



# **New England Renewable Energy Zone Network Infrastructure Project**

Biodiversity Assessment of Matters of National Environmental  
Significance

**Final**

December 2025



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Biodiversity Assessment of Matters of National  
Environmental Significance

## Final

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# Acknowledgement of Country

Umwelt acknowledges the Traditional Owners of Country throughout Australia and their continuing values, culture and connection to the land, waters and sky.

We pay our respects to Elders past and present.

The below image is from the artwork *Yapung Maryiyang* (Pathway Forward) by Saretta Fielding.



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## Document Status

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# Abbreviations

Acronym	Definition
<b>AEMO</b>	Australian Energy Market Operator
<b>BAM</b>	Biodiversity Assessment Method
<b>BC Act</b>	NSW <i>Biodiversity Conservation Act 2016</i>
<b>BOS</b>	Biodiversity Offset Scheme
<b>CAMBA</b>	China–Australia Migratory Bird Agreement
<b>CE</b>	Critically Endangered
<b>CEEC</b>	Critically Endangered Ecological Community
<b>CMS</b>	Convention on Migratory Species
<b>DCCEEW (Cmth)</b>	Commonwealth Department of Climate Change, Energy, the Environment and Water (current)
<b>DCCEEW (NSW)</b>	NSW Department of Climate Change, Energy, the Environment and Water (current)
<b>DPE</b>	NSW Department of Planning and Environment (superseded)
<b>DPHI</b>	NSW Department of Planning, Housing and Infrastructure (current)
<b>DPI</b>	NSW Department of Primary Industries (current)
<b>DPIE</b>	NSW Department of Planning, Industry and Environment (superseded)
<b>EEC</b>	Endangered Ecological Community
<b>EIS</b>	Environmental Impact Statement
<b>EPBC Act</b>	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
<b>FM Act</b>	NSW <i>Fisheries Management Act 1994</i>
<b>GW</b>	gigawatts
<b>HAT</b>	Highest Astronomical Tide
<b>JAMBA</b>	Japan-Australia Migratory Bird Agreement
<b>MNES</b>	Matters of National Environmental Significance
<b>NEM</b>	National Energy Market
<b>NSW</b>	New South Wales
<b>OEH</b>	NSW Office of Environment and Heritage (superseded)
<b>PCT</b>	Plant Community Type
<b>PMST</b>	Protected Matters Search Tool
<b>REZ</b>	Renewable Energy Zone
<b>ROKAMBA</b>	Republic of Korea-Australia Migratory Bird Agreement
<b>SEED</b>	Sharing and Enabling Environmental Data, NSW Spatial data portal
<b>SVTM</b>	State Vegetation Type Mapping
<b>TBDC</b>	Threatened Biodiversity Database Collection
<b>TEC</b>	Threatened Ecological Community

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# 1.0 Introduction

This Preliminary Biodiversity Assessment has been prepared by Umwelt on behalf of EnergyCo as additional biodiversity information for the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) Referral for the New England Network Infrastructure Project (the Proposed Action). This report has been prepared to present the key biodiversity findings relevant to the Proposed Action, based on preliminary desktop assessments and preliminary fieldwork results.

## 1.1 Proposed Action

The Proposed Action involves the construction and operation of new high voltage electricity transmission infrastructure including around 290 kilometres (km) of 500 kilovolt (kV) transmission line, 25 km of 330 kV transmission line, five energy hubs and associated ancillary infrastructure that is required to connect renewable energy generation and storage projects within the New England REZ to the existing electricity network near Muswellbrook. The Proposed Action intersects seven local government areas (LGAs): Singleton, Muswellbrook Shire, Upper Hunter Shire, Tamworth Regional, Walcha Shire, Uralla Shire and Armidale Regional.

The Proposed Action comprises the following key features:

- new transmission infrastructure including new dual 500 kilovolt (kV) and new single 500kV and 330kV transmission lines and associated infrastructure
- five energy hubs to connect future energy generation and storage projects within the New England REZ to the new 500 kV network infrastructure and a northern connection switching station to link the North Hub with the existing 330kV transmission line
- ancillary development to support the Proposed Action, including:
  - establishment / or upgrade of access tracks and public roads
  - upgrade and / or augmentation to existing electricity and utility infrastructure
  - installation and operation of communications infrastructure and facilities
- other construction related works and facilities such as laydown and staging areas, earthworks material sites with crushing and screening plants, concrete batching plants, stringing sites, helicopter landing pads, site offices and workforce accommodation camps.

The Proposed Action is planned to be delivered in stages, enabling the unlocking a transfer capacity of 6 GW in the New England REZ, with Stage 1 to deliver 2.4 GW by 2033 and Stage 2 to deliver 3.6 GW by 2035. Additional capacity would be unlocked by 2043; however, this will be subject to a separate planning approval and does not form part of this Proposed Action.

## 1.2 Biodiversity Context

Avoiding and minimising impacts to biodiversity is one of the key planning principles which has guided the route selection and refinement process for the Proposed Action. As a result of this refinement process, the Project Area for the Proposed Action avoids national park estates and the corridor selected has sought to minimise impacts to biodiversity where practicable. Further avoidance and minimisation work will be completed as part of the Environmental Impact Statement (EIS) phase, however, due to the scale of the Proposed Action and the need to traverse generally south to north through the landscape, full avoidance of biodiversity impacts is not possible and residual biodiversity impacts will remain.

The Project Area used for the purposes of scoping and conducting relevant searches is approximately 63,000 hectares (ha) and includes a variable buffer around the proposed 500 kV and 330 kV transmission line alignments, as well as the energy hubs. This is generally a 3km wide corridor along the length of the proposed transmission lines (shortening to 1km in the north and south). A buffer has also been established around energy hubs (3 km diameter). This Project Area has been identified for preliminary assessment and scoping purposes and is considered highly conservative. The actual footprint required for the Proposed Action will be substantially smaller.

For the purposes of calculating potential impacts and to complete a significance assessment for this EPBC referral, an 'indicative disturbance area' based on a conceptual design of the Proposed Action was used. The indicative disturbance area used is approximately 5,600 ha, and this is within the Project Area (63,000 ha). The indicative disturbance area has been calculated based on an assumption of 50% disturbance to a 250 m wide survey corridor within the Project Area.

In addition to designing to avoid and minimise impacts, EnergyCo understands the importance of biodiversity offsetting as a way of compensating for residual biodiversity impacts and is developing a comprehensive biodiversity offsets strategy for the Proposed Action. This strategy is underpinned by the NSW Biodiversity Offsets Scheme (BOS) and the requirements of the Biodiversity Assessment Method (BAM). EnergyCo is planning to deliver the biodiversity offsets for the Project through a Strategic Offset Delivery Agreement (SODA) with the NSW DCCEEW Environment Agency Head. A SODA is a relatively new offset mechanism whereby proponents of a priority transmission infrastructure project or renewable energy zone generation, storage, network or related infrastructure project enter into an agreement with DCCEEW, and the Environment Agency Head delivers the offsets either through like for like biodiversity credits or funding conservation actions consistent with the BOS.

## 1.3 Assessment Limitations

This Preliminary Biodiversity Assessment (this report) has been prepared by Umwelt on behalf of EnergyCo as additional biodiversity information for the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) Referral. This report has been prepared to present the key biodiversity findings relevant to the Proposed Action, based on preliminary desktop assessments and preliminary fieldwork results. Detailed studies will be completed as part of the Biodiversity Development Assessment Report (BDAR) which will accompany the EIS for the Critical State Significant Infrastructure (CSSI) Application and therefore all biodiversity data and assessments should be considered preliminary and subject to change.

## 2.0 Methodology

This section outlines the methodology used to conduct the preliminary biodiversity assessment for the Proposed Action. This includes desktop assessment and some preliminary ecological surveys across a sample of the Project Area.

### 2.1 Literature and Database Review

For the purposes of calculating potential impacts and to complete a significance assessment for this EPBC referral, an ‘indicative disturbance area’ based on a conceptual design of the Proposed Action was used. The indicative disturbance area used is approximately 5,600 ha, and this is within the Project Area (63,000 ha). The indicative disturbance area has been calculated based on an assumption of 50% disturbance to an assumed 250 m wide survey corridor within the Project Area.

The following reports and databases were reviewed to determine the likely vegetation communities occurring within and to identify the suite of threatened species that the indicative disturbance area may provide habitat for. The locality of the analysis was defined as a buffer of 10 km radius of the indicative disturbance area.

Searches included:

- A search of the NSW DCCEEW BioNet Atlas of NSW Wildlife (October 2025) - to identify threatened species, endangered populations and threatened ecological communities (TECs) previously recorded in the Project Area and surrounds.
- A search of the DCCEEW (Cmth) Protected Matters Database (October 2025) -to identify MNES listed under the Commonwealth EPBC Act predicted and/or known to occur in the locality. This search is further interrogated against outcomes of the NSW BioNet search to identify those MNES previously recorded in the Project Area and surrounds.
- NSW Department of Primary Industries (DPI) Fisheries Spatial Data Portal (November 2025) to identify key fish habitat, estuarine vegetation, and whether freshwater fish species listed as threatened under the NSW FM Act are predicted to occur in the locality.
- In addition, relevant regional datasets were queried to provide contextual information including:
  - BAM 2020 Important Area Maps (NSW DCCEEW 2024e) identify areas that are considered essential to support critical life stages for threatened species listed under the NSW *Biodiversity Conservation Act 2016*. To date mapping has been completed for the swift parrot (*Lathamus discolor*), plains wanderer (*Peionomous torquatus*), regent honeyeater (*Anthochaera phrygia*) and eleven migratory birds (collectively).
  - NSW State Vegetation Type Mapping (SVTM) (NSW DCCEEW 2024).
  - NSW Government Central Resource for Sharing and Enabling Environmental Data (SEED) (NSW DCCEEW 2024f).
  - Australian National Directory of Important Migratory Shorebird Habitat (Birdlife Australia, 2020).

## 2.2 Preliminary Ecological Surveys

Biodiversity field studies have commenced within the Project Area. To date, these studies have focused on the following:

- Vegetation mapping – Plant Community Type (PCT) Identification and Floristic Plot-based Sampling
- Fauna habitat delineation
- Threatened flora species searches
- Threatened fauna species searches.

## 2.3 MNES Likelihood of Occurrence

As part of this preliminary biodiversity assessment, the results of the database surveys and preliminary field survey have been compiled to form a list of possible biodiversity-related MNES occurring in or near the Project Area. Threatened species, communities and migratory species listed under the EPBC Act that have the potential to occur in the locality have then been assessed to determine a likelihood of occurrence using the definitions provided in **Table 2.1** and the acronyms defined in **Table 2.2**. Species or communities with a reasonable potential to be impacted by the Proposed Action are subject to Assessments of Significance under the EPBC Act.

**Table 2.1 Definitions of Likelihood of Occurrence (DoE 2013)**

Likelihood of Occurrence	Definition
<b>Known</b>	Recorded by Umwelt during preliminary surveys or recent and reliable records, within the last 5 years of this entity exist within the Project Area.
<b>High</b>	Probable due to potential suitable habitat that the entity occurs in the Project Area, despite lack of recent records.
<b>Moderate</b>	Suitable habitat is present for this entity however records of the entity are not known to occur in the immediate vicinity of the Project Area but may occur within the locality.
<b>Low</b>	There are no records for this entity, the entity is conspicuous all year and not recorded during targeted searches, habitat requirements are not met, or the normal distribution range of the entity does not coincide with the Project Area or locality. Despite this, the matter may be present in rare circumstances.
<b>None</b>	There is almost no potential for the entity to occur within the Project Area or locality.

**Table 2.2 Abbreviations Used in the Following Tables**

<b>Abbreviation</b>	<b>Explanation</b>
<b>Bonn</b>	The Convention on the Conservation of Migratory Species of Wild Animals, also known as the Convention on Migratory Species (CMS) or the Bonn Convention.
<b>CAMBA</b>	The China–Australia Migratory Bird Agreement
<b>CE</b>	Critically Endangered
<b>CEEC</b>	Critically Endangered Ecological Community
<b>E</b>	Endangered
<b>EEC</b>	Endangered Ecological Community
<b>JAMBA</b>	The Japan Australia Migratory Bird Agreement
<b>ROKAMBA</b>	Republic of Korea–Australia Migratory Bird Agreement
<b>V</b>	Vulnerable

## 3.0 Environmental Context

The Project Area traverses a broad and diverse landscape, spanning from the Hunter Valley floor to the New England Tablelands. The southern end of the Project Area is heavily disturbed land used for mining and coal fired power generation activities. Much of the central and northern portions of the Project Area has been extensively cleared for agricultural purposes, including broad acre cropping and grazing, however, there are large areas of remnant native vegetation amongst this agricultural land, typically found along roads, rivers and creeklines and in stands of native vegetation within paddocks. Current estimates suggest the assumed 250 m wide survey corridor (for the purposes of this assessment) is approximately 50% grasslands. There are several large national parks in the broader area, particularly to the east of the Project Area, containing large areas of intact native vegetation of high quality, with the corridor avoiding all of these areas.

The Project Area spans nine NSW Interim Biogeographic Regionalisation of Australia (IBRA) subregions and there is an elevation change of approximately 1200 m from south to north. As such, the native vegetation types, condition and the habitats provided vary greatly across the Project Area. In addition to this natural variation, there is a variety of existing land uses that occur across the Project Area that have shaped biodiversity values, including coal mining in the south through to broad scale agricultural activities in the north.

## 4.0 Potential Impacts on Matters of National Environmental Significance

A summary of the MNES predicted to occur along the Project Area (refer to **Appendix A**) is provided in **Table 4.1**.

**Table 4.1 Summary of Predicted MNES for Project Area**

MNES	Predicted in 10 km buffer or feature from PMST
Commonwealth Marine Areas	0
Wetlands of International Importance (Ramsar Wetlands)	5
Threatened Ecological Communities	11
Threatened Species	81
Migratory Species	10

The likelihood of occurrence assessment (refer to **Appendix B**) has identified a number of MNES that have potential to occur in the Project Area and which may be impacted directly or indirectly by the Proposed Action. The following assessment has been limited to those MNES associated with the terrestrial environments of the Proposed Action (i.e. those which occur or utilise habitats above the Highest Astronomical Tide (HAT) in addition to estuarine environments).

### 4.1 Threatened Ecological Communities

Six threatened ecological communities (TECs), listed under the EPBC Act, are predicted to occur within the Project Area through associated PCT mapping from the State Vegetation Type Mapping (SVTM) (NSW DCCEE 2024), with Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions and Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community not predicted by the PMST.

For the purpose of this assessment, the potential area of impact (area calculations presented below), is based on the current and best representation of potential areas of TEC within the Project Area that may be impacted by the Proposed Action. The occurrence of TECs will continue to be refined and confirmed through targeted vegetation surveys throughout the process of the biodiversity assessment.

The TECs and preliminary estimates of impact are provided in **Table 4.2**.

**Table 4.2 Potential TECs and Impacts related to the Proposed Action**

Threatened Ecological Community	EPBC Act status	Approximate area in indicative disturbance area (ha)
Lowland Rainforest of Subtropical Australia	CEEC	2.6
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	EEC	5.2
Central Hunter Valley eucalypt forest and woodland	CEEC	193.2
New England Peppermint ( <i>Eucalyptus nova-anglica</i> ) Grassy Woodlands	CEEC	477.6
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CEEC	306.7
Coastal Swamp Oak ( <i>Casuarina glauca</i> ) Forest of New South Wales and South East Queensland ecological community	EEC	5.4

Seven additional Threatened Ecological Communities were identified in the EPBC Referral - Automatically generated impact list, these are presented and assessed in **Table 4.3**. This assessment is preliminary in nature and further knowledge surrounding occurrence of TECs will increase as field surveys and vegetation mapping builds throughout the biodiversity assessment.

**Table 4.3 Additional Threatened Ecological Communities - EPBC Generated Impacts**

Additional Threatened Ecological Communities Considered	Potential occurrence of TEC & Potential significance of impact by Proposed Action
Ben Halls Gap Sphagnum Moss Cool Temperate Rainforest	Vegetation mapping undertaken has progressed to identify and allocate PCTs within the Project Area. The current vegetation data suggests that the predicted occurrence of these TEC's is low to moderate in likelihood. However, this assessment is preliminary in nature and will be refined throughout the assessment.  The Proposed Action will result in the removal of trees and the modification of native vegetation which may include these listed TEC's. Based on the preliminary information collected and the assessment considerations listed above, there is potential for significant impacts on select TECs across the Project Area.
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	
Hunter Valley Weeping Myall ( <i>Acacia pendula</i> ) Woodland	
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	
Weeping Myall Woodlands	

Although the impacts are considered preliminary, a general assessment of significance in accordance with the Significant Impact Guidelines 1.1 is provided below for all TECs.

#### **4.1.1 Preliminary Assessment of Significance**

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

- 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
- adversely affect habitat critical to the survival of an ecological community
- 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
- 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
- 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.
- interfere with the recovery of an ecological community.

Based on the preliminary information collected and the assessment considerations listed above, there is potential for significant impacts on select TECs across the Project Area.

## **4.2 Critically Endangered or Endangered Species**

A total of 35 threatened species, listed as either critically endangered or endangered (excluding those with migratory listings), are predicted to occur within the Project Area as a result of database searches. Unlike ecological communities, there is no regional mapping of habitats and as such it is difficult to estimate likely impacts at this stage of the Proposed Action. Notwithstanding, utilising the information in the likelihood of assessment, a general assessment of significance in accordance with the Significant Impact Guidelines 1.1 is provided below for all critically endangered and endangered entities.

#### **4.2.1 Preliminary Assessment of Significance**

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of a population
- reduce the area of occupancy of the species

- fragment an existing population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of a population
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat
- introduce disease that may cause the species to decline, or
- interfere with the recovery of the species.

Critically endangered and endangered species listed under the EPBC Act with potential to occur in the Project Area are identified in **Appendix B** and the potential significance of impact on these species as a result of the Proposed Action are provided in **Table 4.4**. Of the critically endangered and endangered entities identified as having potential to occur, there are eight flora and 15 fauna that have a moderate to high likelihood of occurrence and the assessment of significance has been conducted for these species.

This assessment is preliminary in nature and further assessment will be required following completion of design and site-based studies however it indicates that a significant impact on critically endangered and endangered entities is unlikely.

**Table 4.4 Potential Significance of Impact on Critically Endangered and/or Endangered Species**

Species	Potential significance of impact within Indicative Disturbance Area
<p><b>Terrestrial flora species</b></p> <p>Narrow-leaved Bertya (<i>Bertya ingramii</i>)</p> <p>Granite Boronia (<i>Boronia granitica</i>)</p> <p>White-flowered Wax Plant (<i>Cynanchum elegans</i>)</p> <p>Small Snake Orchid (<i>Diuris pedunculata</i>)</p> <p>Craven Grey Box (<i>Eucalyptus largeana</i>)</p> <p><i>Euphrasia arguta</i></p> <p>Tarengo Leek Orchid (<i>Prasophyllum petilum</i>)</p> <p><i>Tylophora linearis</i> (<i>Tylophora linearis</i>)</p>	<p>Above ground clearance work is unlikely to have a long-term impact on localised populations. Mitigation measures will ensure that if individuals or populations of these species are located, the Proposed Action will seek to avoid and minimise impacts through design changes and the implementation of impact mitigation strategies and therefore, the Proposed Action is unlikely to modify, destroy, remove or isolate the availability of suitable habitat to the extent that the species is likely to decline.</p>
<p><b>Terrestrial and aboral mammals</b></p> <p>Spotted-tailed Quoll (<i>Dasyurus maculatus</i>)</p> <p>Greater Glider (<i>Petauroides volans</i>)</p> <p>Koala (<i>Phascolarctos cinereus</i>)</p> <p>Large-eared pied bat (<i>Chalinolobus dwyeri</i>)</p>	<p>There is potential for a significant impact on the koala, due to the extent of habitat clearing, and increased fragmentation in areas of intact woodland.</p> <p>In relation to the other potentially affected terrestrial and arboreal mammals, there is potential for the Proposed Action to impact localised populations of these species due to increased fragmentation in areas of intact woodland. Due to the linear nature of the Proposed Action, it would not involve removing</p>

Species	Potential significance of impact within Indicative Disturbance Area
	all of the breeding or foraging habitat. The mobile nature of these species and remaining availability of suitable habitat surrounding indicates that the Proposed Action is unlikely to have a significant impact on these species.
<b>Amphibians</b> Booroolong Frog ( <i>Litoria booroolongensis</i> )	There may be known or predicted habitat which may coincide with the Project Area; however, direct impacts to all major creeks and waterways through waterway crossings will be avoided by the Proposed Action where practicable and where crossing structures in waterways are required, they will be subject to strict mitigations such that a significant impact on these species is unlikely.
<b>Reptiles</b> Hunter Valley Delma ( <i>Delma vescolineata</i> )	There is potential for the Proposed Action to impact localised populations of this species due to the clearing of habitat. Due to the linear nature of the Proposed Action, it would not involve removing all of the breeding or foraging habitat within the Project Area. The mobile nature of these species and remaining availability of suitable habitat surrounding indicates that the Proposed Action is unlikely to have a significant impact on this species.
<b>Fish and Crayfish</b> Gamilaroi Crayfish ( <i>Euastacus gamilaroi</i> ) Small crayfish ( <i>Euastacus spinichelatus</i> ) Terrestrial crayfish ( <i>Euastacus maccai</i> )	There may be known or predicted habitat within the locality; however direct impacts to all major creeks and waterways through waterway crossings will be avoided by the Proposed Action where practicable and where crossing structures in waterways are required, they will be subject to strict mitigations such that a significant impact on these species is unlikely.
<b>Forest and woodland birds</b> Gang-gang Cockatoo ( <i>Callocephalon fimbriatum</i> ) Hooded Robin (south-eastern form) ( <i>Melanodryas cucullata cucullata</i> ) Swift parrot ( <i>Lathamus discolor</i> ) Regent Honeyeater ( <i>Anthochaera phrygia</i> )	The Proposed Action will the result in the removal of trees and the modification of native vegetation/habitats for these species. Considering the linear nature of the Proposed Action, a significant impact on these mobile species is considered unlikely.
<b>Freshwater Turtles</b> Purvis' turtle ( <i>Myuchelys purvisi</i> ) Western Sawshelled Turtle/ Bell's Turtle ( <i>Myuchelys belli</i> )	There may be known or predicted habitat within the locality; however direct impacts to all major creeks and waterways through waterway crossings will be avoided by the Proposed Action where practicable and where crossing structures in waterways are required, they will be subject to strict mitigations such that a significant impact on these species is unlikely.

## 4.3 Vulnerable Species

There are 46 threatened species, listed as vulnerable, predicted to occur within the Project Area (excluding those with migratory listings). Unlike ecological communities, there is no regional mapping of habitats and as such it is difficult to estimate likely impacts at this stage of the Proposed Action. Notwithstanding, utilising the information in the likelihood of assessment, a general assessment of significance in accordance with the Significant Impact Guidelines 1.1 is provided below for all vulnerable entities.

### 4.3.1 Preliminary Assessment of Significance

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of an important population of a species
- reduce the area of occupancy of an important population
- fragment an existing important population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of an important population
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat
- introduce disease that may cause the species to decline, or
- interfere substantially with the recovery of the species.

In the case of a vulnerable species, an important population is a population that is necessary for a species' long-term survival and recovery. This may include populations that are:

- key source populations either for breeding or dispersal; or
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species range.

Vulnerable species listed under the EPBC Act with potential to occur in the Project Area were identified in **Appendix B** and the potential significance of impact on these species as a result of the Proposed Action are provided in **Table 4.5**. Of the vulnerable species identified as having potential to occur, there are 11 flora and 11 fauna that have a moderate to high likelihood of occurrence and these species have been included in this assessment. This assessment is preliminary in nature and further assessment will be required following completion of Proposed Action design and site-based studies however it indicates that a significant impact on vulnerable entities is unlikely.

**Table 4.5 Potential Significance of Impact on Vulnerable Species**

Species	Potential significance of impact within indicative Disturbance Area
<p><b>Terrestrial flora species</b></p> <p><i>Callistemon pungens</i></p> <p>Bluegrass (<i>Dichanthium setosum</i>)</p> <p>Slaty Red Gum (<i>Eucalyptus glaucina</i>)</p> <p>McKie's Stringybark (<i>Eucalyptus mckieana</i>)</p> <p>Narrow-leaved Black Peppermint (<i>Eucalyptus nicholii</i>)</p> <p>Blackbutt Candlebark (<i>Eucalyptus rubida</i> subsp. <i>Barbigerorum</i>)</p> <p>Rufous Pomaderris (<i>Pomaderris brunnea</i>)</p> <p>Tall Velvet Seaberry (<i>Haloragis exalata</i> subsp. <i>velutina</i>)</p> <p><i>Ozothamnus tessellatus</i></p> <p>Hawkweed (<i>Picris evae</i>)</p> <p>Austral Toadflax (<i>Thesium australe</i>)</p>	<p>Above ground clearance work is unlikely to have a long-term impact on localised populations. Mitigation measures will ensure that if individuals or populations of these species are located, the Proposed Action will seek to avoid and minimise impacts through design changes and the implementation of impact mitigation strategies and therefore the Proposed Action is unlikely to modify, destroy, remove or isolate the availability of suitable habitat to the extent that these species are likely to decline.</p>
<p><b>Terrestrial and arboreal mammals</b></p> <p>Corben's Long-eared Bat (<i>Nyctophilus corbeni</i>)</p> <p>Brush-tailed Rock-wallaby (<i>Petrogale penicillata</i>)</p> <p>Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>)</p> <p>Northern Long-nosed Potoroo (<i>Potorous tridactylus tridactylus</i>)</p>	<p>There is potential for the Proposed Action to impact localised populations of these species due to increased fragmentation in areas of intact woodland. Due to the linear nature of the Proposed Action, it would not involve removing all of the breeding or foraging habitat. The mobile nature of these species and remaining availability of suitable habitat surrounding indicates that the Proposed Action it is unlikely to have a significant impact on these species.</p>
<p><b>Reptiles</b></p> <p>Pink-tailed Legless Lizard (<i>Aprasia parapulchella</i>)</p> <p>Border Thick-tailed Gecko (<i>Uvidicolus sphyrurus</i>)</p>	<p>The Proposed Action would include areas of ground disturbance during construction. This would not involve removing all limiting breeding, foraging or rocky habitat within a region. Due to the remaining availability of potential suitable habitat surrounding the Proposed Action it is unlikely to have a significant impact within the Project Area.</p>
<p><b>Amphibians</b></p> <p>Green and Golden Bell Frog (<i>Litoria aurea</i>)</p> <p>Davies' Tree Frog (<i>Litoria daviesae</i>)</p>	<p>There may critical habitat within the locality; however direct impacts to all major creeks and waterways through waterway crossings will be avoided by the Proposed Action where practicable and where crossing structures in waterways are required, they will be subject to strict mitigations such that a significant impact on these species is unlikely.</p>

Species	Potential significance of impact within indicative Disturbance Area
<p><b>Forest and woodland birds</b></p> <p>South-eastern Glossy Black-Cockatoo (<i>Calyptorhynchus lathami lathami</i>)</p> <p>Brown Treecreeper (south-eastern) (<i>Climacteris picumnus victoriae</i>)</p> <p>Diamond Firetail (<i>Stagonopleura guttata</i>)</p>	<p>The Proposed Action will result in the removal of trees and the modification of native vegetation/habitats for this species. Considering the linear nature of the Proposed Action, and the Proposed Action not removing all limiting breeding or foraging habitat within a region, a significant impact on these mobile species is considered unlikely.</p>

## 4.4 Migratory Species

Migratory species listed under the EPBC Act with potential to occur in the Project Area are identified, and the potential significance of impact on these species as a result of the Proposed Action are provided in **Table 4.6**. Of these, none were considered to have a moderate to high likelihood of occurrence and, as such, a significant impact is considered unlikely. Notwithstanding a general assessment of significance has been completed below which supports the above. This assessment is preliminary in nature and further assessment will be required following completion of Proposed Action design and site-based studies.

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or
- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

An area of 'important habitat' for a migratory species is:

- habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, and/or
- habitat that is of critical importance to the species at particular life-cycle stages, and/or
- 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.

**Table 4.6 Potential Significance of Impact on Migratory Species**

Species	Potential significance of impact within indicative disturbance area
<b>Terrestrial birds</b> White-throated Needletail ( <i>Hirundapus caudacutus</i> ) Black-faced Monarch ( <i>Monarcha melanopsis</i> ) Yellow Wagtail ( <i>Motacilla flava</i> ) Satin Flycatcher ( <i>Myiagra cyanoleuca</i> ) Rufous Fantail ( <i>Rhipidura rufifrons</i> ) Spectacled Monarch ( <i>Symposiachrus trivirgatus</i> )	The Proposed Action will seek to avoid and minimise impacts resulting from vegetation clearing of any suitable wetland habitat through design changes and the implementation of impact mitigation strategies. The Proposed Action would not be removing all limiting breeding or foraging habitat within a region. It is unlikely that the Proposed Action will result in a significant impact as a result of the removal of native vegetation.
<b>Wetland birds</b> Common Sandpiper ( <i>Actitis hypoleucos</i> ) Sharp-tailed Sandpiper ( <i>Calidris acuminata</i> ) Curlew Sandpiper ( <i>Calidris ferruginea</i> ) Pectoral Sandpiper ( <i>Calidris melanotos</i> ) Latham's Snipe, Japanese Snipe ( <i>Gallinago hardwickii</i> ) Osprey ( <i>Pandion haliaetus</i> ) Common Greenshank, Greenshank ( <i>Tringa nebularia</i> )	The Proposed Action would not be removing all limiting breeding or foraging habitat within a region. The Proposed Action will seek to avoid and minimise impacts resulting from vegetation clearing of any suitable wetland habitat through design changes and the implementation of impact mitigation strategies. It is unlikely that the Proposed Action will result in a significant impact as a result of the removal of native vegetation.
<b>Marine Birds</b> Fork-tailed Swift ( <i>Apus pacificus</i> )	The Project Area is not considered to contain important habitat for this species or an ecologically significant population as determined by EPBC Act.

## 4.5 Ramsar Wetland

The PMST has identified five wetlands of international importance as provided in **Table 4.7**. None of the wetlands occur within the Project Area.

**Table 4.7 Predicted Wetlands of International Importance**

Ramsar Site name	Proximity to Project
<b>Gwydir Wetlands: Gingham and Lower Gwydir (Big Leather) Watercourses</b>	200–300 km upstream from Ramsar site
<b>Riverland</b>	900–1,000 km upstream from Ramsar site
<b>Banrock Station Wetland Complex</b>	1,000–100 km upstream from Ramsar site
<b>The Coorong, And Lakes Alexandrina and Albert Wetland</b>	1,100–1,200 km upstream from Ramsar site
<b>Hunter Estuary Wetlands</b>	50–100 km upstream from Ramsar site

No impacts on Ramsar wetlands are predicted to occur.

## 5.0 Conclusion

This preliminary biodiversity assessment has identified that biodiversity related MNES are likely to be impacted by the Proposed Action. General assessments of significance have been completed and determined that impacts on select TECs have the potential to be significant. All impacts to MNES will be further assessed during the EIS as further avoidance and minimisation work is completed and detailed biodiversity survey results define actual impact levels.

Avoiding and minimising impacts to biodiversity is one of the key planning principles which has guided the route selection and refinement process for the Proposed Action. Further avoidance and minimisation work will be completed as part of the EIS phase, however, due to the scale of the Proposed Action and the need to traverse generally south to north through the landscape, full avoidance of biodiversity impacts is not possible and residual biodiversity impacts will remain.

In addition to designing to avoid and minimise impacts, EnergyCo understands the importance of biodiversity offsetting as a way of compensating for residual biodiversity impacts. EnergyCo is planning to deliver the biodiversity offsets for the Project through a Strategic Offset Delivery Agreement (SODA) with the NSW DCCEE Environment Agency Head. A SODA is a relatively new offset mechanism whereby proponents of a priority transmission infrastructure project or renewable energy zone generation, storage, network or related infrastructure project enter into an agreement with DCCEE, and the Environment Agency Head delivers the offsets either through like for like biodiversity credits or funding conservation actions consistent with the BOS.

## 6.0 References

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Office of Environment and Heritage (OEH) (2017b)- Heath Wrinklewort – profile

Office of Environment and Heritage (OEH) (2017c)- Booroolong Frog *Litoria booroolongensis* – profile

Office of Environment and Heritage (OEH) (2017d)- Davies Frog *Litoria daviesae* – profile

Office of Environment and Heritage (OEH) (2017e) – Australasian Bittern *Botaurus poiciloptilus* – profile

Office of Environment and Heritage (OEH) (2017f)- Superb Parrot *Polytelis swainsonii* – profile

Office of Environment and Heritage (OEH) (2017g)- Australian Painted Snipe *Rostratula australis* – profile

Office of Environment and Heritage (OEH) (2017h)- Diamond Firetail *Stagonopleura guttata* – profile

Office of Environment and Heritage (OEH) (2017i)- Border Thick-tailed Gecko – profile

Office of Environment and Heritage (OEH) (2017j)- Large-eared Pied Bat *Chalinolobus dwyeri* – profile

Office of Environment and Heritage (OEH) (2017k)- Corben's Long-eared Bat *Nyctophilus corbeni* – profile

Office of Environment and Heritage (OEH) (2017l)- Five-clawed Worm-skink *Anomalopus mackayi* – profile

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Office of Environment and Heritage (OEH) (2018)- Narrow-leaved Bertya– profile

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Office of Environment and Heritage (OEH) (2018b)- Stuttering Frog *Mixophyes balbus* – profile

Office of Environment and Heritage (OEH) (2018c)- Western Sawshelled Turtle, Bell's Turtle – profile

[Office of Environment and Heritage \(OEH\) \(2018d\)- Ovenden's Ironbark – profile](#)

[Office of Environment and Heritage \(OEH\) \(2018e\)- Tall Velvet Sea-berry – profile](#)

Office of Environment and Heritage (OEH) (2019) - Ooline – profile

Office of Environment and Heritage (OEH) (2019a) - Bluegrass – profile

Office of Environment and Heritage (OEH) (2019b) - McKie's Stringybark – profile

Office of Environment and Heritage (OEH) (2019c) - *Eucalyptus parramattensis* subsp. *decadens* – profile

Office of Environment and Heritage (OEH) (2019d) - Belson's Panic- profile

Office of Environment and Heritage (OEH) (2019e) - Winged Peppercross – profile

Office of Environment and Heritage (OEH) (2019f) - *Ozothamnus tesselatus* – profile

- Office of Environment and Heritage (OEH) (2019g) - North Rothbury Persoonia – profile
- Office of Environment and Heritage (OEH) (2019h) - Singleton Mint Bush – profile
- Office of Environment and Heritage (OEH) (2019i) - Eastern Australian Underground Orchid – profile.
- Office of Environment and Heritage (OEH) (2019j) - Magenta Lilly Pilli – profile
- Office of Environment and Heritage (OEH) (2019k) - Fragrant Pepperbush – profile
- Office of Environment and Heritage (OEH) (2019l) - Red Goshawk *Erythrorchis radiatus* – profile
- Office of Environment and Heritage (OEH) (2019m) – Brush-tailed Rock Wallaby *Petrogale penicillata* – profile
- [Office of Environment and Heritage \(OEH\) \(2019n\) – Spiny Peppercress – profile](#)
- [Office of Environment and Heritage \(OEH\) \(2019n\) – Wollemi Mint-bush – profile](#)
- Office of Environment and Heritage (OEH) (2020) – Narrow-leaved Black Peppermint – profile
- Office of Environment and Heritage (OEH) (2020a) – Spotted-tailed Quoll *Dasyurus maculatus* – profile
- Office of Environment and Heritage (OEH) (2020b) – Grey-headed Flying-fox *Pteropus noliacephalus* – profile
- [Office of Environment and Heritage \(OEH\) \(2020c\) - White-flowered Wax Plant \*Cynanchum elegans\* - Profile](#)
- [Office of Environment and Heritage \(OEH\) \(2020d\) – Craven Grey Box \*Eucalyptus largeana\* – profile](#)
- [Office of Environment and Heritage \(OEH\) \(2020e\) – Fraser's Hakea \*Hakea fraseri\* – profile](#)
- Office of Environment and Heritage (OEH) (2021) - Pygmy Cypress Pine
- Office of Environment and Heritage (OEH) (2021a) – Leafless Tongue Orchid – profile
- Office of Environment and Heritage (OEH) (2021b) – Beadle’s Grevillea – profile
- Office of Environment and Heritage (OEH) (2021c) – Granite Homoranthus – profile
- Office of Environment and Heritage (OEH) (2021h) – Aromatic Peppercress – profile
- Office of Environment and Heritage (OEH) (2021d) –Curlew Sandpiper *Calidris ferrugine-* profile
- Office of Environment and Heritage (OEH) (2021e) – Black-breasted Button Quail *Turnix melanogaster-* profile
- Office of Environment and Heritage (OEH) (2022) - Trailing Woodruff – profile.
- Office of Environment and Heritage (OEH) (2022a) – Granit Boronia – profile
- Office of Environment and Heritage (OEH) (2022b) – Blackbutt Candlebark– profile
- Office of Environment and Heritage (OEH) (2022c) – *Leionema lachnaeoides* – profile
- Office of Environment and Heritage (OEH) (2022d) – Tall Knotweed – profile
- Office of Environment and Heritage (OEH) (2022e) – Scrub Turpentine – profile
- Office of Environment and Heritage (OEH) (2022f) – Slender Darling Pea – profile
- Office of Environment and Heritage (OEH) (2022g) – *Tylophora linearis* – profile
- Office of Environment and Heritage (OEH) (2022h) – *Bertya* sp. (Clouds Creek, M. Fatemi 4) – profile

- Office of Environment and Heritage (OEH) (2022i)- Native Guava – profile
- Office of Environment and Heritage (OEH) (2022j) – Green and Golden Bell Frog *Litoria aurea* – profile
- Office of Environment and Heritage (OEH) (2022k) – Regent Honeyeater *Anthochaera phrygia* – profile
- Office of Environment and Heritage (OEH) (2022l) – Gang-gang Cockatoo *Callocephalon fimbriatum* – profile
- Office of Environment and Heritage (OEH) (2022m) – Brown Treecreeper (south-eastern subspecies) *Climacteris picumnus victoriae* – profile
- Office of Environment and Heritage (OEH) (2022n) – Grey Falcon *Falco hypoleucos* – profile
- Office of Environment and Heritage (OEH) (2022o) – Swift Parrot *Lathamus discolor* – profile
- Office of Environment and Heritage (OEH) (2022p) – Hooded Robin (south-eastern form) *Melanodryas cucullate cucullata* – profile
- Office of Environment and Heritage (OEH) (2022q) – Koala *Phascolarctos cinereus* – profile
- [Office of Environment and Heritage \(OEH\) \(2022r\) – Slaty Red Gum Eucalyptus \*glaucina\* – profile](#)
- [Office of Environment and Heritage \(OEH\) \(2022s\) – Hawkweed – profile](#)
- Office of Environment and Heritage (OEH) (2023) - Small Snake Orchid – profile
- Office of Environment and Heritage (OEH) (2023a) - Square-fruited Ironbark – profile. Office of Environment and Heritage (OEH) (2023b) - Tarengo Leek Orchid – profile
- Office of Environment and Heritage (OEH) (2023c) - Austral Toadflax – profile
- Office of Environment and Heritage (OEH) (2023d) – Yellow-spotted Tree Frog *Litoria castanea* – profile
- Office of Environment and Heritage (OEH) (2023r) –Sphagnum Frog *Phyloria sphagnicolus* - profile
- Office of Environment and Heritage (OEH) (2023f) –South-eastern Glossy Black-cockatoo *Calyptorhynchus lathami lathami* - profile
- Office of Environment and Heritage (OEH) (2023g) – Painted Honeyeater *Grantiella picta* - profile
- Office of Environment and Heritage (OEH) (2023h) – Parma Wallaby *Notamacropus parma* – profile
- Office of Environment and Heritage (OEH) (2023i) – Greater Glider *Petauroides volans* - profile
- Office of Environment and Heritage (OEH) (2023j) – Yellow Bellied Glider *Petaurus australis australis* – profile
- Office of Environment and Heritage (OEH) (2023k) – Long-nosed Potoroo (northern) *Potorous tridactylus* – profile
- Office of Environment and Heritage (OEH) (2023l) –Hasting’s River Mouse *Pseudomys oralis* - profile
- Office of Environment and Heritage (OEH) (2023m) –Pink-tailed Legless-lizard *Aprasia parapulchella* – profile
- Office of Environment and Heritage (OEH) (2023n) – *Commersonia procumbens* – profile
- Office of Environment and Heritage (OEH) (2023o) – *Diuris eborensis* - Profile
- [Office of Environment and Heritage \(OEH\) \(2023p\) – Mueller’s Eyebright \*Euphrasia collina\* – profile](#)
- [Office of Environment and Heritage \(OEH\) \(2023q\) – Glandular Frog \*Litoria subglandulosa\* – profile](#)

[Office of Environment and Heritage \(OEH\) \(2023r\) – Southern WhiteFace \*Aphelocephala leucopsis\* – profile](#)

[Office of Environment and Heritage \(OEH\) \(2023s\) – Blue-winged Parrot \*Neophema chrysostoma\* – profile](#)

[Office of Environment and Heritage \(OEH\) \(2023t\) – Striped Legless Lizard – profile](#)

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Appendix A

# PMST Report



## Protected Matters Search Tool

Report Generated - 5:19PM - 28 October 2025

Matters of National Environment Significance	Count
<a href="#">World Heritage Properties</a>	0
<a href="#">National Heritage Places</a>	0
<a href="#">Wetlands of International Importance (Ramsar Wetlands)</a>	5
<a href="#">Great Barrier Reef Marine Park</a>	0
<a href="#">Commonwealth Marine Area</a>	0
<a href="#">Listed Threatened Ecological Communities</a>	11
<a href="#">Listed Threatened Species</a>	81
<a href="#">Listed Migratory Species</a>	10

Extra Information	Count
<a href="#">State and Territory Reserves</a>	4
<a href="#">Regional Forest Agreements</a>	1
<a href="#">Nationally Important Wetlands</a>	0
<a href="#">EPBC Act Referrals</a>	18
<a href="#">Key Ecological Features</a>	0
<a href="#">Biologically Important Areas</a>	0
<a href="#">Bioregional Assessments</a>	1
<a href="#">Geological and Bioregional Assessments</a>	0

Other Matters Protected by the EPBC Act	Count
<a href="#">Commonwealth Lands</a>	3
<a href="#">Commonwealth Heritage Places</a>	0
<a href="#">Listed Marine Species</a>	21
<a href="#">Whales and Other Cetaceans</a>	0
<a href="#">Critical Habitats</a>	0
<a href="#">Commonwealth Reserves Terrestrial</a>	0
<a href="#">Australian Marine Parks</a>	0
<a href="#">Habitat Critical to the Survival of Marine Turtles</a>	0

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 and is accurate at the time of generation. Please see the caveat for interpretation of information provided here. Consider carefully the age of information for decision making.

<a href="#">Report Metadata</a>	<a href="#">Caveat</a>
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Appendix B

# Likelihood of Occurrence



## B.1 Predicted Species listed as Critically Endangered or Endangered

Table B.1 Predicted Species Listed as Critically Endangered or Endangered

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
<b>Reptiles</b>						
Western sawshelled turtle	<i>Myuchelys bellii</i>	BAM-C, PMST, BioNet	E	E	In NSW, currently found in four disjunct populations in the upper reaches of the Namoi, Gwydir and Border Rivers systems, on the escarpment of the North West Slopes. Shallow to deep pools in upper reaches or small tributaries of major rivers in granite country. Occupied pools are most commonly less than 3 m deep with rocky or sandy bottoms and patches of vegetation.	<b>Moderate</b> – There are approximately 2,948 (DPE 2023a) species records within the locality.
Hunter Valley Delma	<i>Delma vescolineata</i>	BAM-C, PMST, BioNet	E	E	<i>Delma vescolineata</i> is known almost entirely from a 25 km wide corridor in the Hunter Valley, between Maitland and Muswellbrook, New South Wales. Found mainly in secondary native grassland remaining after the removal or dieback of previous woody canopy vegetation in association with sparse box-gum or ironbark woodland.	<b>High</b> – known to occur adjacent to the Project Area, in contiguous habitat. Approximately 12 species records occur within the locality (DPE 2023a).
Purvis' turtle	<i>Myuchelys purvisi</i>	BAM-C, PMST, BioNet	E	E	Endemic to the middle and upper reaches of the Manning River catchment area. Habitat preference is for relatively shallow, clear, continuously fast-flowing rivers with rocky and sandy substrates. Boulder beds	<b>High</b> – known to occur in the Barnard River which intersects the Project Area. There are approximately 54 species records within the locality (DPE 2023a).

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					in pools 2-3 m deep and submerged logs are used as shelter sites by individuals or small aggregations of turtles.	
<b>Amphibians</b>						
Booroolong Frog	<i>Litoria booroolongensis</i>	BAM-C, PMST, BioNet	E	E	Occur along permanent streams and require various habitat features such as fringing vegetation (sedges, fern, grasses) and rock structures. Rocks provide shelter, basking rocks and submerged rock crevices are utilised for egg laying. (OEH 2017c).	<b>High</b> – There are approximately 795 species records within the locality (DPE 2023a) with higher potential for suitable habitat in the north of the Project Area.
Yellow-spotted Tree Frog	<i>Litoria castanea</i>	BAM-C, PMST, BioNet	CE	CE	Overall, requires permanent or slow-flowing ponds with emergent vegetation. This vegetation is often bulrushes and other aquatic vegetation. However, requires various habitat features dependant on seasons. During Winter and Autumn, they are known to utilise fallen timber, debris, rocks and vegetation for shelter. During Spring and Summer, they are known to bask throughout the day. They require aquatic vegetation for egg laying. (OEH 2023d).	<b>Low</b> - Known range coincides with the locality, however the only known extant site of the species is a single population near Yass, more than 300 km from the locality. There are historic (pre-1972) species records within the locality (DPE 2023a).
<b>Birds</b>						
Regent Honeyeater	<i>Anthochaera phrygia</i>	BAM-C, PMST, BioNet	CE	CE	Regent Honeyeaters are predominantly found within the temperate woodlands and open forests of the inland slopes of south-east Australia.	<b>Moderate</b> – Important habitat mapping does not intersect within the Project Area, potential suitable habitat within locality. There are

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					However, there have been some recordings of the species in drier coastal woodlands and forests. The range of the species has dramatically decreased, with only three known breeding regions remaining. These are Chiltern-Albury in north-east Victoria, and the Capertree Valley and the Bundarra-Barraba region in NSW. (OEH 2022j).	approximately 20 species records within the locality.
Australasian Bittern	<i>Botaurus poiciloptilus</i>	BAM-C, PMST	E	E	Australasian bitterns have a preference for permanent freshwater wetlands that incorporate tall and dense vegetation, notably bullrushes ( <i>Typha</i> spp.) and spikerushes ( <i>Eleocharis</i> spp.). Although they are a widespread species, populations throughout south-eastern Australia are uncommon. The species utilises dense reeds or rushes throughout the day for sheltering, with activity predominantly occurring nocturnally (OEH 2017d).	<b>Low</b> – There are no wetlands that intersect directly with the Project Area.
Curlew Sandpiper	<i>Calidris ferruginea</i>	PMST	E	CE	Curlew Sandpipers are a migratory bird that have been recorded across most of the Australian coastline. Throughout NSW, they occur along the entirety of coastline with particular mention to the Hunter Estuary. There are also records of the species in the freshwater wetlands of the Murray-Darling Basin. (OEH 2021d).	<b>Low</b> – One (1) species record exists within the locality (DPE 2023a). The Project Area is unlikely to support suitable habitat.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	BAM-C, PMST	V	E	Habitat preference is dependent on the season with species utilising tall mountain forests and woodlands throughout Spring and Summer. They have preference of heavily timbered and mature wet sclerophyll forests throughout this time. During Autumn and Winter, they generally move to lower altitude dry and open eucalypt forests and woodlands. Throughout this time, they are recorded to have preference towards box-gum and box-ironbark assemblages. They are known to occasionally occur within temperate rainforests, and there is a possibility of occurrence within sub-alpine Snow Gum ( <i>Eucalyptus pauciflora</i> ) woodland (OEH 2022k).	<b>Moderate</b> – Within the Hunter there is potential suitable habitat. Three (3) species records exist within the locality (DPE 2023a).
Red Goshawk	<i>Erythrotriorchis radiatus</i>	BAM-C, PMST, BioNet	CE	E	Sparsely spread across northern Australia, Red Goshawk is rare in NSW with records in the Clarence River Catchment and the lower Richmond and Tweed Rivers. Red Goshawks prefer open woodland and forests that have a combination of vegetation types, an abundance of bird species for their food source and permanent water bodies. More specifically, in NSW, they are found within mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalypt forests of coastal rivers (OEH 2019k).	<b>Low</b> - There are two historic species records (1968,1900) within the locality (DPE 2023a) however the species is not expected to occur.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Swift Parrot	<i>Lathamus discolor</i>	BAM-C, PMST, BioNet	E	CE	Found in areas with flowering eucalypts or there are abundant lerp infestations throughout south-eastern Australia between February and October. They prefer species that are winter flowering including eucalypts such as Swamp Mahogany ( <i>Eucalyptus robusta</i> ), Mugga Ironbark ( <i>Eucalyptus sideroxylon</i> ), Forest Red Gum ( <i>Eucalyptus tereticornis</i> ) and White Box ( <i>Eucalyptus albens</i> ). Other species include Spotted Gum ( <i>Corymbia maculata</i> ) and Red Bloodwood ( <i>Corymbia gummifera</i> ). Nesting occurs in Tasmania during breeding season (September – January). Swift Parrots prefer hollows within hold trees in Tasmanian Blue Gum ( <i>Eucalyptus globulus</i> ) dominated forests (OEH 2022n).	<b>Known</b> – 13 species records exist within locality. Recorded at one location in the southern portion of the Project Area, however the species is expected to have a low likelihood of occurrence across the Project Area more widely. Important habitat mapping does not intersect within the Project Area, potential suitable habitat within locality.
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	PMST, BioNet	V	E	The south-eastern form of Hooded Robin has a distribution through much of inland NSW, existing from Brisbane to Adelaide. They avoid coastal areas and dry deserts (OEH 2022o).	<b>Moderate</b> – This species may utilise parts of the Project Area, there are approximately 38 records within the locality (DPE 2023a).
Australian Painted Snipe	<i>Rostratula australis</i>	BAM-C, PMST, BioNet	E	E	Most records of Australian Painted Snipe within NSW are situated around the Murray-Darling Basin. However, other important regions include wetlands on the Hawkesbury River, as well as the Clarence and lower Hunter Valleys (OEH 2017f).	<b>Low</b> - This species may utilise parts of the Project Area, with potential for suitable habitat within the locality. 6 (six) species records are present within the locality.
<b>Flora</b>						

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Dungowan Starbush	<i>Asterolasia beckersii</i>	BAM-C	CE	CE	The species grows along creeklines and is known to be associated with River Oak ( <i>Casuarina cunninghamiana</i> ) riparian communities (PlantNet 2024g).	<b>Moderate</b> - <i>Asterolasia beckersii</i> retains 406 species records within the locality (DPE 2023a). The species distribution is known to be restricted to the Dungowan Dam area (Royal Botanic Gardens 2023b).
Narrow-leaved Bertya	<i>Bertya ingramii</i>	BAM-C, PMST, BioNet	E	E	The species is known to grow in dry woodland habitat with rocky soils, known to grow amongst Casurinas, Acacias and leptospermum spp. The species is known to occur on the New England Tablelands regions of NSW (OEH 2018).	<b>Moderate</b> - <i>Bertya ingramii</i> known range coincides with the locality. There is one species record, (1997) within the Project Area.
null	<i>Bertya sp. (Clouds Creek, M. Fatemi 4)</i>	BAM-C, PMST	E	E	The species is known to grow in heathy shrublands, on steep granite or metasedimentary slopes. The species is known to occur in north-eastern NSW, from Gibraltar Range to the Macleay Gorge (OEH 2022p).	<b>None</b> - <i>Bertya sp.</i> not known within the locality (DPE 2023a). Species known or predicted distribution doesn't overlap within the locality.
Granite Boronia	<i>Boronia granitica</i>	BAM-C, PMST, BioNet	V	E	The species is known to occur in forest and woodland habitat on granitic soils, amongst granite scree and or within rocky outcrops or crevices (OEH 2022g).	<b>Moderate</b> - Known range coincides with the northern-most section of the Project Area. There is one species record (1995) located within the locality. All other known species records occur north of the locality.
White-flowered Wax Plant	<i>Cynanchum elegans</i>	BAM-C, PMST	E	E	The species grows in dry rainforest, often in gullies scrub and scree slopes (PlantNet 2023d). The species is known to occur in eastern NSW and adjacent slopes, it occurs from Brunswick Heads in the north	<b>Moderate</b> – Two species records exist within the locality. Potential suitable habitat within the locality in areas of dry rainforest.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					to Illawarra region in the south (OEH 2020c).	
Small Snake Orchid	<i>Diuris pedunculata</i>	BAM-C, PMST, BioNet	E	E	The species occurs in grassy habitats, often in moist areas, associated with shale, trap and fine granite soils (OEH 2023a).	<b>High</b> – There are three species records located within the locality (DPE 2023a). The most recent record is from 2002.
Craven Grey Box	<i>Eucalyptus largeana</i>	BAM-C, BioNet	E	E	The species grows in wet forest, within subcoastal ranges. The species is known to occur in a restricted area around the Pokolbin area (OEH 2020). The threatened species profile states that ‘a number of unsubstantiated records outside the accepted range’ (OEH 2020d).	<b>Moderate</b> - There is one species record located within the locality from 1995 (DPE 2023a). The locality doesn’t align with known or predicted distribution.
	<i>Euphrasia arguta</i>	BAM-C, PMST	CE	CE	The habitat and ecological requirements of the species are relatively unknown. The population from the Nundle area (2008) occur in Eucalypt Forest with mixed grass and shrub understorey (TSSC 2011).	<b>High</b> - 21 species records exist within the locality (DPE 2023a), including from within the Project Area. Presumed extinct until rediscovered in 2008 in Nundle State Forest.
Basalt peppercress	<i>Lepidium hyssopifolium</i>	BAM-C, PMST, BioNet	E	E	The species occurs in grasslands and grassy woodlands. The species is known from a few populations in NSW, including near Bathurst, Bungendore and Crookwell (OEH 2021i).	<b>Low</b> –Historical records in Armidale, associated IBRA is Armidale Plateau. One species record exists within the locality. In NSW, there is a small population near Bathurst, one population at Bungendore, and one near Crookwell. The species was also recorded near Armidale in 1945 and 1958; however, it is not known whether it remains in this area.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Denman Pomaderris	<i>Pomaderris reperta</i>	BAM-C	CE	CE	The species grows in dry sclerophyll woodland, confined to the Denman area. Associated soil is sandy loam on sandstone or conglomerate (OEH 2017a).	<b>Low</b> – potential to have suitable habitat within locality near Hunter region.
Tarengo Leek Orchid	<i>Prasophyllum petilum</i>	BAM-C, BioNet	E	E	The species grows in open grassland sites, it is associated with few with River Tussock ( <i>Poa labillardieri</i> ), Black Gum ( <i>Eucalyptus aggregate</i> ) and tea-trees <i>Leptospermum</i> sp. The species is known from five populations in NSW (OEH 2023a).	<b>Moderate</b> – There are two species records located within the locality (DPE 2023a). The most recent record is from 2021.
Prasophyllum sp. Wybong	<i>Prasophyllum sp. Wybong</i>	BAM-C, PMST	-	CE	This species grows in open grasslands, eucalypts forests and woodlands on wet soils. The species occurs only in NSW and is known from several populations in eastern NSW (TSSC 2009).	<b>Low</b> – Not known to occur within the locality (DPE 2023a). The known or predicted distribution for the species does may overlap with the locality.
Illawarra Greenhood	<i>Pterostylis gibbosa</i>	PMST	E	E	The species grows in open forest or woodland habitats, the species is known to occur as a few populations in, the Hunter region, Illawarra regions and Shoalhaven region (OEH 2024).	<b>Low</b> – Not known to occur within the locality (DPE 2023a). The known or predicted distribution for the species may overlap with the locality.
	<i>Tylophora linearis</i> Syn. <i>Vincetoxicum forsteri</i>	BAM-C, PMST, BioNet	V	E	The species grows in dry shrubland often occurring alongside <i>Eucalyptus</i> spp., white Cyprus and or swamp oak. The species is known to occur in the Barraba, Mendooran, Temora and West Wyalong regions (OEH 2022f).	<b>High</b> – There is one species record from 2023 located within the locality (DPE 2023a).
	<i>Vincetoxicum woollsii</i>	SPRAT Profile, BioNet	E	E	Previously <i>Tylophora woollsii</i> , this species grows in moist eucalypt forest, moist sites	<b>Low</b> - Grows in wet sclerophyll forest and rainforest in the Clouds Creek area near Nymboida, not known to

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					in dry eucalypt forest and rainforest margins (PlantNet 2024h).	occur within the locality (PlantNet 2024).
<b>Mammals</b>						
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	BAM-C, PMST, BioNet	V	E	Although, Spotted-tailed Quolls occupy a variety of habitat types (rainforest, open forest, woodland, coastal heath and inland riparian forest), their overall range has drastically contracted since colonisation (OEH 2020a).	<b>Known</b> – Umwelt (2024) has recorded this species within the Project Area.
Greater Glider	<i>Petauroides volans</i>	BAM-C, PMST	E	E	Greater Gliders have a broad distribution along the east coast of Australia, stretching from Proserpine QLD, throughout NSW and ACT, down to Victoria. They are found within eucalypt forests and woodlands, where they feed exclusively on eucalypt leaves, buds, flowers and mistletoes. They exploit tree hollows for sheltering and can have up to 18 within their home range (OEH 2023i).	<b>Known</b> – Umwelt (2023-2025) has recorded this species within the Project Area. There are approximately 1,255 species records within the locality (DPE 2023a).
Koala	<i>Phascolarctos cinereus</i>	BAM-C, PMST, BioNet	E	E	Koalas inhabit eucalypt woodlands and forests within a fragmented distribution throughout eastern Australia, from north-east Queensland to the Eyre Peninsula, South Australia. Populations in SW are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests and smaller populations on the plains of the western slopes of the Great Dividing Range (OEH 2022q).	<b>Known</b> – Umwelt (2023-2025) has recorded this species within the Project Area. 584 species records exist within the locality.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	BAM-C, PMST, BioNet	E	E	The Large-eared Pied Bat has a range from Rockhampton, Queensland down to Bungonia in the NSW highlands where exploit areas with extensive cliffs and caves. Distribution throughout NSW is patchy, and the species is rare. The few records from NSW demonstrate species occupation in the New England Tablelands and Northwest Slopes (OEH 2017j).	<b>High</b> – there is likely suitable habitat that intersects with the Project Area. 62 species records exist within the locality.
<b>Crayfish</b>						
Small crayfish	<i>Euastacus spinichelatus</i>	EPBC Referral Portal		E	The small crayfish is endemic to the Hastings River, Macleay River, Namoi River and Manning River basins north-west of Port Macquarie, NSW. It is known only from a restricted distribution, at altitudes above 700 m, but generally over 1000 m and up to 1327 m above sea level.	<b>Moderate</b> – The species habitat is known or likely to coincide within the locality with the known species populations occurring in the upper Manning River Catchment (South-East Coast Division) (DCCEEW 2025).
Gamilaroi Crayfish	<i>Euastacus gamilaroi</i>	EPBC Referral Portal		E	The Gamilaroi crayfish is endemic to north-central eastern New South Wales (NSW), this species is known to be a short-range endemic, only known from a very small distribution in NSW (Harvey 2002; DCCEEW 2023).	<b>Moderate</b> – The species habitat is known or likely to coincide within the locality, with the known species populations within the reaches of three highland streams in the Namoi River Catchment (Murray-Darling Division) and three streams in the adjacent upper Manning River Catchment.
Terrestrial crayfish	<i>Euastacus maccai</i>	EPBC Referral Portal		E	The terrestrial crayfish is endemic to the highland areas (850–1,400 m above sea level). Its patchy distribution extends from Retreat in the north, south to near Hanging	<b>Moderate</b> – The species habitat is known or likely to coincide within the locality, with the known species

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					Rock and east to Werrikimbe National Park. Across its distribution, it is restricted to the upland reaches of the drainages it inhabits. The species is known to occur in Nundle State Forest.	populations within the reaches of upper Manning River Catchment.

## B.2 Predicted Species Listed as Vulnerable

**Table B.2 Predicted Species Listed as Vulnerable**

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
<b>Amphibians</b>						
Green and Golden Bell Frog	<i>Litoria aurea</i>	BAM-C, PMST, BioNet	E	V	Habitat requirements include marshes, streams and dams that are unshaded, with grassy areas and diurnal sheltering sites nearby. Further, they require waterbodies that are free of Plague Minnow ( <i>Gambusia holbrooki</i> ) and are known to particularly frequent sites containing bullrushes ( <i>Typha</i> spp.) or spikerushes ( <i>Eleocharis</i> spp.). There are records of the species in highly disturbed areas (OEH 2022j).	<b>Moderate</b> – There is potential suitable habitat within the Project Area and 6 (six) records within the locality (DPE 2023a).
Davies' Tree Frog	<i>Litoria daviesae</i>	PMST	V	V	Restricted distribution from Carrai Plateau to the Barrington tops area. Found in permanent and slow-flowing streams that are above 400 m in elevation. Predominantly in the headwaters of eastern-flowing streams. However, there are records of the species	<b>Moderate</b> - There are 62 species records within the locality (DPE 2023a). Potential for suitable habitat within the locality.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					within the headwaters of the Peel River, a western-flowing river. (OEH 2017d)	
Glandular Frog	<i>Litoria subglandulosa</i>	PMST	V	V	Populations are restricted to an area of 250 km on the eastern escarpment of the Great Dividing Range; “The Flags” near Walcha up to Girraween National Park. (OEH 2023q).	<b>Low</b> - Known range more than 50 km east of the locality and there are no known species records nearby.
Stuttering Frog	<i>Mixophyes balbus</i>	BAM-C, PMST	E	V	Occurs in rainforest and wet, tall open forest in both the foothills and escarpment of the eastern side of the Great Dividing Range. During the breeding season, adults utilise small, flowing streams after heavy rain, with eggs being laid on rock shelves and shallow riffles. Tadpoles then utilise deep, permanent pools for metamorphosis. Outside of breeding season, adults are known to utilise deep leaf litter and thick understory vegetation for sheltering (OEH 2018b).	<b>Low</b> – Known records approximately 150 km south of the locality.
<b>Birds</b>						
Southern Whiteface	<i>Aphelocephala leucopsis</i>	PMST	-	V	The Southern Whiteface can be throughout mainland Australia, ranging from south of the tropics, the north-eastern edged of the Western Australian Wheatbelt, east to the Great Dividing Range (OEH 2023r).	<b>Low</b> – 6 (six) species records have been identified within the locality. However, Proposed Action located on the very eastern edge of species distribution and unlikely to support suitable habitat.
South-eastern Glossy Black-Cockatoo	<i>Calyptorhynchus lathami lathami</i>	BAM-C, PMST, BioNet	V	V	South-eastern Glossy Black-cockatoos are known to occur alongside stands of Black Sheoak ( <i>Allocasuarina littoralis</i> ) and Forest	<b>Moderate</b> – Within the Hunter there is potential suitable habitat,

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					Sheoak ( <i>Allocasuarina torulosa</i> ), within open forest and woodlands along the coast and the Great Dividing Range (OEH 2023f).	and 54 species records exist within the locality (DPE 2023a).
Brown Treecreeper (south-eastern)	<i>Climacteris picumnus victoriae</i>	BAM-C, PMST, BioNet	V	V	The Eastern subspecies of the Brown Treecreeper are found eucalypt woodlands and the dry open forests of the inland slopes and plains inland of the Great Dividing Range. More specifically, they are known to occur within woodlands with a grassy understory and that are dominated by stringy-barks and other rough-barks eucalypts. They are also recorded within mallee and River Red Gum ( <i>Eucalyptus camaldulensis</i> ) forests that border wetlands consisting of acacias, cumbingi, grasses and saltbush. They generally are not correlated with areas with a dense shrub layer. They rely on hollows within dead and live tree for nesting sites (OEH 2022m).	<b>High</b> – There are 391 species records, with the most recent from 2021, within the locality (DPE 2023a).
Grey Falcon	<i>Falco hypoleucos</i>	PMST, BioNet	V	V	The Grey Falcon is scarcely found throughout NSW with the most records found in the Murray-Darling Basin region, and rare records showing sightings east of the Great Dividing Range. Although occasionally they can be found in open woodlands nearby the coast, they are generally limited to shrubland, grassland and wooded watercourses within arid and semi-arid regions. Grey Falcons are known to exploit the old nests of other birds of prey for nesting. They have also been	<b>Low</b> – Potential for suitable habitat within the locality, may find vagrants. There is only one species record within the locality from 2010 (DPE 2023a).

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					recorded around wetland areas, where the surface water attracts their prey (OEH 2022n).	
Painted Honeyeater	<i>Grantiella picta</i>	BAM-C, PMST, BioNet	V	V	Although nomadic, the Painted Honeyeaters greatest density, along with their breeding occurs within the inland slope of the Great Dividing Range across NSW, Victoria and southern Queensland. They can be found within Boree/Weeping Myall ( <i>Acacia pendula</i> ), Brigalow ( <i>Acacia harpophylla</i> ), and Box-Gum Woodlands and Box-Ironbark Forests. They specifically feed on <i>Amyema</i> spp. mistletoe fruits, and on occasions, the nectar and insects of eucalypt species. Nesting occurs on the branches of she-oak, paperbark, drooping eucalypts or mistletoes that exist within the outer canopy (OEH 2023g).	<b>Low</b> – There may be suitable habitat within the Project Area. 11 species records exist within the locality (DPE 2023a).
Blue-winged Parrot	<i>Neophema chrysostoma</i>	PMST, BioNet	V	V	Outside of breeding season, Blue-winged Parrots have distribution throughout Victoria, eastern South Australia, central NSW and south-western Queensland. (OEH 2023s)	<b>Low</b> – This species may utilise parts of the Project Area, there are less than five records within the locality (DPE 2023a).
Superb Parrot	<i>Polytelis swainsonii</i>	PMST	V	V	Found throughout eastern inland NSW with two broad regions known as breeding sites. Overall, Superb Parrots are known to occur within Box-Gum, Box-Cypress-pin and Boree woodlands and River Red Gum Forest.  On the South-western Slopes their breeding sites occur between Cowra, Yass, Grenfell Cootamundra and Coolac. These populations migrate north during the winter. Nesting trees for these populations are found within open	<b>Low</b> – Species distribution further west of the Project Area. There are no species records within the locality (DPE 2023a).

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					Box-Gum woodland or isolated paddock trees that can be living or dead. Specifically, they are known to use Blakey's Red Gum, Yellow Box, Apple Box and Red Box (OEH 2017f).	
Diamond Firetail	<i>Stagonopleura guttata</i>	BAM-C, PMST, BioNet	V	V	The Diamond Firetail is widely distributed throughout NSW, however, are not common in coastal districts. There are distinct concentrations of populations within the Northern, Central and Southern Tablelands, the Northern, Central and South-western Slopes as well as the Northwest Plains and Riverina (OEH 2017h).	<b>Known</b> – Umwelt (2024) has recorded this species within the Project Area. 145 species records exist within the locality.
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	PMST	V	V	The species is widespread in most regions of New South Wales, especially in coastal areas. On migration, the species forages and roosts on rocky and sandy beaches, freshwater habitats, and inland saltwater habitats.	<b>Low</b> – Not known to occur within the locality (2023a). There are no species records within the locality (DPE 2023a).
<b>Flora</b>						
<i>Androcalva procumbens</i>	<i>Androcalva procumbens</i>	BAM-C, PMST, BioNet	V	V	Endemic to NSW, mainly confined to the Dubbo-Mendooran-Gilgandra region, but also known in the Pilliga, Mount Kaputar National Park, north east of Gulgong and near Denman. The species is often found as a pioneer species of disturbed habitats. It has been recorded colonising disturbed areas such as roadsides, the edges of quarries and gravel stockpiles and a recently cleared easement under power lines.	<b>Low</b> – Not known to occur within the locality (2023a). The predicted range and species association for the species occur to the west and north of the Project Area.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Velvet Wattle	<i>Acacia pubifolia</i>	EPBC Referral Portal	E	V	This species is known from three localities, in NSW; Spring Hill (west of the Beardy River), the Gulf Road Torrington/Torrington State Conservation Area and Warrabah National Park. Velvet Wattle generally grows in dry shrubby woodland on acid volcanic, granite and metasediment soils (OEH 2023).	<b>Low</b> –The species known populations do not intersect with the Project Area. Suitable habitat may be present; however, species records occur in particular regions north of the locality.
Hairy-joint Grass	<i>Arthraxon hispidus</i>	PMST	V	V	This species occurs in shady habitat, most often found in or on the edges of creeks or swamps (OEH 2018a).	<b>None</b> - <i>Arthraxon hispidus</i> is not known within the locality (DPE 2023a). Species known distribution doesn't overlap within the locality.
Ooline	<i>Cadellia pentastylis</i>	PMST	V	V	Relic rainforest species, appears to be strongly correlated with low-medium nutrient soils of sandy clay or clay consistency. Occurs along the western edge of the North West Slopes from north of Gunnedah to west of Tenterfield (OEH 2019).	<b>None</b> – The known locations of this species is west of Tamworth and none with the locality.
Callistemon pungens	<i>Callistemon pungens</i>	BAM-C, PMST, BioNet	-	V	The species grows in and around sandy watercourses, wet heath or riparian woodlands (PlantNet 2024b).	<b>High</b> – Known range coincides with the locality. There are three species records located within the locality (DPE 2023a). There is potential for the species habitat to be found within the locality.
Leafless Tongue Orchid	<i>Cryptostylis hunteriana</i>	BAM-C, PMST	V	V	The species habitat and ecology remain relatively unknown, it has been recorded within various habitats including swamp-heath and woodland (OEH 2021a).	<b>Low</b> – Not known to occur within the locality (2023a), however, one species record exists. The predicted range and species

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
						association for the species are coastal.
Bluegrass	<i>Dichanthium setosum</i>	BAM-C, PMST, BioNet	V	V	The species is found in woodland and often in disturbed pasture (OEH 2019a).	<b>Known</b> – Umwelt (2024) has recorded this species within the Project Area. 169 species records exist within the locality.
Ovenden's Ironbark	<i>Eucalyptus caleyi subsp. ovendenii</i>	PMST	V	V	The species occurs in grassy woodlands, often on shallow and dry soil (OEH 2018d).	<b>Low</b> – There are no species records within the locality (DPE 2023a). The known distribution of the species occurs west of the (OEH 2018c).
Slaty Red Gum	<i>Eucalyptus glaucina</i>	BAM-C, PMST, BioNet	V	V	The species grows in various habitats including dry eucalyptus forests and grassy woodlands. The species is known to occur from Broke in the south to Casino in the north (OEH 2022r).	<b>Moderate</b> – There are 15 species records located within the locality (DPE 2023a). The most recent record is from 2018, found mainly coastal.
McKie's Stringybark	<i>Eucalyptus mckieana</i>	BAM-C, PMST, BioNet	V	V	The species grows in open forests with a grassy understory on lower fertility sandy/loam soils. The species is known to occur in drier habitat on the western periphery of the New England Tableland (OEH 2021b).	<b>High</b> – There are three species records located within the locality (DPE 2023a). The most recent record is from 2015; the other records are from 1966.
Narrow-leaved Black Peppermint	<i>Eucalyptus nicholii</i>	BAM-C, PMST, BioNet	V	V	This species grows in grassy woodlands on granite and metasedimentary soils (OEH 2020).	<b>Known</b> – Umwelt (2024) has recorded this species within the Project Area. There are 54 species records within the locality.
Blackbutt Candlebark	<i>Eucalyptus rubida subsp. barbigerorum</i>	BAM-C, PMST, BioNet	V	V	The species grows in woodlands with grassy understorey on higher fertility soils (OEH 2022b).	<b>Moderate</b> - There is one historic species record (1913) located within the locality (DPE 2023a).

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Tall Velvet Sea-berry	<i>Haloragis exalata subsp. velutina</i>	BAM-C, PMST	V	V	The species occurs within damp habitats near watercourses, this subspecies occurs in woodland on the periphery of steep gorges (OEH 2018e).	<b>Moderate</b> – there is potential suitable habitat within the Project Area. There are four species records within the locality.
Granite Homoranthus	<i>Homoranthus prolixus</i>	BAM-C, PMST	V	V	The species occurs on granite geology amongst heath; in skeletal soil The species is known to occur across Inverell and Manilla (OEH 2021c).	<b>Low</b> – All known species records occur to the north and north-west of the locality (DPE 2023a).
Spiny Peppergrass	<i>Lepidium aschersonii</i>	PMST	V	V	The species grows in grasslands and grassy woodlands. The species is known to occur in the central-western slopes and north-western plains regions of NSW, recent surveys have identified the species on the southwestern plains (OEH 2019n).	<b>Low</b> – Not known to occur within the locality (DPE 2023a). The known and predicted distribution for the species does not overlap with the locality.
null	<i>Ozothamnus tessellatus</i>	BAM-C, PMST, BioNet	V	V	The species grows in eucalyptus woodlands (OEH 2019f). The distribution of this species is restricted to an area north of Rylstone in NSW.	<b>Moderate</b> – There are four species records located within the locality (DPE 2023a). All records are from 2013.
Tall Knotweed	<i>Persicaria elatior</i>	BAM-C	V	V	In northern NSW it is known from Raymond Terrace (near Newcastle) and the Grafton area (Cherry Tree and Gibberagee State Forests). This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance (DPE 2022d).	<b>Low</b> - Not known to occur within the locality (DPE 2023a).
Hawkweed	<i>Picris evae</i>	BAM-C, PMST, BioNet	V	V	The species occurs in open eucalyptus forests on black, dark grey or red-brown, the species has also been recorded in disturbed	<b>Moderate</b> – There are two species records located within the locality (DPE 2023a). Both records are from 1999.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					habitats (i.e. roadsides). The species occurs north of the Inverell area (OEH 2022s).	
Rufous Pomaderris	<i>Pomaderris brunnea</i>	BAM-C, PMST, BioNet		V	Brown Pomaderris is found in a very limited area around the Colo, Nepean and Hawkesbury Rivers, including the Bargo area and near Camden. It also occurs near Walcha on the New England tablelands and in far eastern Gippsland in Victoria. Brown Pomaderris grows in moist woodland or forest on clay and alluvial soils of flood plains and creeklines.	<b>Moderate</b> – there is potential for the species to occur in suitable habitats in the Walcha region.
Slender Darling-pea	<i>Swainsona murrayana</i>	PMST	V	V	The species grows in a variety of vegetation communities, on clay-based soils, such as grasslands, floodplains and depressions. The species is known to occur in inland areas of NSW including the southern riverine plain, Hay plain and various localities from Dubbo to Moree (OEH 2022f).	<b>Low</b> – Not known to occur within the locality (DPE 2023a). The known or predicted distribution for the species does not overlap with the locality. Species habitat is unlikely to occur within the Project Area.
Fragrant Pepperbush	<i>Tasmania glaucifolia</i>	PMST	V	V	The species grows in or on the periphery of Antarctic Beech rainforests, it can also grow in tall Eucalyptus forests and grassy woodlands at elevations between 1200 and 1500 m ASL. The species is known to occur at sites at high altitude in northeastern NSW (OEH 2019k).	<b>Low</b> – Not known to occur within the locality (DPE 2023a). The known or predicted distribution for the species does not overlap with the locality. However, one species record has been recorded within the locality.
Austral Toadflax	<i>Thesium australe</i>	BAM-C, PMST, BioNet	V	V	The species grows in grasslands, and grassy woodlands with a distribution scattered across eastern NSW (OEH 2023c).	<b>Known</b> – Umwelt (2024) has recorded this species within the Project Area. 22 species records exist within the locality.

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
<b>Mammals</b>						
Parma Wallaby	<i>Notamacropus parma</i>	BAM-C, PMST	V	V	The Parma Wallaby as a distribution along the coast and ranges of central and northern NSW, from Gosford south to Tenterfield and Casino. This is a heavily reduced range compared to the area the species was once distributed, from the Queensland border and north-eastern NSW to Bega (OEH 2023h).	<b>Low</b> – This species is now confined to the coast and ranges of central and northern NSW. There are no species records within the locality (DPE 2023a).
Corben's Long-eared Bat	<i>Nyctophilus corbeni</i>	BAM-C, PMST, BioNet	V	V	The south-eastern form of the Corben's Long-eared Bat occurs within the Murray Darling Basin region, with Pilliga Scrub region being a major stronghold for the species (OEH 2017k).	<b>Moderate</b> – there is potential suitable habitat that intersects with the Project Area and less than five species records within the locality (DPE 2023a).
Yellow-bellied Glider (south-eastern)	<i>Petaurus australis australis</i>	BAM-C, PMST, BioNet	-	V	The Yellow-bellied Gliders distribution ranges from southern Queensland to Victoria where they occur from the coast to the western slopes of the Great Dividing Range, with a preference for areas with high rainfall and nutrient rich soils. Overall, they occur in tall mature eucalypt forest, with forest type preference varying depending on latitude and elevation. In the north, mixed coastal forests to dry escarpment forests are preferred and in the south moist coastal gullies and creek flats to tall montane forests are preferred. They utilise tree hollows for their dens.	<b>Low</b> – There is potential suitable habitat within the Project Area although no current species records within the locality (DPE 2023a).

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>	BAM-C, PMST, BioNet	E	V	The distribution of the Brush-tailed Rock-wallaby roughly follows the Great Dividing Range, from south-east Queensland to the Grampians in Victoria. Distribution of the species has greatly declined and become fragmented in the west and the south. The range throughout NSW occurs from the QLD border down to Shoalhaven and extends inland to the Warrumbungle Ranges (OEH 2019m).	<b>Moderate</b> – There is potential suitable habitat within the Project Area. There are eight species records within the locality (DPE 2023a).
Long-nosed Potoroo (northern)	<i>Potorous tridactylus tridactylus</i>	BAM-C, PMST	-	V	Populations of Long-nosed Potoroos in NSW are restricted to coastal heaths and forests east of the Great Dividing Range, with an annual rainfall exceeding 760 mm. These areas generally have a dense understory and occasional open areas and a sandy loam. Vegetation may consist of grass-trees, sedges, ferns or heath (OEH 2023k).	<b>Moderate</b> - Generally restricted to coastal heaths and forests east of the Great Dividing Range outside the locality. 420 species records have been recorded within the locality (DPE 2023a).
New Holland Mouse	<i>Pseudomys novaehollandiae</i>	BAM-C, PMST	-	V	Within NSW, the New Holland Mouse is largely restricted to the northern and central coast, with only one inland occurrence known. They are found within open heathland, open woodland with a heathland understory and vegetated sand dunes. The species prefers areas with deep topsoils and softer substrates. It is predicted that slope, geology and the amount of sun received has an influence on site selection. They prefer areas with high floristic diversity (DCCEEW 2010).	<b>Low</b> - Potential for suitable habitat within the locality. 16 species records occur within the locality (DPE 2023a).

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	BAM-C, PMST, BioNet	V	V	Grey-headed Flying-foxes occur in a variety of habitat types within 200km of the east coast of Australia, Rockhampton, QLD south to Adelaide, SA. The habitat varieties include subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps, urban gardens and cultivated crops (OEH 2020b).	<b>Known</b> – Umwelt (2024) has recorded this species within the Project Area. 305 species records exist within the locality.
<b>Reptiles</b>						
Five-clawed Worm-skink, Long-legged Worm-skink	<i>Anomalopus mackayi</i>	PMST	E	V	Within NSW the species has a patchy distribution on the North West Slopes and Plains of north-east NSW, extending to QLD. They are found within or nearby the lower slopes of slight rises in grassy White Box woodland on black soils and River Red Gum-Coolibah-Bimble Box woodland on deep cracking loose clay soils. There are also records indicating occupancy in grassland areas and open paddocks consisting of scattered trees. They rely on the presence of permanent, deep, tunnel-like burrows and deep soil cracks for sheltering (OEH 2017l).	<b>Low</b> - Known range does not overlap with the locality and there are no species records within the locality (DPE 2023).
Pink-tailed Legless Lizard	<i>Aprasia parapulchella</i>	BAM-C, PMST, BioNet	V	V	The Pink-tailed Legless lizard is predominantly associated with sloping, open woodland habitats from the Central and Southern Tablelands and the South Western Slopes. They prefer habitat that is dominated by Kangaroo Grass ( <i>Themeda australis</i> ).	<b>Moderate</b> – There is potential suitable habitat within the Project Area. There are three species records from 2018 within the locality (DPE 2023a).

Common Name	Scientific Name	Source	BC Act	EPBC Act	Habitat Requirements	Likelihood of Occurrence
					Typically, sites are well drained, rocky outcrops or scattered, partially buried rocks. (OEH 2023m)	
Border Thick-tailed Gecko	<i>Uvidicolus sphyrurus</i>	BAM-C, PMST, BioNet	V	V	The species is known to occur on the tablelands and slopes of NSW, most commonly distributed within granite habitat (including steep/scree slopes) throughout the New England Tablelands (OEH 2016). The species is known to inhabit areas with dense leaf litter, boulders or rock slabs (OEH 2017i).	<b>Known</b> – Umwelt (2024) has recorded this species within the Project Area. Nine species records exist within the locality.
<b>Fish</b>						
Murray Cod	<i>Maccullochella peelii</i>	EPBC Referral Portal		V	This species is known to occur throughout the Murray-Darling Basin, across NSW, ACT, VIC to SA, where the species occurs across most of its historical distribution. The species inhabits diverse habitats, including clear rocky streams to slow-flowing, rivers and billabongs (McDowall 1996).	<b>Low</b> - Potential for suitable habitat within the locality, most likely around the Tamworth to Nundle area where few records are located.



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