are seasonally important in the diet (Reis 2012).

The species may breed throughout the year, but this appears to be greatly influenced by rainfall and abundance of foraging resources. Peak breeding is likely to occur during the dry season (April to October) (Squatter Pigeon Workshop 2011). The nest is a shallow depression on the ground usually sheltered by a bush or log (Reis 2012). The total population size is estimated at 220,000 mature birds. Individuals located north of Roma occur as a single continuous interbreeding population (Garnett & Baker 2021).

The subspecies was historically found from the Dubbo region in New South Wales north to the Burdekin River area in in Queensland. There have been no official records in New South Wales since the 1970s. Although the species has declined greatly in southern Queensland in the past it appears this decline has slowed, and the species now persists over a wide area and can be locally abundant in central Queensland (Garnett et al. 2011) where groups of up to 30 individuals can still be seen (Reis 2012). South of the Carnarvon Range the species appears to occur only in scattered areas.

Association with the Study area

Squatter Pigeon was not recorded close to the Project area but has been recorded in the surrounding wider area associated with PDM during other surveys by Ausecology, and has been recorded within the south-east of the Study area by a separate consultant (refer **Appendix B**). With regard to the Study area, individuals were recorded in RE 11.4.8 but in close proximity to more suitable habitats including riparian Queensland Blue Gum open forest (RE 11.3.25) and Poplar Box dominated woodland (RE 11.5.3).

The species may occur in woodlands on sandy soils within 3 km of permanent water (including farm dams), particularly within REs on Land Zone 5 and 7 (DCCEEW 2024) as well as Land Zones 3 and 10. The species forages/breeds in areas where the ground cover is no more than 33%. Much of the Project area was unsuitable for the species as it comprised grasslands with dense cover, woody regrowth, or other unsuitable habitats located on clay soils such as Brigalow communities. Project specific habitat mapping indicates the Project area will impact up to 22.77 ha of Squatter Pigeon habitat (refer **Figure C3** in **Appendix C**) comprising the following habitat areas as defined by Kerswell et al. (2020):

- 13.45 ha of preferred habitat – eucalypt or acacia woodlands with <33% ground cover on well-draining soils (land zone 3, 5, 7, 8, 9 and 10) within 1 km of a permanent waterbody
- 6.39 ha of suitable habitat – eucalypt or acacia woodlands with <33% ground cover on well-draining soils (land zone 3, 5, 7, 8, 9 and 10) within 1-3 km of a permanent waterbody (includes non-remnant areas within 100 m of preferred habitat)
- 2.94 ha of marginal habitat – other non-remnant (regrowth) or remnant woodland areas more than 3 km from a waterbody that allow for movement between preferred and suitable habitat

DCCEEW approved species documents

There is no approved recovery plan for the species.

Relevant threat abatement plans applicable to the species include:

- Threat abatement plan for competition and land degradation by rabbits (DEE 2016)
- Threat abatement plan for predation by feral cats (DE 2015b)
- Threat abatement plan for predation by the European red fox (DEWHA 2008c)

The Approved Conservation Advice for the species (TSSC 2015a) notes the following threats to the species:

- Habitat loss through land clearing, particularly for livestock grazing which decreases foraging resources
- Overgrazing by livestock and feral herbivores
- Unsuitable fire regimes
- Changes to habitats caused by invasive weeds and/or thickening of understorey vegetation (Higgins & Davies 1996; Garnett et al 2011)

All of small, isolated and sparsely distributed populations south of the Carnarvon Range area are considered as important subpopulations including:

- populations occurring in the Condamine River catchment and Darling Downs
- populations known to occur in the Warwick-Inglewood-Texas area
- populations potentially occurring in northern NSW (Squatter Pigeon Workshop 2011; DCCEEW 2024).

All individuals to the north of the Carnarvon Range are considered to be part of a single, widely distributed, interbreeding population (Squatter Pigeon Workshop 2011; Garnett & Baker 2021). Therefore, given the Study area is located over 250 km north of the Carnarvon Range any individuals present are not considered part of an 'important subpopulation'.

No definition of habitat critical to the survival of the species is defined for this species. This is likely due to the relatively broad habitat requirements of the species and the abundance of similar habitat across the wider landscape.

The Project proposes to impact 22.77 ha of suitable habitat for Squatter Pigeon. A preliminary analysis based on existing Queensland vegetation (RE) mapping indicates there is approximately 21,400 ha of potentially suitable habitat (as defined above) occurring within a 10 km radius of the Project area. As such, the Project proposes to impact 0.1% of likely available habitat within the wider area.

Table 11 provides an assessment of the potential for significant impacts on Squatter Pigeon from the Project activities using the assessment criteria outlined in the MNES Guidelines.

Table 11. Significant impact criteria assessment: Squatter Pigeon

Criteria	Vulnerable species assessment
Lead to a long-term decrease in the size of an important population of the species	The species has not been recorded in the Project area, though has been recorded locally during surveys in the Study area and surrounds, and suitable habitat is present in the Project area. The Project area lies north of the Carnarvon Range and as such, the individuals present in the local region are not considered as part of an important subpopulation. The species prefers wooded areas on sandy substrates within 3 km of a permanent water source (including farm dams). Much of the vegetation within the Project area and broader Study area is unsuitable as it comprises grasslands or other vegetation on clay soils. The Project area is proposed to impact 22.77 ha of potentially suitable habitat for Squatter Pigeon. It is noted overgrazing by livestock is considered a threat to the species. The habitats located within the Project area and surrounds are currently subject to cattle grazing. Vegetation clearing for the Project does not involve broad-scale clearing of habitat. Although the Project requires clearing of 22.77 ha there will be over 21,400 ha of similar habitat remaining in the wider area (within 10 km) surrounding the Project area. The nature of the clearing comprises linear clearing (access tracks and footings), and tree removal or slashing of grasses (for the remaining power line corridors) within tracts of woodlands, grasslands and previously cleared areas which will remain undisturbed. Grasses will be allowed to revegetate the 10 m wide access track on completion of construction.

Criteria	Vulnerable species assessment
	The species is mobile and should individuals be present they are expected to simply move from the clearing area. With site specific measures in place (such as pre-clearance inspections and vehicle speed limits) mortality events are considered highly unlikely. The project is considered highly unlikely to lead to a long-term decrease in the size of an important population or subpopulation of Squatter Pigeon.
Reduce the area of occupancy of an important population	The species has been recorded locally and suitable habitat is present in the Project area. The individuals present in the local region are not considered as part of an important subpopulation. Vegetation clearing for the Project does not involve broad-scale clearing of habitat. Although the Project requires clearing of 22.77 ha there will be over 21,400 ha of similar habitat remaining in the wider area (within 10 km) surrounding the Project area. The nature of the clearing comprises linear clearing (access tracks and footings) and tree removal or slashing of grasses (for the power line corridors) within tracts of woodlands, grasslands and previously cleared areas which will remain undisturbed. Grasses will be allowed to revegetate the 10 m wide access track on completion of construction. Given the relatively minor extent of impact to habitat in the context of the wider area the project is considered highly unlikely to reduce the area of occupancy of an important subpopulation.
Fragment an existing important population into two or more populations	The species has been recorded locally and suitable habitat is present in the Project area. The individuals present in the area are not considered as part of an important subpopulation. The nature of the clearing comprises linear clearing (access tracks and footings) and tree removal or slashing of grasses (for the power line corridors) within tracts of woodlands, grasslands and previously cleared areas which will remain undisturbed. Grasses will be allowed to revegetate the 10 m wide access track on completion of construction. The species is highly mobile and the Project will not fragment an existing important subpopulation.
Adversely affect habitat critical to the survival of the species	There is no definition of habitat critical to the survival of Squatter Pigeon. The species has broad habitat requirements and there is abundant suitable habitat for the species within and surrounding the Project area. The Project will not adversely affect habitat critical to the survival of Squatter Pigeon.
Disrupt the breeding cycle of an important population	The species has been recorded locally and suitable habitat is present in the Project area. The individuals present in the area are not considered as part of an important subpopulation. The Project area lies on relatively flat plain with little topographic relief. Breeding habitat is identified as stony rises with sandy or gravel soils and within 1 km of permanent water (Squatter Pigeon Workshop 2011). Under this definition there is unlikely to be breeding habitat for the species present. Regardless, potential habitat for the species (as identified in this report) will be subject to preclearance surveys prior to vegetation clearing for construction. Mitigation measures will be in place as discussed in **Section 4.2**. Where an active nest site for the species is identified within or adjacent to the Project area the site will be avoided during the nesting period. The species may breed throughout the year with a likely peak from April to October. While there is a potential for the Project construction activities to disrupt the breeding cycle of individuals this impact will be temporary (restricted to the construction period). It is considered any impact would be minor (at worst) and is not considered to be to the extent a significant impact would occur on an important subpopulation of Squatter Pigeon.
Modify, destroy, remove, isolate or decrease the availability or quality of	The species occurs in the Study area and surrounds. There is abundant suitable habitat for the species within the wider area surrounding the Project area. The Project requires

Criteria	Vulnerable species assessment
habitat to the extent that the species is likely to decline	clearing of 22.77 ha of suitable habitat. There will be over 21,400 ha of similar habitat remaining in the wider area (within 10 km) surrounding the Project area. Given the relatively minor extent of impact to habitat in the context of the wider area the project is considered highly unlikely to impact the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species habitat	Weed invasion is not considered a threat to the species. Browsing and land degradation by feral species (such as rabbits) and livestock (such as cattle) is considered a threat to the species habitat. Both are currently known to be present in the Project area and broader Study area (Ausecology 2024a). During the construction and operational phases of the Project, the existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. The Project is highly unlikely to result in the introduction of a novel invasive species, or proliferation of an existing invasive species in the Study area or surrounds.
Introduce disease that may cause the species to decline	There are no identified introduced diseases or pathogens associated with this species. The Project activities do not require the importation of soils or other biological matters into the Project area. Machinery imported from outside the region for Project earthworks, transportation and other construction activities will be required to be certified free of weed seeds and soil matter prior to entry onsite. It is highly unlikely the Project activities will result in the introduction of a disease causing the species to decline.
Interfere substantially with the recovery of the species	There is no recovery plan for this species. The Approved conservation advice for the species (TSSC 2015) identifies the following conservation and management actions as relevant to the species and the Study area: • Identify high priority sub-populations (particularly in southern areas) and establish conservation protections, habitat rehabilitation and management plans for threats including stock and feral herbivore management • Develop and implement stock management plans and management plans for introduced herbivores at key sites and in areas inhabited by the species • Monitor sub-populations throughout the distribution of the species • Further research on the species ecology including preferred food plants, movement/dispersal patterns and reproductive factors The Project is considered highly unlikely to interfere with the actions identified above. The Project will not substantially interfere with the recovery of the species.
Assessment result	**Based on the assessment above it is considered unlikely a significant impact to Squatter Pigeon (southern) will occur as a result of the Project.**

5.5 Significant Impact – Migratory Species

The Project proposes to impact 7.18 ha of suitable habitat for the Rufous Fantail (Ausecology 2024b). The MNES Guideline criteria for Migratory species requires an assessment of the potential for 'important habitat' to be present within or near the Project area or that an 'ecologically significant proportion of the population' may be disrupted by the Project. Important habitat is defined as the following:

- Habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species
- Habitat that is of critical importance to the species at particular life-cycle stages
- Habitat utilised by a migratory species which is at the limit of the species range and/or
- Habitat within an area where the species is declining

Rufous Fantail occurs in moist habitats, including closed forests, coastal scrubs, mangroves and along watercourses and gullies, and urban/rural areas during mid-year migration (Higgins et al. 2006). The species migrates north in early autumn and returns to southern Australia in early spring to breed, wintering on Cape

York Peninsula, the Torres Strait and New Guinea (Higgins et al. 2006; Menkhorst et al. 2017). Rufous Fantail is common in suitable habitat along the eastern seaboard (Menkhorst et al. 2017).

Rufous Fantail becomes more common to the east of the Project area where it is associated with the forests of the ranges located close to the coast. Within the local region it would be mostly confined to well-vegetated creek lines, which are absent from the Project area and broader Study area. Nevertheless, it may occur in the remnant and regrowth woodlands associated the Project area.

The species remains widespread across eastern Australia. The Study area is not at the limit of the range of Rufous Fantail, nor is it within an area where the species is declining. The majority of the Project area and Study area is cleared of vegetation. The remnant vegetation present remains common in the wider area.

An ecologically or nationally significant proportion of the north-eastern population of Rufous Fantail (at 0.1% of the population as described in DoE 2015) comprises 1,500 individuals. There is no reason to believe the habitats within the Project area or Study area would support an ecologically significant proportion of the population of the species. As such, the potential for significant impacts on Rufous Fantail is negligible at worst.

6 CONCLUSION

The Proponent owns and operates PDM an open cut coal mining operation located south of Moranbah. The expansion of mining operations at the mine has triggered the need to relocate three 66 kV power lines (the Project) that run adjacent to the current ML 1775 and ML 70411 boundaries. The Project comprises the construction of power line infrastructure along a length of 20 km (including the main corridor and eight associated stub line corridors).

The Project area encompasses 83.39 ha which comprises 8.67 ha of remnant vegetation, 21.81 ha of regrowth vegetation and 52.91 ha of modified non-remnant lands. Desktop review and Project-specific field surveys (carried out from 2021 to 2023) characterised the terrestrial ecology and MNES values associated with the Project area and surrounds. A number of other surveys in the local area carried out for different projects have also provided additional information for the assessment.

Flora surveys identified nine remnant and regrowth REs within the Project area. There are two TECs listed under the EPBC Act present as large patches in the east of the Project area: Brigalow TEC and Natural Grasslands TEC. No threatened flora species were observed during the Project surveys, although *Dichanthium queenslandicum* (Endangered - EPBC Act) has some potential to occur.

Three fauna species have been recorded within, or in close proximity to, the Study area surrounding the Project area, and habitat is present within the Project area. Koala and Greater Glider (both Endangered – EPBC Act) were recorded close to the north-western extent of the Project area in riparian Queensland Blue Gum open forest (RE 11.3.25) and Poplar Box dominated woodland (RE 11.5.3). Squatter Pigeon (southern) (Vulnerable – EPBC Act) has been previously recorded in the Study area surrounding the Project area. Ornamental Snake (Vulnerable – EPBC Act) and Australian Painted Snipe (Endangered – EPBC Act) are considered likely to occur. The Project area provides potential habitat for a further two threatened species and three migratory bird species.

In general, impacts resulting from Project activities will be minor and likely only restricted to the construction phase. Impacts from the operational phase are likely to be benign and restricted to occasional slashing of grasses within the corridors and maintenance activities. Project infrastructure has been located away from MNES values as much as is feasible. The Project area has been substantially revised and is predicted to impact 0.04 ha of Brigalow TEC and 0.57 ha of Natural Grassland TEC through vegetation clearing. The Project will impact 22.77 ha of habitat for Squatter Pigeon, 17.57 ha of habitat for Koala and 6.42 ha of habitat for Greater Glider. The project may also impact minor areas of habitat for Ornamental Snake and *D. queenslandicum.*

The Project's impacts to MNES were subject to an assessment for significant impacts under the Commonwealth MNES Guideline criteria. The assessment results indicate a *potential* for a significant impact to occur on Koala and Greater Glider as a result of clearing for the Project.

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8 LIMITATIONS AND DISCLAIMER

Epic Environmental Pty Ltd (Epic) has prepared the following report for the exclusive benefit of BM Alliance Coal Operations Pty Ltd and for the singular purpose of providing an assessment for potential significant impact to MNES associated with power line realignment works at Peak Downs Mine. All interpretations, finding or recommendations outlined in this report should be read and relied upon only in the context of the report as a whole.

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APPENDIX A DATABASE SEARCH RESULTS

EPBC Act Protected Matters Report

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

Report created: 19-Jul-2024

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	28
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	15
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	29
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area	In feature area
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Endangered	Community likely to occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
[Geophaps scripta scripta](#) Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Grantiella picta](#) Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
[Neochmia ruficauda ruficauda](#) Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area	In feature area
[Poephila cincta cincta](#) Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area	In feature area
[Rostratula australis](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
[Stagonopleura guttata](#) Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
[Dasyurus hallucatus](#) Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area
[Macroderma gigas](#) Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In feature area
[Nyctophilus corbeni](#) Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Petauroides volans](#) Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
[Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)](#) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
PLANT			
[Dichanthium queenslandicum](#) King Blue-grass [5481]	Endangered	Species or species habitat known to occur within area	In feature area
[Eucalyptus raveretiana](#) Black Ironbox [16344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Polianthion minutiflorum](#) [82772]	Vulnerable	Species or species habitat may occur within area	In feature area
[Samadera bidwillii](#) Quassia [29708]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
[Denisonia maculata](#) Ornamental Snake [1193]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Egernia rugosa](#) Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area	In feature area
[Elseya albagula](#) Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Furina dunmalli](#) Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
[Hemiaspis damelii](#) Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lerista allanae			
Allan's Lerista, Retro Slider [1378]	Endangered	Species or species habitat may occur within area	In feature area
Rheodytes leukops			
Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus			
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pandion haliaetus](#) Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
[Anseranas semipalmata](#) Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
[Bubulcus ibis as Ardea ibis](#) Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
[Chalcites osculans as Chrysococcyx osculans](#) Black-eared Cuckoo [83425]		Species or species habitat may occur within area overfly marine area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
[Rostratula australis as Rostratula benghalensis (sensu lato)](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Caval Ridge Mine Horse Pit Extension, Bowen Basin	2021/9031		Assessment	In buffer area only
Isaac Downs coal mine project, near Moranbah, Qld	2019/8413		Post-Approval	In buffer area only
Olive Downs Project	2005/2377		Post-Approval	In buffer area only
Olive Downs Project Mine Site and Access Road	2017/7867		Post-Approval	In buffer area only
Peak Downs Mine Continuation Project	2022/09350		Assessment	In feature area
Vulcan Coal Mine ? Matilda Pit and Ancillary Infrastructure	2022/09361		Assessment	In buffer area only
Vulcan South Coal Mine	2023/09708		Assessment	In buffer area only
Winchester South Project Electricity Transmission Line, near Moranbah, Qld	2019/8458		Approval	In feature area
Winchester South Project Mine Site and Access Road, near Moranbah, Qld	2019/8460		Approval	In feature area
Winchester South Project Water Pipeline, near Moranbah, Qld	2019/8459		Approval	In feature area
Controlled action				
7 North Dam Extension Project - Peak Downs Mine	2012/6260	Controlled Action	Completed	In buffer area only
Arrow Bowen Pipeline (CSG), QLD	2012/6459	Controlled Action	Post-Approval	In buffer area only
Bowen Gas Project	2012/6377	Controlled Action	Post-Approval	In feature area
Caval Ridge Open Cut Coal Mine Project	2008/4417	Controlled Action	Post-Approval	In feature area
Eagle Downs Coal Mine Central Queensland	2008/3945	Controlled Action	Post-Approval	In feature area
install & operate gas pipeline	2005/2059	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Moranbah South Project Coal Mine, QLD	2012/6337	Controlled Action	Post-Approval	In feature area
Olive Downs Project Rail Spur	2017/7870	Controlled Action	Post-Approval	In buffer area only
Olive Downs Project Water Pipeline	2017/7868	Controlled Action	Post-Approval	In buffer area only
Open Cut Coal Mining	2004/1770	Controlled Action	Post-Approval	In feature area
Relocation of approximately 16km of Dysart Road and associated service infrastructure	2013/6868	Controlled Action	Post-Approval	In feature area
Vulcan Complex Project	2020/8676	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Integrated Isaac Plains Project	2006/3043	Not Controlled Action	Completed	In buffer area only
Open cut coal mine 7km NE of Moranbah (Isaac Plains)	2005/2070	Not Controlled Action	Completed	In buffer area only
Vulcan Bulk Sample Project	2019/8504	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Moranbah South Feasibility Seismic Survey	2010/5497	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Moranbah South Project 2013 Seismic Exploration Program, Qld	2013/6814	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Expansion of open cut coal mine and diversion of creeks in existing mine operati	2006/2845	Referral Decision	Completed	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
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-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: Since 1980
Latitude: -22.1912
Longitude: 148.1874
Distance: 25
Email: btaylor@epicenvironmental.com.au
Date submitted: Monday 22 Jul 2024 09:02:05
Date extracted: Monday 22 Jul 2024 09:10:02

The number of records retrieved = 10

Disclaimer
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The State of Queensland disclaims all responsibility for information contained in this product and all liability (including liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.
Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.
The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (https://www.qld.gov.au/environment/plants-animals/species-information/wildnet) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	27
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	87
animals	mammals	Pseudocheiridae	*Petauroides volans volans*	southern greater glider		E	E	107
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		V		1
animals	reptiles	Elapidae	*Denisonia maculata*	ornamental snake		V	V	42
plants	land plants	Amaranthaceae	*Ptilotus uncinellus*			E		2/2
plants	land plants	Euphorbiaceae	*Bertya pedicellata*			NT		14/6
plants	land plants	Poaceae	*Dichanthium queenslandicum*			V	E	3/3
plants	land plants	Solanaceae	*Solanum adenophorum*			E		1/1
plants	land plants	Solanaceae	*Solanum elachophyllum*			E		1/1

CODES

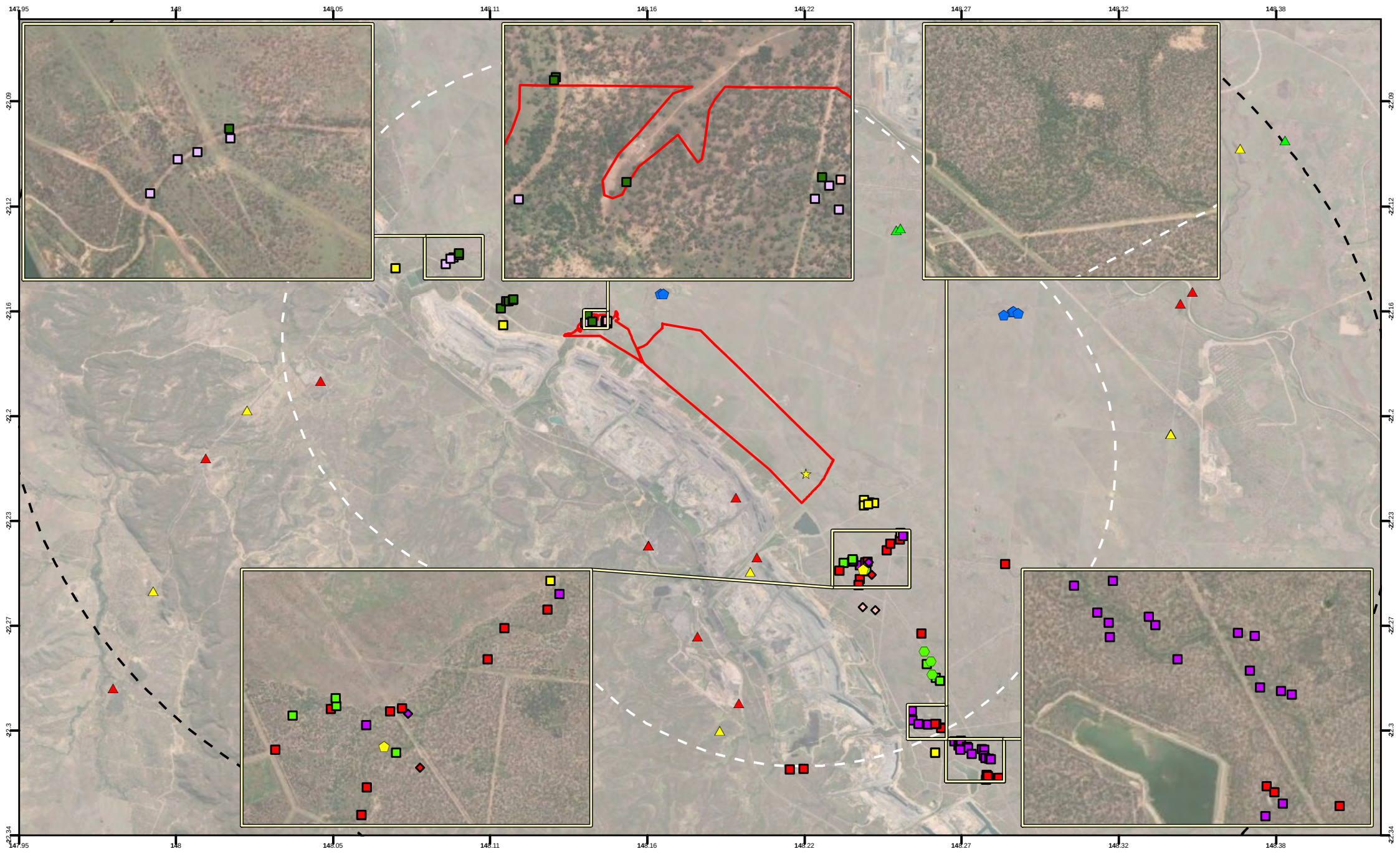
I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

APPENDIX B THREATENED SPECIES RECORDS FROM WIDER AREA (AUSECOLOGY 2024)



Ausecology

APPENDIX A-3:

EVNT Records Overview
Study Area and Powerline Alignment
MNES - Peak Down Mine

AECOM
- Greater glider (E/E)
- Koala (E/E)
- Koala- Indirect evidence (scat or scratches) (E/E)

ALA
- Koala (E/E)

- Ornamental snake (V/V)
- Squatter pigeon (southern subspecies) (V/V)

Aurecon
- Squatter pigeon (southern subspecies) (V/V)

Ausecology (2019)
- Greater glider (E/E)

- Koala (E/E)
- Koala- Indirect evidence (scat or scratches) (E/E)

Ausecology (in prep)
- Greater glider (E/E)
- Koala (E/E)
- Ornamental snake (V/V)

- Squatter pigeon (southern subspecies) (V/V)

E2M (2021)
- Australian Painted-snipe (E/E)
- Squatter pigeon (southern subspecies) (V/V)

Wildnet
- Ornamental snake (V/V)

REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:180,000
0 2 4
Kilometres

APPENDIX C THREATENED SPECIES HABITAT MAPPING

620000E

ML A 700065

ML 70389

ML 1775

ML 70411

ML 70403

7545000N

0 200 400 m

Scale: 1:20,000@ A3
Datum: GDA2020
Projection: MGA zone 55

Data Source:
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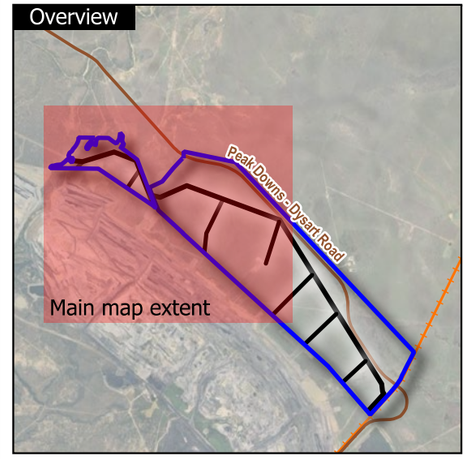
© Google Satellite Imagery © 2024 Airbus
© Auecology - PDM_MNES_20240613.gdb

Filepath: ...BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\5. MNES impact assessment\Rev 0\Figure C1 Habitat mapping for Greater Glider, Ornamental Snake and wetland bird species.qgz

epic ENVIRONMENTAL

Overview



Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- Wetland bird habitat

Greater Glider habitat

- Preferred
- Suitable

Ornamental Snake habitat

- Preferred
- Marginal

BM Alliance Coal Operations Pty Ltd
Peak Downs Power Line Realignment
MNES Impact Assessment

Figure C1
Habitat mapping for Greater Glider, Ornamental Snake and wetland bird species

620000E

625000E

7545666N

7545000N

ML 70389

MLA 700065

Peak Downs - Dysart Road

ML 70411

ML 1775

ML 70403

ML 70412

Aurizon Goonyella Coal Chain (Oaky Creek)

0 200 400 m

Scale: 1:30,000@ A3
Datum: GDA2020
Projection: MGA zone 55

Data Source:
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Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- State controlled roads
- Railways

Koala habitat

- Preferred
- Suitable
- Marginal

BM Alliance Coal Operations Pty Ltd
Peak Downs Power Line Realignment
MNES Impact Assessment

Figure C2
Habitat mapping for Koala

620000E

625000E

7545000N

ML 70389

MLA 700065

Peak Downs - Dysart Road

ML 70411

ML 1775

ML 70403

ML 70412

Aurizon Goonyella Coal Chain (Oaky Creek)

0 200 400 m

Scale: 1:30,000@ A3
Datum: GDA2020
Projection: MGA zone 55

Data Source:
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Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- State controlled roads
- Railways

Squatter Pigeon habitat

- Preferred
- Suitable
- Marginal

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Peak Downs Power Line Realignment
MNES Impact Assessment

Figure C3
Habitat mapping for Squatter Pigeon

CONTACT US

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