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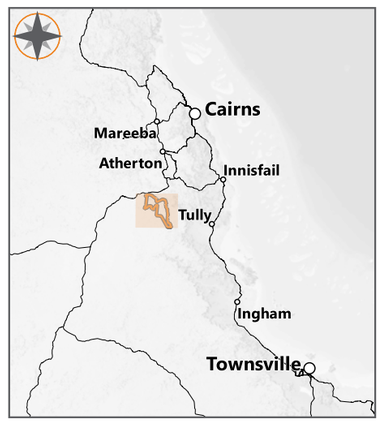
Chalumbin Wind Farm

Fauna survey sites

Figure 4.3

- Project Area
- Wind Turbine
- Project Footprint
- Frog Survey Site
- Camera trap March 2021 redeployment
- Anabat Site
- Spotlighting
- Bird Site
- Camera Trap
- General Observation
- Major Road
- River
- Creek
- Lot Type Parcel
- Easement

Date: 2021-06-15
Author: TOD
Reviewed: CC
Project: EPU-004



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Data Source(s):
Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2021)
Queensland Imagery Whole Of State
Satellite Public Basemap Service

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Habitat Assessments

At each of the fauna survey sites, habitat assessments were undertaken to document the value of habitats for birds, reptiles, mammals and amphibians based on the presence of key resources and microhabitats, such as hollows, caves and rocky outcrops, leaf litter, water, etc. Key habitat features considered important for threatened species were recorded at each site.

Diurnal Bird Counts

Diurnal bird counts were undertaken at 56 fixed point, 2 ha area sites across the Project area, focusing primarily on ridgelines. Two ecologists recorded all birds seen and heard over a 20-minute period, repeated at each location in the morning and afternoon to maximise detectability of all species present. Birds were identified by call and sight, using binoculars to aid identification and a rangefinder to estimate the flight height to the nearest 10-20 m. Over the duration of the 12-day survey period, bird counts were undertaken for 75 person hours.

Camera Trapping

Remote surveillance camera traps were installed at 40 sites across the Project area in January 2021, targeting areas of rocky outcrop, waterbodies, riparian corridors, natural openings and pathways through forest, and areas of fallen logs. Camera traps were baited using chicken and were situated in such a way as to minimise false triggers as much as possible, such as vegetation that moves in the breeze. Habitat assessments were undertaken at camera trap sites, to ensure that the cameras targeting each species were deployed in appropriate locations. Thirty-one of the cameras were retrieved at the end of March 2021, and the photographs were analysed by a suitably qualified ecologist. The remaining nine cameras were not able to be retrieved due to storm damage on the access road leading to the south of the Wooroora property; it is intended that these will be retrieved as part of the dry season fauna surveys planned to commence in mid-June 2021. Fourteen of the cameras retrieved in March 2021 were immediately redeployed into previously inaccessible habitat to specifically target potential quoll shelter habitat (potential foraging and dispersal habitat were partially covered in the January deployment); these remain on site and will also be retrieved as part of the dry season fauna surveys. The 31 cameras deployed in January 2021 and retrieved in March 2021 collectively recorded 1,953 trap nights and over 85,000 images.

Plate 4-1 Camera traps

Passive Acoustic Detection

Microbats rely on echolocation for orientation and foraging, and though the calls of almost all species are outside the range of human hearing, they can be detected by a bat detector. Anabat Swift detectors were installed along potential flyways (e.g. along an animal track or adjacent to a waterway) and set to record bat calls between dusk and

dawn each night. Six Anabats were deployed at five locations each, and for two consecutive nights at each location. The resulting library of recorded calls was then processed by an experienced technician and identified to species level where possible.

Plate 4-2 Anabats

Spotlighting

Spotlighting and assessment of hollow-bearing trees for occupation by nocturnal mammals and owls was undertaken across the Project area. The surveys targeted masked owl, koala, greater glider and yellow-bellied glider. Spotlighting involved walking or slowly driving through areas of potential habitat (i.e. native woodland or forest) with powerful spotlights and shining them into the canopy to try and identify eye-shine of active avian, mammal or reptile species. The spotlights were also periodically shone onto the ground to identify reptiles or amphibians that may be foraging on the ground surface. Six nights of spotlighting and active searching were carried out by a three-person team in January 2021, focusing on riparian areas where the vegetation is taller, more mature and more likely to support large hollows. An additional 40 person-hours of spotlighting were undertaken in March 2021, including some ridgelines in the north of the Project area.

Nocturnal active searches

Nocturnal active searches and call playback were undertaken on several watercourses within the Project area for frogs, including the EPBC Act listed magnificent brood frog and Australian lace-lid. A two-person team surveyed 24 locations in three broadly suitable areas over four nights after a decent rainfall event in March 2021.

Incidental observations

Ecologists recorded any secondary signs encountered at each site during the survey period, or while walking between sites in the Project area. Secondary signs can lead to the positive identification of mammals, reptiles and birds. Animals often reveal their presence through tracks left in soft substrate. Similarly, arboreal animals may leave distinctive scratches on tree trunks as they climb. Some glider species leave feeding marks on tree trunks, with those of the yellow-bellied glider being particularly distinctive. Scats of many mammals can be identified, for example northern quolls use distinctive latrines and the faecal pellets of koalas at the base of trees may be an indication of their presence. Finally, hair, feathers bones or nests can often be identified to species level.

Table 4.3 Summary of Threatened Fauna Species Survey Effort

Species	Survey Method	Survey Effort
Greater glider Yellow-bellied glider	Spotlighting (DSE 2011) Searches for secondary signs	28 person hours of spotlighting in January 2021 An additional 40 person hours of spotlighting in March 2021 Total of 68 person hours of spotlighting
Koala	Spotlighting (DSEWPC 2011, Eyre et al 2018, DoE 2014) Searches for secondary signs	Total of 68 person hours of spotlighting
Northern quoll Spotted-tailed quoll Black-footed tree-rat Northern bettong	Camera trapping (DSEWPC 2011, Eyre et al 2018, DoE 2016) Searches for secondary signs	1,953 trap nights at 31 sites across the Project area
Southern cassowary	Camera trapping (DEWHA 2010a, DEWHA 2010c, Eyre et al 2018) Searches for animals and secondary signs	1,953 trap nights at 31 sites across the Project area
Red goshawk	Diurnal bird counts (DEWHA 2010c, Eyre et al 2018) Searches for nests within appropriate habitat	75 person hours at 56 sites across the Project area
Masked owl	Nocturnal searches & call playback (DEWHA 2010c, Eyre et al 2018)	28 person hours of nocturnal searches & call playback
Australian painted snipe White-throated needletail	Timed fixed-point counts (DEWHA 2010c, Eyre et al 2018, DoE 2015a)	75 person hours at 56 sites across the Project area
Ghost bat Semon's leaf-nosed bat Large-eared horseshoe bat Bare-rumped sheath-tailed bat	Anabats (DSEWPC 2011, DEWHA 2010b, Eyre et al 2018)	60 detector nights at 30 sites across the Project area
Spectacled flying-fox	Flora surveys to identify food trees (DEWHA 2010b, Eyre et al 2018) Searches for camps	440 person hours across the Project area
Magnificent brood frog Australian lace-lid Mountain mistfrog	Nocturnal searches & call playback (DEWHA 2010d, Eyre et al 2018)	40 person hours at 24 sites in 3 broad locations within the Project area

4.2.3.3 Fauna Survey Limitations

Wet season surveys were planned for late January 2020 in accordance with the Queensland Terrestrial Vertebrate Fauna Survey Guidelines (Eyre et al 2018). This year's wet season brought a number of cyclones / tropical storms to the region. Although there was little rainfall during the field surveys, there was considerable rainfall leading up to the surveys and conditions across the Project area were very wet. Flooding across the low-lying parts of the site cut off access to many of the ridgelines, limiting the amount of survey work that could be undertaken in close proximity to proposed turbine sites. In response to this, some additional survey work was undertaken in March 2021 at the end of the wet season, specifically targeting potential habitat for northern and spotted-tailed quoll, magnificent brood frog and a number of rainforest stream frogs in areas that had not been accessible earlier in the season.

Night-time survey work was targeted towards vegetated areas that were safely accessible. Due to the terrain and the target species, most of the spotlighting surveys were undertaken from a vehicle on existing access tracks that were considered safe to drive at night.

A potential red goshawk nest was observed on site but was unoccupied at the time of the survey (as would be expected at the end of January). There are a small number of alternative raptor species that the nest could belong to and it will not be possible to confirm the species until the next nesting season.

4.3 Likelihood of Occurrence Assessment

An assessment was undertaken to assess the likelihood of occurrence within the Project area of conservation significant species (i.e. listed under the EPBC Act and/or the NC Act) that were predicted to occur as part of the desktop assessment. The likelihood of occurrence assessment was based on a review of species' distributions and habitat requirements, historical records for the broader region, and the results of the Project habitat assessments and field surveys.

Definitions used for the likelihood of occurrence applied included:

- **Known** – the species or ecological community has been recently recorded in the Project area (within last 10 years).
- **Likely** – Project area is within the species' or ecological community's known range and suitable habitat occurs in the Project area; REs associated with a threatened ecological community are present in the Project area.
- **Potential** – suitable habitat for a species or community occurs in the broader study area (comprising the Project area plus a 10 km buffer) but only marginal habitat is present in the Project area and/or the species has not been recorded in the desktop assessment. This includes cryptic, vagrant or transient species that have a reduced likelihood of occurrence but cannot be definitively discounted.
- **Unlikely** – a low to very low probability that a species or community occurs in the broader study area due to the lack of suitable habitat and/or the Project area is outside of the species' or community's known range.

4.4 Threatened Species Habitat Mapping

Light Imaging Detection And Ranging (LiDAR) data was acquired for the Project area in March 2021 to assist with the detailed design of project infrastructure and assessment of environmental constraints. This data was processed to create a Digital Elevation Model (DEM) and Digital Surface Model (DSM) for the Project area. The former is derived from 'ground-returns' representing the true height of the ground surface. The latter is derived from 'non-ground returns' reflected off trees and built structures and represents the height of the highest feature of the landscape. The difference of these two layers (DSM - DEM) was used to derive the height of vegetation present in the Project area.

The derived tree height layer was interrogated to estimate the abundance and distribution of large trees (>20 m) within Eucalyptus dominated communities, which may provide suitable nesting habitat for the greater glider. Where the canopy was closed with all vegetation greater than 20 m, the entire area was considered potentially suitable for the greater glider. The results were collated as a heat-map which was then used to stratify the survey design of the dry season surveys planned for mid-June 2021 to cover as much of the potential habitat as possible. Similarly, large trees (> 20 m) within 100 m of permanent water were identified as potential red goshawk nesting trees and will be the focus of additional red goshawk nest surveys planned for November 2021.

In addition, the DEM was processed using a 'roughness' algorithm, to highlight areas where the ground surface is highly dissected such as on rocky outcrops. These areas were identified as potentially supporting caves and rock fissures suitable for bat roosting habitat, and incorporated into the dry season survey design for bats.

Following the desktop assessments, field surveys and LiDAR analysis, habitat constraints mapping was prepared for those MNES known or considered likely to occur within the Project area. Best available information relating to a species' habitat requirements such as distance to permanent water or altitude limits, from sources such as SPRAT profiles, Recovery Plans, Conservation Advice statements and stakeholder engagement (e.g. with researchers and members of relevant Working Groups), was used alongside vegetation community mapping to conservatively model potential habitats. The resulting threatened species habitat mapping formed the basis for the subsequent quantification of direct impacts to these species.

4.5 Assessment of Potential Impacts

Impact assessments have been undertaken in accordance with the Matters of National Environmental Significance – Significant Impact Guidelines 1.1 *Environment Protection and Biodiversity Conservation Act 1999* (DoE 2013).

The methods provided within the guidelines are intended to determine the level of significant impacts on MNES due to the proposed action. This is achieved through 'significant impact criteria' which are defined for identified values and vary according to the conservation status of each value.

Project-related impacts are discussed in broad terms in **Section 9.0**, with full significant impact assessments for each relevant MNES results using the Significant Impact Guidelines (DoE 2013) provided in **Section 11.0**.

5.0 Desktop Assessment Results

5.1 World Heritage Sites and National Heritage Properties

The Wet Tropics of Queensland World Heritage Area (WTWHA) stretches along the northeast coast of Australia for approximately 450 km and encompasses 894,420 ha of mostly tropical rainforest. The region is considered to represent the most intact record of the ecological and evolutionary processes that shaped the flora and fauna of Australia, containing the relicts of the great Gondwanan forest that covered Australia and part of Antarctica 50 to 100 million years ago. All of Australia's unique marsupials and many other Australian animals originated in rainforest ecosystems, and their closest surviving relatives occur in the Wet Tropics (IUCN 1988).

The Wet Tropics of Queensland was inscribed as a natural World Heritage Area in 1988. **Table 5.1** lists the relevant criteria and outstanding universal values for which the property was inscribed. At the time of its inscription the property was identified as being an essentially intact ecosystem with low levels of human impact, especially when compared to other tropical forest regions (UNESCO 2021). There has been a comprehensive management scheme in place for the property since 1990, jointly funded and coordinated by the Australian and Queensland Governments.

Table 5.1 Criteria and Outstanding Universal Value of the Wet Tropics of Queensland World Heritage Area

Criterion	Outstanding Universal Value of the Wet Tropics WHA (UNESCO 2021)
(vii) to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance	The Wet Tropics exhibit exceptional natural beauty, with superlative scenic features highlighted by extensive sweeping forest vistas, wild rivers, waterfalls, rugged gorges and coastal scenery. This is particularly apparent between the Daintree River and Cedar Bay, where exceptional coastal scenery combines tropical rainforest and white sandy beaches with fringing offshore coral reefs. The winding channels of the Hinchinbrook Channel contain the most extensive mangroves in the region, providing a rich visual mosaic of rainforest and mangroves, and a terrestrial continuum with the Great Barrier Reef.
(viii) to be outstanding examples representing major stages of earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features	The Wet Tropics contains one of the most complete and diverse living records of the major stages in the evolution of land plants, from the very first pteridophytes more than 200 million years ago to the evolution of seed-producing plants including the cone-bearing cycads and southern conifers (gymnosperms), followed by the flowering plants (angiosperms). As the Wet Tropics in the largest part of the entire Australasian region where rainforests have persisted continuously since Gondwanan times, its living flora, with the highest concentration of primitive, archaic and relict taxa known, is the closest modern-day counterpart for Gondwanan forests. In addition, all of Australia's unique marsupials and most of its other animals originated in rainforest ecosystems, and the Wet Tropics still contains many of the closest surviving members. This makes it one of the most important living records of the history of marsupials as well as of songbirds.
(ix) to be outstanding examples representing significant ongoing ecological and biological processes in	The Wet Tropics provides outstanding examples of significant ongoing ecological processes and biological evolution. As a centre of endemism for the region (second only to New Caledonia in the number of endemic

Criterion	Outstanding Universal Value of the Wet Tropics WHA (UNESCO 2021)
the evolution and development of terrestrial, freshwater, coastal and marine ecosystems and communities of plants and animals	genera per unit area), the Wet Tropics provides fundamental insights into evolutionary patterns both in isolation from and in interaction with other rainforests. Its tall, open forests on the drier western margins of the rainforest are also significant as part of an evolutionary continuum of rainforest and sclerophyll forests. Eucalypts, that now dominate the Australian landscape, are considered to have evolved from such rainforest stock and radiated into drier environments from the margins of closed forests. The area supports an exceptionally high level of diversity of both flora and fauna, with over 3,000 vascular plant species in 224 families, of which 576 species and 44 genera are endemic, including two endemic plant families. Vertebrate diversity and endemism are also very high, with 107 mammal species including 11 endemic species and two monotypic endemic genera. In terms of avifauna, there are 368 bird species, of which 11 species are endemic. For reptiles, there are 113 species of which 24 species are endemic, including three monotypic endemic genera. The diversity of amphibians includes 51 species of which 22 are endemic.
(x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation	The Wet Tropics holds a largely intact flora and fauna with hundreds of endemic species restricted to the property, of which many are classified as threatened. The majority of plant species have restricted distributions, and many monotypic plant genera and several species of marsupials, frogs and reptiles have very restricted distributions either as isolated or disjunct populations, reflecting the refugial nature of the rainforests found in several locations. The diversity of the plant communities and animal habitats of the Wet Tropics is recognised as being the most floristically and structurally diverse in Australia and is also outstanding on a global scale. Among the many emblematic species occurring in the property is the flightless Australian cassowary, one of the largest birds in the world. In an Australian context, the Wet Tropics covers less than 0.2% of Australia, but contains 30% of the marsupial species, 60% of bat species, 25% of rodent species, 40% of bird species, 30% of frog species, 20% of reptile species, 60% of butterfly species, 65% of fern species, 21% of cycad species, 37% of conifer species, 30% of orchid species and 18% of Australia's vascular plant species. It is therefore of great scientific interest and of fundamental importance to conservation. Although the Wet Tropics is predominantly wet tropical rainforest, it is fringed and, in a few places, dissected by sclerophyll forests, woodlands, swamps and mangrove forests, adding to its diversity.

In 2007, the Wet Tropics of Queensland was added to the National Heritage List alongside other World Heritage Areas (WTMA 2021). Australia's national heritage comprises exceptional natural and cultural places which help give Australia its national identity. Such places are a living and accessible record of the nation's evolving landscape and experiences.

In 2012, the Wet Tropics World Heritage Area's Indigenous heritage values were included as part of the national heritage listing of the property, acknowledging that rainforest Aboriginal heritage is unique to the Wet Tropics that represents a remarkable and continuous Indigenous connection with a tropical rainforest environment (WTMA 2021). The Wet Tropics is unique in the course of Australia's cultural history, providing at least 5,000 years of evidence of occupation as the only area in Australia where Aboriginal people lived permanently in the rainforest, adapting to seasonal abundance and lean times with plants providing much of their food. Traditions linked to the volcanic events at Lake Eacham occurring between 10,000 and 20,000 years ago also suggest Aboriginal occupation of the area occurred as far back as during these events (Horsfall and Hall 1990).

The current National Heritage Listing for the Wet Tropics corresponds to the following criteria:

- Criterion a) the place's importance in the course, or pattern, of Australia's natural or cultural history
- Criterion b) the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history;
- Criterion c) the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history;
- Criterion d) the place's importance in demonstrating the principal characteristics of;
  - i) a class of Australia's natural or cultural places; or
  - ii) a class of Australia's natural or cultural environments; and
- Criterion e) the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.

The Project area is located adjacent to the Wet Tropics as defined by GIS layers provided by the Wet Tropic Management Authority (August 2020). The nearest proposed Project infrastructure is approximately 1 km from the edge of the WTWHA boundary including turbines and access tracks, with much of this buffered by an existing high voltage powerline easement. Whilst there will be no direct impacts to the WTWHA, the proximity of the site and the mobility of many of its unique fauna suggest that there is the potential for indirect impacts on some of the features of outstanding universal value. Understanding the importance of the WTWHA, the Proponent has been active in engaging with the Wet Tropics Management Authority to date to ensure positive outcomes and will continue to do so throughout the life of the Project.

5.2 Protected Area Estate

The Project area does not overlap with any Protected Areas but there are multiple properties in close proximity to the Project area as illustrated in **Figure 5-1**:

- The eastern boundary of the Project area is entirely bordered by national parks and reserves for a total distance of 37.9 km:
  - Tully Falls National Park is part of the WTWHA and one of wettest areas of Queensland. It comprises endangered wet sclerophyll forest, upland rainforest, clear mountain streams and waterfalls. The property supports iconic fauna species such as Lumholtz's tree-kangaroo and the endangered southern cassowary.
  - Koombooloomba National Park is also part of the WTWHA. The western part of the property is in the rain shadow of the Cardwell Range and supports endangered wet sclerophyll forest. In the Wet Tropics this vegetation community is restricted to a narrow, broken strip, 400 km long, bordering the western edge of the

rainforest. As well as Lumholtz's tree-kangaroo, this property is known to support the endangered yellow-bellied glider.

  - Koombooloomba South Forest Reserve is part of the WTWHA and was converted from a timber reserve in 1967. It encompasses a continuous cross-section of wet tropical forest types from high altitude rainforest to open woodlands over a very steep rainfall gradient. This adds to the variety of habitat types and range of flora and fauna species present.

- The northern boundary of the Project area is bordered by Ravenshoe Forest Reserve 1.
- The Bluff State Forest, Ravenshoe State Forest 3 and Millstream Falls National Park are within 9 km of the Project's northern boundary whilst the south-eastern boundary abuts a Queensland special wildlife reserve[2], Yourka Station, which is managed by Bush Heritage Australia.

[2] A special wildlife reserve is a voluntary, binding and perpetual class of protected area on privately-owned land

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Protected Area Estate

Figure 5.1

- Project Area
- Wind Turbine
- Project Footprint
- World Heritage Area Boundary
- Protected Areas Estate
- Major Road
- River
- Creek
- Lot Type Parcel
- Easement

Date: 2021-06-15
Author: TOD
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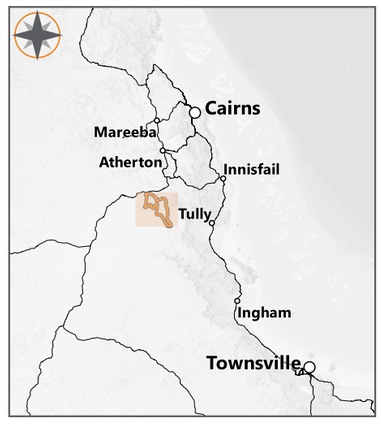

0 1 2 3 4 5 km

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Data Source(s):
Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2021)
Queensland Imagery Whole Of State
Satellite Public Basemap Service

5.3 Wetlands of International Importance

Wetlands of International Importance are those listed under the Ramsar Convention. The nearest Ramsar wetland to the Project area is Bowling Green Bay, located approximately 250 km southeast. The Project will not impact the values of this wetland directly or indirectly.

5.4 Great Barrier Reef Marine Park and Commonwealth Marine Area

The Great Barrier Reef Marine Park is located approximately 60 km east of the Project area. The nearest Commonwealth Marine Area, the Coral Sea Marine Park, is beyond the Great Barrier Reef Marine Park. The Project will not impact these sites directly or indirectly; the catchment that contains the Project area drains from east to west.

5.5 Threatened Ecological Communities and Regional Ecosystems

The desktop assessment identified two TECs as being likely to occur within the study area (comprising the Project area plus a 10 km buffer), as described in **Table 5.2**.

Table 5.2 Threatened Ecological Communities Potentially Occurring within the Study Area

TEC	EPBC Act Status	PMST Likelihood	Broad RE Associations[3]
Broad-leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland	Endangered	Likely to occur	RE 7.3.8a *Melaleuca viridiflora* open forest to open woodland, on poorly drained alluvial plains RE 7.3.8b *Melaleuca viridiflora* open forest to open woodland with eucalypt emergent or sparse eucalypt overstorey RE 7.3.8c *Melaleuca viridiflora* and *Lophostemon suaveolens* open forest to woodland on poorly drained alluvial plains RE 7.3.8d *Melaleuca viridiflora, Lophostemon suaveolens* and *Allocasuarina littoralis* open shrubland on poorly drained alluvial plains RE 7.5.4g *Melaleuca viridiflora* woodland on laterite RE 8.3.2 *Melaleuca viridiflora* woodland on seasonally inundated alluvial plains with impeded drainage RE 8.5.2a *Melaleuca viridiflora +/- Allocasuarina littoralis* woodland on Tertiary sand plains RE 8.5.2c *Melaleuca viridiflora* and *M. nervosa* woodland on Tertiary sand plains

[3] State vegetation units may correspond broadly to but not fully encompass the national ecological community. They provide a guide to the potential presence of a TEC but only field surveys can confidently confirm the presence or absence of a TEC based on the relevant key diagnostic characteristics and condition thresholds of that community.

TEC	EPBC Act Status	PMST Likelihood	Broad RE Associations[3]
			RE 8.5.6 *Melaleuca viridiflora +/- Allocasuarina littoralis* woodland on Tertiary sand plains (TSSC 2012)
Mabi forest (complex notophyll vine forest 5b)	Critically Endangered	Likely to occur	RE 7.8.3 Complex semi-evergreen notophyll vine forest of uplands on basalt RE 7.3.37 Complex semi-evergreen notophyll vine forest of uplands on alluvium (SPRAT 2021)

Table 5.3 lists the REs that have been mapped as occurring within the Project Area based on government-certified mapping (DoR, 2021), their status and potential association with a TEC where relevant.

Table 5.3 Regional Ecosystems Mapped within the Project Area

Regional Ecosystem	Status (VM Act)	Status (BD Status)	Potentially Associated TEC
7.3.8a *Melaleuca viridiflora* open forest to open woodland, on poorly drained alluvial plains	Least concern	Endangered	Broad-leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland.
7.3.19a *Corymbia intermedia, Eucalyptus tereticornis, E. drepanophylla, Allocasuarina torulosa, A. littoralis, Lophostemon suaveolens* woodland with *Acacia cincinnata, A. flavescens, Banksia aquilonia* and *Xanthorrhoea johnsonii*. Well-drained alluvium	Of concern	Of concern	n/a
7.3.19g *Eucalyptus tereticornis, E. drepanophylla, E. portuensis, Corymbia intermedia, C. tessellaris* woodland and open forest with *Allocasuarina torulosa* and *Angophora floribunda*. Uplands and highlands on alluvium, of the dry rainfall zone	Of concern	Of concern	n/a
7.3.26a *Casuarina cunninghamiana, Eucalyptus tereticornis, Lophostemon suaveolens, Melaleuca leucadendra, M. fluviatilis, Buckinghamia celsissima, Mallotus philippensis* woodland and forest with an understorey of *Melaleuca viminalis* and *Bursaria tenuifolia*. Fringing forests of larger streams. Riverine wetland or fringing riverine wetland	Of concern	Endangered	n/a
7.3.43a *Eucalyptus tereticornis* open forest, tall open forest and woodland including communities ranging from those dominated by *E. tereticornis* to mixtures of that species with *Corymbia intermedia, E. drepanophylla, Lophostemon*	Of concern	Endangered	n/a

Regional Ecosystem	Status (VM Act)	Status (BD Status)	Potentially Associated TEC
suaveolens and *Allocasuarina torulosa*. Uplands on alluvium. Contains palustrine wetland			
7.3.45b *Corymbia clarksoniana* woodland to open forest. May include small areas of *Acacia leptostachya* shrubland. Alluvial plains	Least concern	Of concern	n/a
7.3.48a *Eucalyptus portuensis, E. drepanophylla, Corymbia intermedia, C. citriodora, Lophostemon suaveolens* woodland and open forest with *Melaleuca viridiflora, Acacia flavescens,* and *Allocasuarina littoralis*. Areas of alluvium on uplands and highlands of the dry rainfall zone	Of concern	Endangered	n/a
7.8.4a Complex notophyll vine forests. Highlands on very limited areas, of the cloudy wet rainfall zone	Least concern	Endangered	n/a
7.8.7a *Eucalyptus tereticornis* open forest, tall open forest and woodland. May also include *Corymbia intermedia, E. drepanophylla, Lophostemon suaveolens* and *Allocasuarina torulosa*. Uplands and highlands on basaltic krasnozem and prairie soils, of the moist rainfall zone	Of concern	Endangered	n/a
7.8.10a *Eucalyptus tereticornis, E. drepanophylla, E. portuensis, Corymbia intermedia, C. tessellaris* woodland to open forest with *Allocasuarina torulosa*. Uplands and highlands on basaltic euchrozem-krasnozem, of the dry rainfall zone.	Of concern	Of concern	n/a
7.8.10b E*ucalyptus moluccana* woodland to open forest. Uplands and highlands on basalt, of the dry rainfall zone	Of concern	Of concern	n/a
7.8.15a *Eucalyptus grandis* open forest to woodland. Basalt	Of concern	Endangered	n/a
7.8.16a *Eucalyptus resinifera, Corymbia intermedia, E. cloeziana, Syncarpia glomulifera* open forest and woodland with *Allocasuarina torulosa*. Uplands and highlands on basalt, of the moist rainfall zone	Of concern	Endangered	n/a
7.8.16c *Lophostemon confertus* closed forest. Uplands and highlands on basalt, of the moist rainfall zone	Of concern	Endangered	n/a
7.8.19 *Corymbia clarksoniana* open forest to woodland on basalt	Endangered	Endangered	n/a
7.12.7a Complex notophyll vine forests (with emergent *Agathis robusta*). Foothills and uplands on granite and rhyolite north of the Herbert River. Moist rainfall zone	Least concern	No concern at present	n/a
7.12.16a Simple notophyll vine forest on wet and moist uplands, granite and rhyolite. Uplands of the cloudy wet to moist rainfall zones. Granite and rhyolite	Least concern	No concern at present	n/a

Regional Ecosystem	Status (VM Act)	Status (BD Status)	Potentially Associated TEC
7.12.21a *Eucalyptus grandis* tall open forest and woodland. Granites and rhyolites	Least concern	Endangered	n/a
7.12.21b *Eucalyptus grandis* tall open forest and woodland with a well-developed vine forest understorey. Granites and rhyolites	Least concern	Endangered	n/a
7.12.22a *Eucalyptus resinifera, Eucalyptus acmenoides, Corymbia intermedia, Eucalyptus cloeziana, Syncarpia glomulifera* tall open forest to tall woodland with *Allocasuarina torulosa* and *Callitris macleayana*. Uplands and highlands of the moist rainfall zone	Least concern	Endangered	n/a
7.12.22d *Syncarpia glomulifera, Eucalyptus resinifera, and Corymbia intermedia* open forest to tall open forest, often with *Callitris macleayana* and *Allocasuarina torulosa*. Uplands of the wet rainfall zone	Least concern	Endangered	n/a
7.12.26a *Syncarpia glomulifera, Allocasuarina torulosa* and/or *A. littoralis* open forest and woodland. Uplands and highlands, often on steep slopes, of the wet rainfall zone. Granite and rhyolite	Least concern	No concern at present	n/a
7.12.27a *Eucalyptus reducta* medium open forest and woodland. Uplands and highlands on shallow granitic and rhyolitic soils, of the moist rainfall zone	Least concern	No concern at present	n/a
7.12.27c *Eucalyptus resinifera* and *Syncarpia glomulifera* open woodland. Uplands and highlands on shallow granitic and rhyolitic soils, of the moist rainfall zone	Least concern	No concern at present	n/a
7.12.29a *Corymbia intermedia, Eucalyptus tereticornis, E. drepanophylla* open forest to low open forest and woodland with *Allocasuarina torulosa, A. littoralis, Lophostemon suaveolens, Acacia cincinnata, A. flavescens, Banksia aquilonia* and *Xanthorrhoea johnsonii*. Uplands, on granite and rhyolite	Least concern	No concern at present	n/a
7.12.30a *Corymbia citriodora, Eucalyptus portuensis, C. intermedia, Syncarpia glomulifera* woodland to low woodland to open forest with *Callitris intratropica, Acacia calyculata* and *Xanthorrhoea johnsonii*. Uplands and highlands, of the moist and dry rainfall zones	Least concern	No concern at present	n/a
7.12.30c *Eucalyptus portuensis, Corymbia citriodora, Syncarpia glomulifera* woodland and shrubland with a shrubby understorey of *Lophostemon confertus* and *S. glomulifera*, and a ground stratum of *Xanthorrhoea johnsonii*. Rocky slopes on rhyolite and granite	Least concern	No concern at present	n/a

Regional Ecosystem	Status (VM Act)	Status (BD Status)	Potentially Associated TEC
7.12.34 *Eucalyptus portuensis* and/or *E. drepanophylla* +/- *C. intermedia* +/- *C. citriodora*, +/- *E. granitica* open woodland to open forest on uplands on granite	Least concern	No concern at present	n/a
7.12.37i Bare rock pavements associated with *Allocasuarina* spp. (sheoaks) shrublands and/or sedgelands on seepage areas of wet lowlands, uplands and highlands of the eastern escarpment and central range (excluding high granite areas of Hinchinbrook Island and Bishops Peak). Rock pavements and outcrops. Granite and rhyolite	Of concern	Of concern	n/a
7.12.52 *Eucalyptus resinifera, Corymbia intermedia, Allocasuarina littoralis, Syncarpia glomulifera, E. drepanophylla* +/- *E. reducta* woodland on granite and rhyolite in the dry to moist rainfall zone	Of concern	Of concern	n/a
7.12.53a *Corymbia clarksoniana* woodland to open forest. Lowlands, foothills and uplands on granite and rhyolite, of the dry to moist rainfall zone.	Least concern	No concern at present	n/a
7.12.57a Shrubland and low woodland mosaic with *Syncarpia glomulifera, Corymbia abergiana, Eucalyptus portuensis, Allocasuarina littoralis* and *Xanthorrhoea johnsonii*. Uplands and highlands on granite and rhyolite, of the moist and dry rainfall zones	Of concern	Of concern	n/a
7.12.58 *Eucalyptus reducta* +/- *E. granitica* +/- *Corymbia dimorpha* +/- *C. citriodora* woodland to open forest on granite and rhyolite	Of concern	Of concern	n/a
7.12.60a *Melaleuca viridiflora* woodland. Granite and rhyolite. Floodplain (other than floodplain wetlands)	Of concern	Endangered	n/a
7.12.61a E*ucalyptus tereticornis* open forest to tall open forest and woodland. Includes communities ranging from those dominated by *E. tereticornis* to mixtures of that species with *Corymbia intermedia, E. drepanophylla, Lophostemon suaveolens* and *Allocasuarina torulosa*. Foothills and uplands on granite and rhyolite, of the moist and dry rainfall zones	Least concern	Of concern	n/a
7.12.65a Rock pavement communities of the dry rainfall zone with *Acacia leptostachya, Eucalyptus lockyeri* subsp. *exuta*, *Lophostemon confertus, L. suaveolens, Persoonia falcata, Ficus rubiginosa* and *Allocasuarina inophloia*	Least concern	Of concern	n/a
7.12.65e Complex of open to closed shrublands, low to medium woodlands and forests and grasslands of mountain granite and rhyolite rock pavements. Main component: scrub (*Allocasuarina littoralis, Syncarpia glomulifera, Lophostemon*	Least concern	Of concern	n/a

Regional Ecosystem	Status (VM Act)	Status (BD Status)	Potentially Associated TEC
confertus), shrubland (*Banksia aquilonia, Leptospermum* sp.) and heath (*Xanthorrhoea johnsonii, Gahnia* spp., *Dicranopteris linearis*). Granite and rhyolite rock pavements			
7.12.65k Granite and rhyolite rock outcrop, of dry western areas, associated with shrublands to closed forests of *Acacia* spp. and/or *Lophostemon* spp. and/or *Allocasuarina* spp. In the Mount Emerald area, shrubs may include *Acacia umbellata, Melaleuca borealis, Homoranthus porteri, Leptospermum neglectum, Melaleuca recurva, Melaleuca uxorum, Grevillea glossadenia, Corymbia abergiana, Eucalyptus lockyeri, Sannantha angusta, Pseudanthus ligulatus* subsp. *ligulatus, Acacia aulacocarpa, Leptospermum amboinense, Xanthorrhoea johnsonii* and *Jacksonia thesioides*. Ground-cover species may include *Borya septentrionalis, Lepidosperma laterale, Eriachne* spp., *Cleistochloa subjuncea, Boronia occidentalis, Cheilanthes* spp., *Coronidium newcastlianum, Schizachyrium* spp., *Tripogon loliiformis, Gonocarpus acanthocarpus* and *Eragrostis* spp. Dry western areas. Granite and rhyolite	Least concern	Of concern	n/a
7.12.66b *Lophostemon confertus* shrubland. Exposed rocky slopes on granite and rhyolite	Of concern	Of concern	n/a
7.12.66c *Lophostemon confertus* low closed forest to closed forest. Exposed rocky slopes on granite and rhyolite	Of concern	Of concern	n/a
7.12.66e Bare rock of exposed rocky slopes on granite and rhyolite, associated with *Lophostemon confertus* shrublands and closed forests. Exposed rocky slopes on granite and rhyolite	Of concern	Of concern	n/a
9.3.4 Permanent or seasonal wetlands frequently fringed by narrow bands of trees and shrubs including *Eucalyptus* spp. on alluvial plains	Of concern	Of concern	n/a
9.3.15 *Eucalyptus tereticornis* +/- *Casuarina cunninghamiana* +/- *Melaleuca* spp. fringing woodland on channels and levees	Least concern	Of concern	n/a
9.3.16 *Eucalyptus tereticornis* and/or *E. platyphylla* and/or *Corymbia clarksoniana* woodland on alluvial flats, levees and plains	Least concern	Of concern	n/a
9.5.5a Mixed woodland to open forest of *Eucalyptus crebra*, *Corymbia clarksoniana* and *C. citriodora* subsp. *citriodora* +/- *E. portuensis* with a generally open sub-canopy of canopy species +/- *Callitris intratropica* and *Acacia* spp. The open shrub layer often contains juvenile canopy species,	Least concern	Of concern	n/a

Regional Ecosystem	Status (VM Act)	Status (BD Status)	Potentially Associated TEC
Petalostigma pubescens, *Acacia flavescens* and other *Acacia* spp. *Themeda triandra* is the dominant species in a dense grassy ground layer. Occurs on Tertiary plateaus and remnants			
9.5.5b Woodland of *Eucalyptus crebra* or *E. granitica* +/- *Corymbia clarksoniana* +/- *C. dallachiana* +/- *C. erythrophloia* with a usually open sub-canopy and shrub layer including juvenile canopy species, *Grevillea glauca, G. parallel, Acacia flavescens, Petalostigma pubescens, Melaleuca viridiflora* and *Denhamia cunninghamii*. The grassy ground layer is dominated by *Themeda triandra*. Occurs on Tertiary plateaus and remnants	Least concern	Of concern	n/a
9.5.5c Woodland to open woodland of *Eucalyptus moluccana* or *E. tereticornis* +/- *Lophostemon suaveolens* +/- *Corymbia clarksoniana*. The distinct sub-canopy usually contains canopy species +/- *Melaleuca viridiflora*. Scattered *M. viridiflora, Petalostigma pubescens* and *Acacia* spp. may be found in the shrub layer. The dense grassy ground layer is often dominated by *Themeda triandra* and *Chrysopogon fallax*. Occurs on Tertiary sandplains	Least concern	Of concern	n/a
9.5.5d Low woodland to tall shrubland of *Callitris intratropica* +/- *Melaleuca viridiflora* +/- *Petalostigma pubescens*. A number of *Eucalyptus* spp. and/or *Corymbia* spp. can occur in the dominant layer including *Eucalyptus crebra, Corymbia clarksoniana and Corymbia citriodora* subsp. *citriodora*, or occur as emergents. A dense lower canopy layer can occur and include *Callitris intratropica* and other canopy species. The lower mid-layer is generally open and usually contains canopy juvenile species +/- *Acacia* spp. The ground layer is mid-dense grassy and usually dominated by *Themeda triandra* or *Chrysopogon fallax*. This description can include *Eucalyptus* spp. and/or *Corymbia* spp. woodlands with a dense understory of *Callitris intratropica*. Occurs on Tertiary plateaus and remnants	Least concern	Of concern	n/a
9.5.6a Woodland to open woodland of *Eucalyptus leptophleba* +/- *Corymbia clarksoniana* +/- *E. platyphylla* +/- *C. tessellaris*. The mid layer is generally isolated shrubs which may include *Petalostigma pubescens, Melaleuca* spp. and *Acacia* spp., *Alphitonia pomaderroides* and *Grevillea glauca*. There is a grassy ground layer usually dominated by *Heteropogon contortus*. Occurs on yellow kandosols and mapped as YEPR (yellow earths on gently undulating plains and plateaus on Tertiary lateritic remnants) by Grundy	Least concern	No concern at present	n/a

Regional Ecosystem	Status (VM Act)	Status (BD Status)	Potentially Associated TEC
9.5.14 *Melaleuca viridiflora* and/or *M. stenostachya* low open woodland on erosional plains	Of concern	Of concern	n/a
9.5.17 *Eucalyptus exserta, Corymbia abergiana* and *Callitris intratropica* mixed low woodland on Tertiary remnants	Of concern	Of concern	n/a
9.8.2a Woodland to open woodland of *Eucalyptus leptophleba* +/- *Corymbia clarksoniana* /- *C. dallachiana* +/- *C. erythrophloia* +/- *E. cullenii* +/- *E. platyphylla*. There is often an open sub-canopy layer with canopy species. The shrub layer is absent or contains scattered canopy species, *Planchonia careya, Melaleuca* spp. and/or *Grevillea* spp. The ground layer is mid-dense and dominated by *Heteropogon* spp. and *Themeda triandra*. Occurs on basalt plains and undulating rises of the Tertiary MacLean Basalt group.	Least concern	Of concern	n/a
9.8.4 *Eucalyptus crebra* and/or *E. tereticornis* open woodland on basalt plains	Least concern	No concern at present	n/a
9.11.10 *Eucalyptus cloeziana, Corymbia citriodora* subsp. *citriodora, E. portuensis* and *E. cullenii* mixed woodland on steep dissected hills on highly metalliferous metamorphic rocks	Least concern	Of concern	n/a
9.12.2 *Eucalyptus portuensis, Corymbia citriodora subsp. citriodora, E. granitica* or *E. crebra, C. intermedia* or *C. clarksoniana* mixed woodland on steep hills and ranges on igneous hills close to Wet Tropics boundary	Least concern	No concern at present	n/a
9.12.4a Low woodland to occasionally a low open forest of *Eucalyptus shirleyi* and *Corymbia peltata* +/- *E. crebra* (sens. lat.) +/- *Corymbia* spp. +/- *Acacia leptostachya*. *E. melanophloia* can sometimes occur. *E. crebra* may also occur as an emergent. A sub-canopy containing *E. shirleyi, Alphitonia excelsa, Acacia* spp. and *Persoonia falcata* can occur. *E. shirleyi* can occur as a dense sub-canopy under *C. peltata*. The shrub layer varies from absent to mid-dense with a variable species mix including *E. shirleyi, Denhamia cunninghamii, Acacia leptostachya, Petalostigma banksii, Persoonia falcata, Alphitonia* spp. and *Acacia* spp. *Xanthorrhoea johnsonii* can also occur in a lower shrub layer. The dense grassy ground layer is dominated by *Heteropogon* spp., *Schizachyrium fragile* and *Themeda triandra*. Occurs predominantly on sandy shallow soils derived from granitic or rhyolite geologies on rolling low hills to hills	Least concern	No concern at present	n/a
9.12.30a Woodland to open forest of *Corymbia leichhardtii* and *Eucalyptus cloeziana* +/- *E. portuensis* +/- *C. citriodora* subsp. *citriodora* +/- *E. cullenii* +/- *Callitris intratropica*. Some	Least concern	No concern at present	n/a

Regional Ecosystem	Status (VM Act)	Status (BD Status)	Potentially Associated TEC
canopy species can occur as emergents. The sparse to mid-dense shrub layer is dominated by juvenile canopy species, *Persoonia falcata, Grevillea glauca* and *Allocasuarina inophloia* and a lower shrub with *Jacksonia thesioides* and *Xanthorrhoea johnsonii* can occur. The sparse to mid-dense ground layer is dominated by *Themeda triandra*. Rocky rhyolite hills to steep hills			
9.12.30b Shrubland of *Acacia leptostachya* +/- *A. umbellata* +/- *Callitris intratropica* emergents. There is no mid layer or ground layer. Occurs on shallow soils on rock pavements within 9.12.30a	Least concern	No concern at present	n/a

Four small patches of RE 7.3.8a were mapped within the southern part of the Project area based on DoR mapping (see **Figure 5-2**), potentially corresponding to the TEC broad-leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland. No other REs potentially corresponding to TECs were mapped within the Project area.

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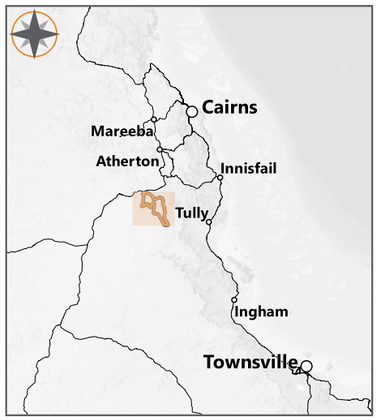
Potential Patches of TEC within the Project Area

Figure 5.2

- Project Area
- Wind Turbine
- Project Footprint
- Potential TEC (NRM)
- Major Road
- River
- Creek
- Lot Type Parcel
- Easement

Date: 2021-06-15
Author: TOD
Reviewed: CC
Project: EPU-004



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Data Source(s):
Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2021)
Queensland Imagery Whole Of State
Satellite Public Basemap Service

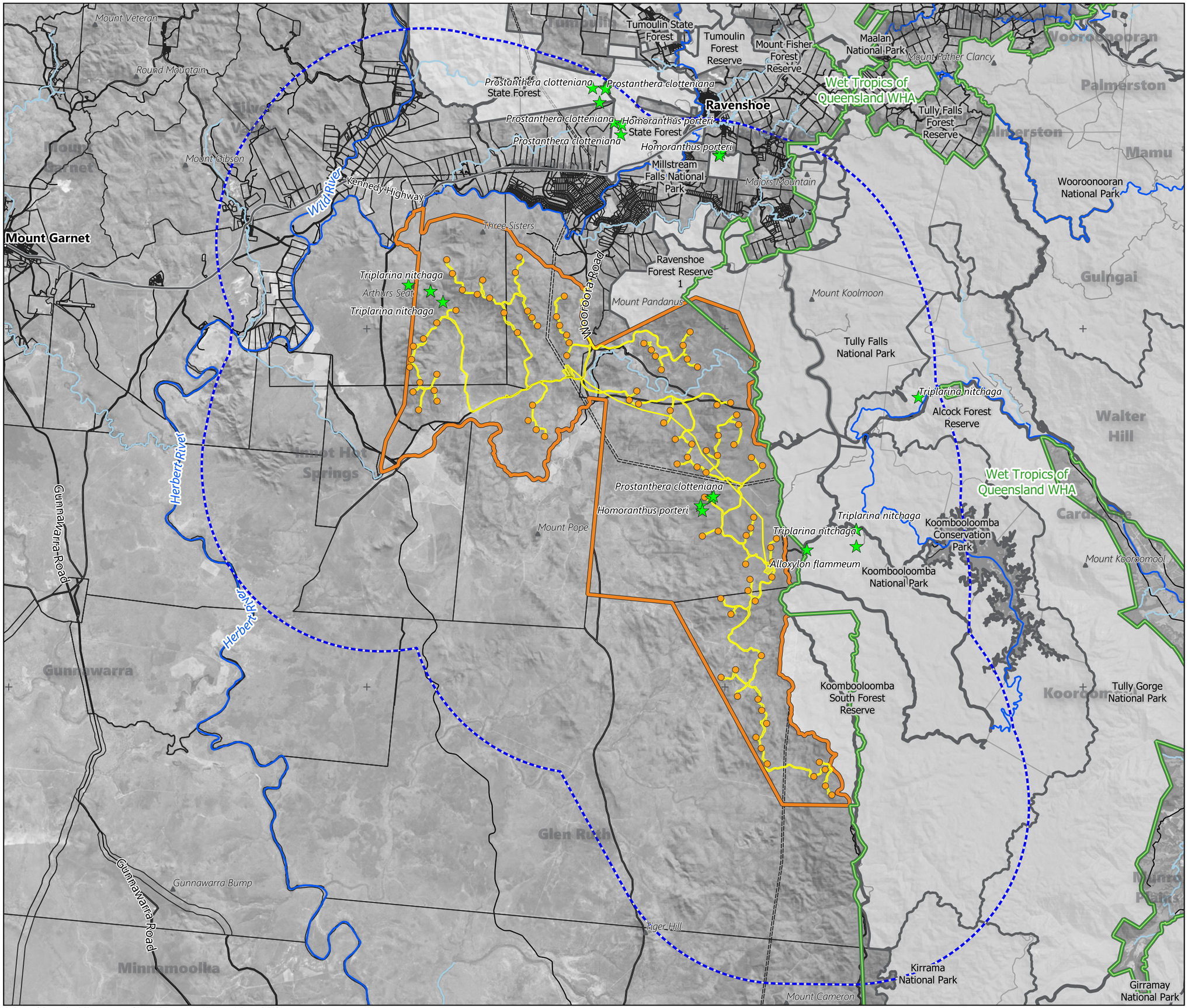
5.6 Threatened Flora Species

Table 5.4 provides a list of threatened flora species with potential to occur within the study area based on the desktop assessment. Threatened flora records within the study area are shown on **Figure 5-3**.

Table 5.4 Threatened Flora Species Potentially Occurring within the Study Area

Species Name	EPBC Act Status	NC Act Status	Species Recorded in Study Area (Wildlife Online)
Acacia purpureopetala, purple-flowered wattle	Critically endangered	Vulnerable	
Alloxylon flammeum, red silky oak	Vulnerable	Vulnerable	✓
Aponogeton bullosus	Endangered	Endangered	✓
Arthraxon hispidus, hairy-joint grass	Vulnerable	Vulnerable	
Canarium acutifolium	Vulnerable	Vulnerable	
Carronia pedicellata	Endangered	Endangered	
Chingia australis	Endangered	Endangered	
Corymbia rhodops, red-throated bloodwood	Vulnerable	Vulnerable	
Cycas platyphylla	Vulnerable	Vulnerable	
Dichanthium setosum, bluegrass	Vulnerable	Least concern	
Diplazium cordifolium	Vulnerable	Vulnerable	
Euphorbia carissoides	Vulnerable	Vulnerable	
Grevillea glossadenia	Vulnerable	Vulnerable	
Homoranthus porteri	Vulnerable	Vulnerable	✓
Lastreopsis walleri	Vulnerable	Vulnerable	✓
Macropteranthes montana	Vulnerable	Vulnerable	
Phaius australis, lesser swamp-orchid	Endangered	Endangered	
Phaius pictus	Vulnerable	Vulnerable	

Species Name	EPBC Act Status	NC Act Status	Species Recorded in Study Area (Wildlife Online)
Phlegmariurus marsupiiformis, water tassel-fern	Vulnerable	Vulnerable	
Polyphlebium endlicherianum, middle filmy fern	Endangered	Vulnerable	
Prostanthera clotteniana	Critically endangered	Endangered	✓
*Tephrosia leveillei (*poss syn. *Tephrosia flagellaris*)	Vulnerable	Least concern	
Triplarina nitchaga	Vulnerable	Vulnerable	✓
Tropilis callitrophilis (syn Dendrobium callitrophilum), thin feather orchid	Vulnerable	Vulnerable	
Vappodes lithocola (syn. Dendrobium lithocola), dwarf butterfly orchid	Endangered	Vulnerable	
Zeuxine polygonoides (syn. Rhomboda polygonoides), velvet jewel orchid	Vulnerable	Vulnerable	



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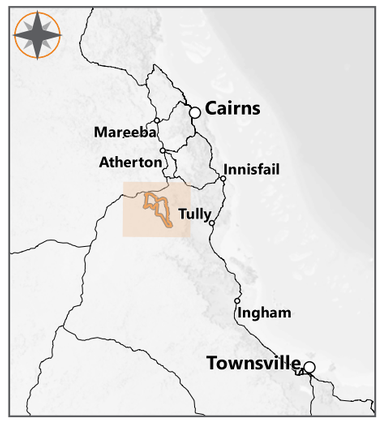
Threatened Flora Records within the Study Area

Figure 5.3

- Project Area
- Wind Turbine
- Project Footprint
- Study Area
- Threatened Flora Records (WildNET)
- World Heritage Area Boundary
- Protected Areas Estate
- Major Road
- River
- Creek
- Lot Type Parcel
- Easement

Date: 2021-06-15
Author: TOD
Reviewed: CC
Project: EPU-004



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Data Source(s):
Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2021)
Queensland Imagery Whole Of State Satellite Public Basemap Service

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5.7 Threatened Fauna Species

A list of threatened fauna species with potential to occur within the study area based on the desktop assessment is provided in **Table 5.5**. Threatened fauna records within the study area are shown on **Figure 5-4**.

Table 5.5 Threatened Fauna Species Potentially Occurring within the Study Area

Species Name	EPBC Act Status	NC Act Status	Species Recorded in Study Area (Wildlife Online)
Amphibians			
Litoria dayi, Australian lace-lid	Vulnerable	Vulnerable	✓ (record from 1974)
Litoria nyakalensis, mountain mistfrog	Critically endangered	Critically endangered	
Pseudophryne covacevichae, magnificent brood frog	Vulnerable	Vulnerable	✓
Birds			
Calidris ferruginea, curlew sandpiper	Critically endangered	Critically endangered	
Casuarius casuarius johnsonii, Southern cassowary – southern population	Endangered	Endangered	✓
Erythrotriorchis radiatus, red goshawk	Vulnerable	Endangered	✓
Falco hypoleucos, grey falcon	Vulnerable	Vulnerable	
Hirundapus caudacutus, white-throated needletail	Vulnerable	Vulnerable	
Numenius madagascariensis, Eastern curlew	Critically endangered	Endangered	
Rostratula australis, Australian painted snipe	Endangered	Endangered	
Turnix olivii, buff-breasted button-quail	Endangered	Endangered	
Tyto novaehollandiae Kimberli, masked owl	Vulnerable	Vulnerable	
Mammals			
Bettongia tropica, northern bettong	Endangered	Endangered	✓
Dasyurus hallucatus, northern quoll	Endangered	Least concern	✓
Dasyurus maculatus gracilis, spotted-tailed quoll – northern subspecies	Endangered	Endangered	✓
Hipposideros semoni, Semon's leaf-nosed bat	Vulnerable	Endangered	

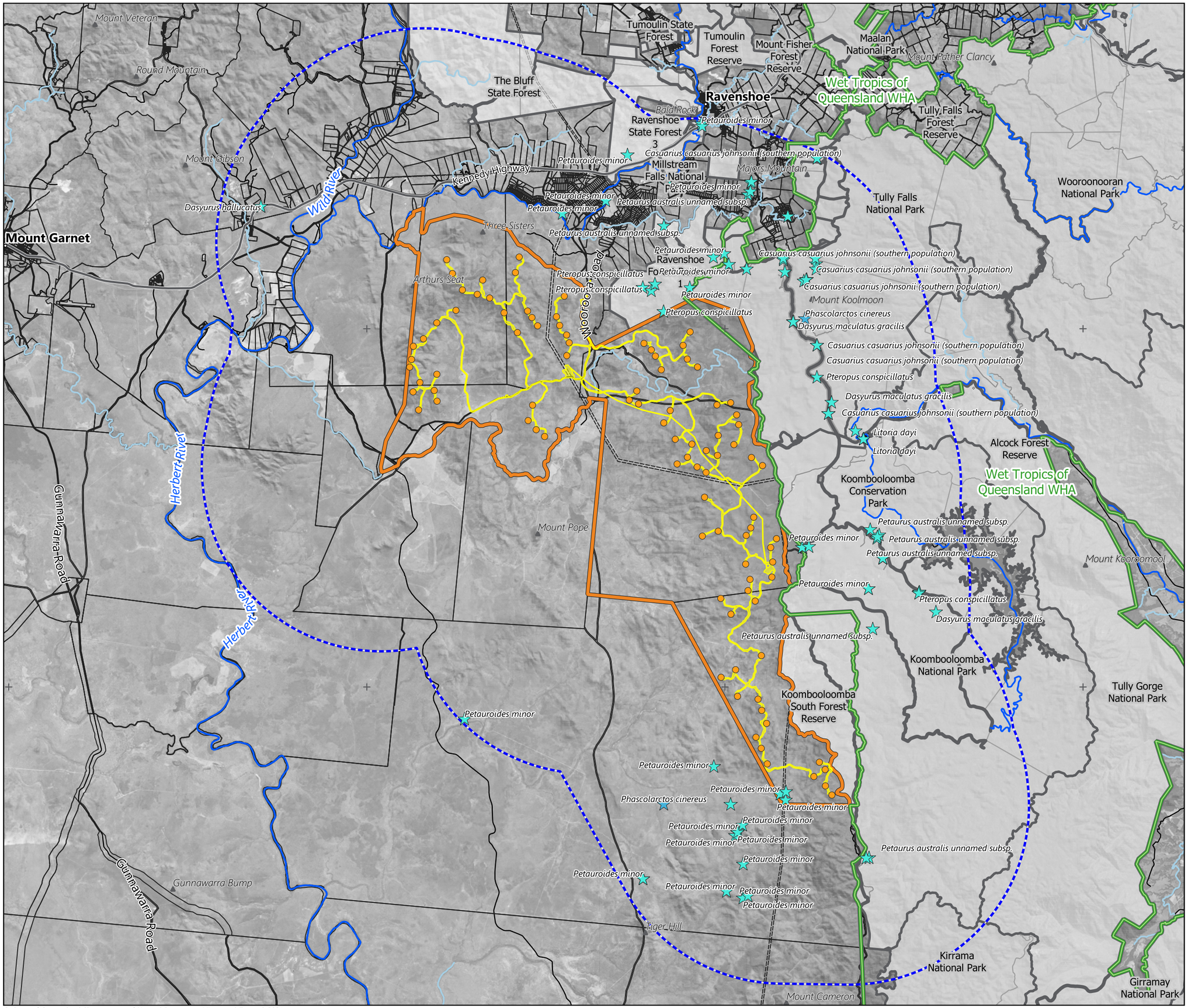
Macroderma gigas, ghost bat	Vulnerable	Endangered	
Mesembriomys gouldii rattoides, black-footed tree-rat – north Queensland	Vulnerable	Least concern	
Petauroides Volans minor, Northern greater glider	Vulnerable	Vulnerable	✓
Petaurus australis unnamed subsp., yellow-bellied glider – Wet Tropics subspecies	Endangered	Endangered	✓
Phascolarctus cinereus, koala (combined populations of Queensland, New South Walkes and the Australian Capital Territory)	Vulnerable	Vulnerable	✓
Pteropus conspicillatus, spectacled flying-fox	Endangered	Endangered	✓
Pteropus poliocephalus, grey-headed flying-fox	Vulnerable	Least concern	
Rhinolophus robertsi, large-eared horseshoe bat	Vulnerable	Endangered	
Saccolaimus saccolaimus nudicluniatus, bare-rumped sheath-tailed bat	Vulnerable	Endangered	
Reptiles			
Delma mitella, Atherton delma, legless lizard	Vulnerable	Near threatened	
Egernia rugosa, yakka skink	Vulnerable	Vulnerable	

5.7.1.1 Target Fauna Species

Based on the results of the desktop assessment and fauna reconnaissance survey, the following threatened species were identified as the primary target species for the field surveys:

- Koala (*Phascolarctus cinereus*) - diurnal searches were undertaken for animals and traces (scats and scratches), and spotlighting was undertaken along riparian areas supporting suitable food trees such as *Eucalyptus tereticornis*;
- Yellow-bellied (Wet Tropics subspecies) (*Petaurus australis* unnamed *subsp*) and northern greater glider (*Petauroides volans minor*) – habitat assessments (including assessments of hollow bearing trees) and diurnal searches for traces were undertaken, as well as spotlighting in riparian areas;
- Northern (*Dasyurus hallucatus*) and spotted-tailed quoll (northern subspecies) (*Dasyurus maculatus gracilis*), black-footed tree-rat (*Mesembriomys gouldii rattoides*) and northern bettong (*Bettongia tropica*) - camera traps were deployed in areas of suitable habitat;
- Microbats including ghost bat (*Macroderma gigas*) - Anabat recording devices were placed at dams and in suitable flyways;
- Spectacled flying-fox (*Pteropus conspicillatus*) – habitat assessments and searches for roosts in suitable habitat were undertaken;
- Southern cassowary (*Casuarius casuarius johnsonii*) – searches were undertaken for animals and traces, and camera traps deployed within or near suitable rainforest habitat;

- Red goshawk (*Erythrotriorchis radiatus*) – diurnal bird counts and searches for nests within tall riparian vegetation were undertaken;
- White-throated needletail (*Hirundapus caudacutus*) – diurnal bird counts were undertaken from ridgelines;
- Masked owl (*Tyto novaehollandiae Kimberli)* – spotlighting and call playback surveys were undertaken;
- Magnificent brood frog (*Pseudophryne covacevichae*) – nocturnal searches and call playback were undertaken along first order streams at altitudes > 800 m within eucalypt forest; and
- Rainforest creek frogs including mountain mistfrog (*Litoria nyakalensis*) and Australian lace-lid (*Litoria dayi*) – nocturnal searches were undertaken along fast-flowing watercourses with rocky substrate within rainforest patches.



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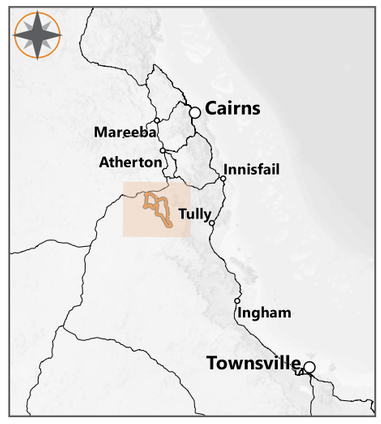
Threatened Fauna Records within the Study Area

Figure 5.4

- Project Area
- Wind Turbine
- Project Footprint
- Threatened Fauna Records (WildNET)
- Threatened Fauna Records (ALA)
- Study Area
- World Heritage Area Boundary
- Protected Areas Estate
- Major Road
- River
- Creek
- Lot Type Parcel
- Easement

Date: 2021-06-15
Author: TOD
Reviewed: CC
Project: EPU-004



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Data Source(s):
Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2021)
Queensland Imagery Whole Of State
Satellite Public Basemap Service

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5.8 Migratory Species

Table 5.6 presents a list of the migratory and marine species that potentially occur within the study area based on the desktop assessment.

Table 5.6 Migratory Species Potentially Occurring within the Study Area

Species Name	EPBC Act Status	NC Act Status	Species Recorded in Study Area (Wildlife Online)
Apus pacificus, fork-tailed swift	Marine migratory, marine	Special least concern	
Crocodylus porosus, salt-water crocodile	Marine migratory, marine	Least concern	
Cuculus optatus, Oriental cuckoo	Migratory	Least concern	
Hirundapus caudacutus, white-throated needletail	Vulnerable	Vulnerable	
Hirundo rustica, barn swallow	Migratory, marine	Least concern	
Monarcha melanopsis, black-faced monarch	Migratory, marine	Special least concern	✓
Monarcha trivirgatus, spectacled monarch	Migratory, marine	Special least concern	✓
Motacilla cinerea, grey wagtail	Migratory, marine	Least concern	
Motacilla flava, yellow wagtail	Migratory, marine	Least concern	
Myiagra cyanoleuca, satin flycatcher	Migratory, marine	Least concern	
Rhipidura rufifrons, rufous fantail	Migratory, marine	Special least concern	✓
Actitis hypoleucos, common sandpiper	Migratory, marine	Least concern	
Calidris acuminata, sharp-tailed sandpiper	Migratory, marine	Least concern	
Calidris ferruginea, curlew sandpiper	Critically endangered	Critically endangered	
Calidris melanotos, pectoral sandpiper	Migratory, marine	Least concern	
Gallinago hardwickii, Latham's snipe	Wetlands migratory, marine	Least concern	
Numenius madagascariensis, eastern curlew	Critically endangered	Endangered	

Species Name	EPBC Act Status	NC Act Status	Species Recorded in Study Area (Wildlife Online)
Pandion haliaetus, osprey	Migratory, marine	Least concern	
Tringa nebularia, common greenshank	Migratory, marine	Least concern	

5.9 Pest Flora and Fauna

Database searches of the study area (including the PMST) found records of 54 introduced flora and 19 introduced fauna species (see Table 5.7). Many of these are listed as Restricted Matters under the Queensland *Biosecurity Act 2014* (13 flora species and 7 fauna species), and 10 of the weed species are listed as Weeds of National Significance (WoNS).

Under the *Biosecurity Act 2014*, a person who has control over a Restricted Matter must not do the following:

- Category 3 – a person who has, or has a thing infested with, the Restricted Matter in the person's possession or under the person's control must not distribute or dispose of the restricted matter unless the distribution or disposal is carried out via the methods set out in the *Biosecurity Act 2014*;
- Category 4 – move the Restricted Matter, or cause or allow it to be moved;
- Category 5 – keep in the person's possession or under the person's control; and
- Category 6 – give food to the Restricted Matter.

Table 5.7 Pest Flora and Fauna Species with Potential to Occur within the Study Area

Species Name	Biosecurity Act Category	WoNS	PMST Record	Wildlife Online Record
Flora				
Acacia nilotica subsp. Indica, prickly acacia		Yes	May occur	
Aeschynomene villosa				Recorded in the Project area
Ageratum conyzoides, billygoat weed				Recorded in the Project area
Annona glabra, pond apple	3	Yes	Likely to occur	
Axonopus compressus				Recorded in the Project area
Axonopus fissifolius				Recorded in the Project area

Species Name	Biosecurity Act Category	WoNS	PMST Record	Wildlife Online Record
Bidens pilosa				Recorded in the Project area
Cabomba caroliniana, fanwort	3	Yes	Likely to occur	
Cenchrus ciliaris, buffel-grass			May occur	
Cestrum elegans				Recorded in the Project area
Chamaecrista rotundifolia var. rotundifolia				Recorded in the Project area
Chromolaena odorata, Siam weed	3			Recorded in the Project area
Cirsium vulgare, spear thistle				Recorded in the Project area
Crassocephalum crepidiodes, thickhead				Recorded in the Project area
Cryptostegia grandiflora, rubber vine	3	Yes	Likely to occur	
Cyperus profiler, dwarf papyrus				Recorded in the Project area
Dichrocephala integrifolia				Recorded in the Project area
Dolichandra unguis-cati, cat's claw creeper	3	Yes		Recorded in the Project area
Eragrostis Mexicana, Mexican lovegrass				Recorded in the Project area
Erechtites valerianifolius forma valerianfolius				Recorded in the Project area
Erigeron bonariensis				Recorded in the Project area
Erigeron pussilus				Recorded in the Project area
Euphorbia hirta				Recorded in the Project area
Hymenachne amplexicaulis, olive hymenachne	3	Yes	Likely to occur	

Species Name	Biosecurity Act Category	WoNS	PMST Record	Wildlife Online Record
Hyparrhenia rufa subsp. altissima				Recorded in the Project area
Hypoestes phyllostachya				Recorded in the Project area
Impatiens walleriana, balsam				Recorded in the Project area
Lantana camara, lantana	3	Yes	Likely to occur	Recorded in the Project area
Leucas zeylanica				Recorded in the Project area
Mecardonia procumbens				Recorded in the Project area
Parthenium hysterophorus, parthenium weed	3	Yes	Likely to occur	
Paspalum paniculatum, Russell River grass				Recorded in the Project area
Paspalum urvillei, vasey grass				Recorded in the Project area
Plantago major, greater plantain				Recorded in the Project area
Praxelis clematidea				Recorded in the Project area
Pyllanthus tenellus				Recorded in the Project area
Phyllostachys bambusoides				Recorded in the Project area
Richardia brasiliensis, white eye				Recorded in the Project area
Salvinia molesta, salvinia	3	Yes	Likely to occur	
Scoparia dulcis, scoparia				Recorded in the Project area
Senecio madagascariensis, fireweed*	3	Yes	Likely to occur	

Species Name	Biosecurity Act Category	WoNS	PMST Record	Wildlife Online Record
Senna septemtrionalis				Recorded in the Project area
Setaria pulia subsp. subtesselata				Recorded in the Project area
Sida rhombifolia				Recorded in the Project area
Solanum americanum				Recorded in the Project area
Solanum lasiocarpum				Recorded in the Project area
Solanum mauritianum, wild tobacco				Recorded in the Project area
Sporobolus fertilis, giant Parramatta grass	3			Recorded in the Project area
Sporobolus pyramidalis	3			Recorded in the Project area
Stachytarpheta jamaicensis, Jamaica snakeweed				Recorded in the Project area
Stevia ovata	3			Recorded in the Project area
Urena lobata, urena weed				Recorded in the Project area
Urochloa decumbrens				Recorded in the Project area
Verbena incompta				Recorded in the Project area
Fauna				
Acridotheres tristis, common myna			Likely to occur	
Anas platyrhynchos, mallard			Likely to occur	
Bos taurus, domestic cattle			Likely to occur	
Canis lupus dingo, dingo	3, 4, 5, 6			Recorded in the Project area

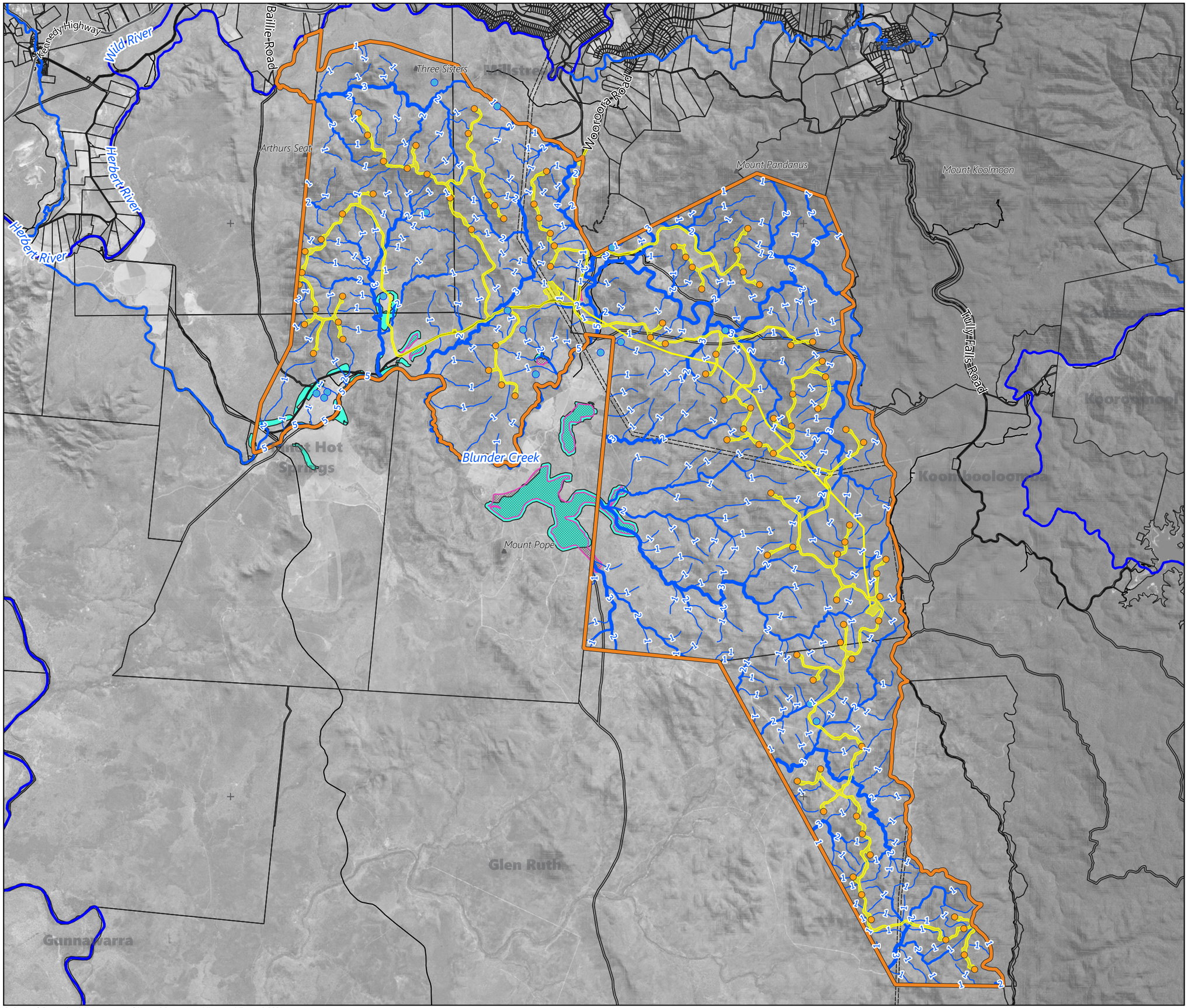
Species Name	Biosecurity Act Category	WoNS	PMST Record	Wildlife Online Record
Canis lupus familiaris, domestic dog	3, 4, 6		Likely to occur	Recorded in the Project area
Columba livia, rock pigeon			Likely to occur	
Felis catus, domestic cat	3, 4, 6		Likely to occur	Recorded in the Project area
Feral deer	3, 4, 6		Likely to occur	
Hemidactylus frenatus, Asian house gecko			Likely to occur	
Lonchura punctulate, nutmeg mannikin			Likely to occur	
Mus musculus, house mouse			Likely to occur	Recorded in the Project area
Oryctolagus cuniculus, rabbit	3, 4, 5, 6		Likely to occur	Recorded in the Project area
Passer domesticus, house sparrow			Likely to occur	
Rattus rattus, black rat			Likely to occur	Recorded in the Project area
Rhinella marina, cane toad			Known to occur	Recorded in the Project area
Streptopelia chinensis, spotted turtle-dove			Likely to occur	
Sturnus vulgaris, common starling			Likely to occur	
Sus scrofa, pig	3, 4, 6		Likely to occur	Recorded in the Project area
Vulpes vulpes, red fox	3, 4, 5, 6		Likely to occur	

5.10 Watercourses and Wetlands

Watercourses within the Project area consist primarily of small ephemeral drainage lines (stream orders 1 and 2) on slopes which typically gain size with decreasing elevation. These watercourses eventually drain into Blunder Creek which then joins the Herbert River approximately 9 km downstream. Stream orders are mapped on **Figure 5-5**.

There are a number of small man-made farm dams across both properties, with evidence of frequent use by cattle (low to no vegetation cover, high turbidity).

There are no nationally important wetlands within the Project area, however there are a number Great Barrier Reef Wetland Protection Areas (Qld) as illustrated in **Figure 5-5**. Two of these are intersected by existing tracks (including the gazetted Wooroora Road) which will be used as access by the Project.



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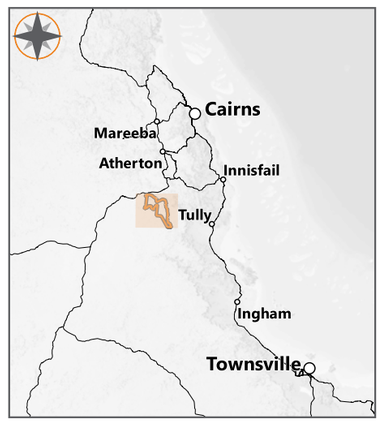
Watercourses and wetlands

Figure 5.5

- Project Area
- Wind Turbine
- Project Footprint
- Dam
- River
- Creek
- GBR Wetland
- Wetland (Regulated vegetation)
- Major Road
- Lot Type Parcel
- Easement

Date: 2021-06-15
Author: TOD
Reviewed: CC
Project: EPU-004



0 1 2 3 4 5 km

1:125000 @ A3

Data Source(s):
Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2021)
Queensland Imagery Whole Of State
Satellite Public Basemap Service

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5.11 Connectivity and Context

A State significant biodiversity corridor is mapped in a north-south direction through the centre of the Project area, with a second north-south corridor following the eastern boundary of the Project area where it abuts the Wet Tropics World Heritage Area (**Figure 5-6**). The eastern corridor encompasses several protected areas estates including Tully Falls National Park, Koombooloomba National Park and Koombooloomba South Forest Reserve.

In conjunction with large tracts of remnant vegetation, both types of corridors are important in maintaining continuity and facilitating ecological processes at the landscape scale.

The Project area is almost entirely comprised of remnant vegetation that is a part of a larger intact area of remnant vegetation and is recognized as containing local, regional and state biodiversity significance. Given the site context and position within the landscape, north-south and east-west connectivity is maintained throughout the Project area and with adjacent habitat.

Large tracts of remnant vegetation will remain within the Project area, maintaining connectivity between the Project area and adjacent remnant vegetation.

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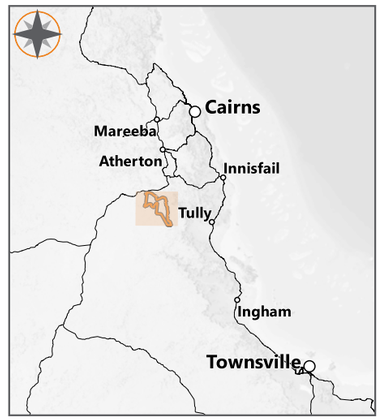
Chalumbin Wind Farm
Biodiversity Corridors

Figure 5.6

- Project Area
- Wind Turbine
- Project Footprint

State Corridor Buffers
- Riparian
- Riparian/Terrestrial
- Terrestrial
- Major Road
- River
- Creek
- Lot Type Parcel
- Easement

Date: 2021-06-15
Author: TOD
Reviewed: CC
Project: EPU-004



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Data Source(s):
Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2021)
Queensland Imagery Whole Of State
Satellite Public Basemap Service

6.0 Field Survey Results

6.1 Flora Survey Results

6.1.1 Vegetation Communities

The Project area is primarily comprised of remnant vegetation, with approximately 3.7% categorised as non-remnant. Ground-truthed vegetation within the Project area largely comprises mixed woodlands dominated by white mahogany (*Eucalyptus portuensis*) and spotted gum (*Corymbia citriodora* subsp. *citriodora*) (27.6%), white mahogany with co-dominant turpentine tree (*Syncarpia glomulifera*) (16.58%), red mahogany (*Eucalyptus resinifera*) (10.63%) and Queensland stringybark (*Eucalyptus reducta*) (9.53%) woodland communities, primarily on igneous hills, or granite or rhyolitic soils. Creeks and other alluvial areas typically consist of forest red gum (*Eucalyptus tereticornis*) communities with long-fruited bloodwood (*Corymbia clarksoniana*) and poplar gum (*Eucalyptus platyphylla*).

In total, 22 REs were ground-truthed within the Project footprint, as summarised in **Table 6.1** and mapped in **Figure 6-1**. No REs associated with TECs are intersected by the Project footprint, however there are two small patches of ground-truthed RE 7.8.3a (potentially corresponding to the Broad-leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland TEC) within the Project area as illustrated on **Figure 6-1**. These have been avoided by the Project footprint.

Table 6.1 Ground-truthed REs within the Project Footprint and Project Area

Regional Ecosystem	Clearing Area within Project Footprint (ha)	Area within Project Area (ha)	Clearing Area as % of Project Area
7.3.16 *Eucalyptus platyphylla* woodland to open forest on alluvial plains. Gently sloping to flat, moderately to poorly drained alluvial lowlands, foot slopes and piedmont fans	3.46	18.72	18.48
7.3.26 *Casuarina cunninghamiana* woodland to open forest on alluvium fringing streams	3.89	395.72	0.98
7.3.43 *Eucalyptus tereticornis* open forest to woodland on uplands on well-drained alluvium	4.50	284.77	1.58
7.8.10 *Eucalyptus tereticornis, E. drepanophylla* (or *E. granitica*), *E. portuensis, Corymbia intermedia* woodland to open forest, or *E. moluccana* woodland to open forest, of uplands and highlands on basalt	0.19	20.35	0.94
7.8.19 *Corymbia clarksoniana* open forest to woodland on basalt	0.47	11.71	4.03
7.12.27a *Eucalyptus reducta* medium open forest and woodland. Uplands and highlands on shallow granitic and rhyolitic soils, of the moist rainfall zone	190.72	2,933.54	6.50
7.12.27c *Eucalyptus resinifera* and *Syncarpia glomulifera* open woodland. Uplands and highlands on shallow granitic and rhyolitic soils, of the moist rainfall zone	76.12	1,833.92	4.15

Regional Ecosystem	Clearing Area within Project Footprint (ha)	Area within Project Area (ha)	Clearing Area as % of Project Area
7.12.29a *Corymbia intermedia, Eucalyptus tereticornis, E. drepanophylla* open forest to low open forest and woodland with *Allocasuarina torulosa, A. littoralis, Lophostemon suaveolens, Acacia cincinnata, A. flavescens, Banksia aquilonia* and *Xanthorrhoea johnsonii*. Uplands, on granite and rhyolite	14.77	299.37	4.93
7.12.30a *Corymbia citriodora, Eucalyptus portuensis, C. intermedia, Syncarpia glomulifera* woodland to low woodland to open forest with *Callitris intratropica, Acacia calyculata* and *Xanthorrhoea johnsonii*. Uplands and highlands, of the moist and dry rainfall zones	65.72	1,222.39	5.38
7.12.34 *Eucalyptus portuensis* and/or *E. drepanophylla* +/- *C. intermedia* +/- *C. citriodora*, +/- *E. granitica* open woodland to open forest on uplands on granite	191.00	5,101.70	3.74
7.12.52 *Eucalyptus resinifera, Corymbia intermedia, Allocasuarina littoralis, Syncarpia glomulifera, E. drepanophylla* +/- *E. reducta* woodland on granite and rhyolite in the dry to moist rainfall zone	170.38	3,271.69	5.21
7.12.57 Shrubland and low woodland mosaic with S*yncarpia glomulifera, Corymbia abergiana, Eucalyptus portuensis, Allocasuarina littoralis* and *Xanthorrhoea johnsonii* on uplands and highlands on granite	9.29	177.52	5.23
7.12.57a Shrubland and low woodland mosaic with *Syncarpia glomulifera, Corymbia abergiana, Eucalyptus portuensis, Allocasuarina littoralis* and *Xanthorrhoea johnsonii*. Uplands and highlands on granite and rhyolite, of the moist and dry rainfall zones	28.92	359.89	8.04
7.12.65 Rock pavement or areas of skeletal soil on granite and rhyolite of dry western or southern areas +/- shrublands to closed forests of *Acacia* spp. and/or *Lophostemon suaveolens* and/or *Allocasuarina littoralis* and/or *Eucalyptus lockyeri* subsp. *Exuta*	29.77	247.27	12.04
7.12.65k Granite and rhyolite rock outcrop, of dry western areas, associated with shrublands to closed forests of *Acacia* spp. and/or *Lophostemon* spp. and/or *Allocasuarina* spp. In the Mount Emerald area, shrubs may include *Acacia umbellata, Melaleuca borealis, Homoranthus porteri, Leptospermum neglectum, Melaleuca recurva, Melaleuca uxorum, Grevillea glossadenia, Corymbia abergiana, Eucalyptus lockyeri, Sannantha angusta, Pseudanthus ligulatus* subsp. *ligulatus, Acacia aulacocarpa, Leptospermum amboinense, Xanthorrhoea johnsonii* and *Jacksonia thesioides*. Ground-cover species may include	5.82	1,294.63	0.45

Regional Ecosystem	Clearing Area within Project Footprint (ha)	Area within Project Area (ha)	Clearing Area as % of Project Area
Borya septentrionalis, Lepidosperma laterale, Eriachne spp., *Cleistochloa subjuncea, Boronia occidentalis, Cheilanthes* spp., *Coronidium newcastlianum, Schizachyrium* spp., *Tripogon loliiformis, Gonocarpus acanthocarpus* and *Eragrostis* spp. Dry western areas. Granite and rhyolite			
7.12.66 *Lophostemon confertus* low shrubland or low closed forest on exposed rocky slopes on granite and rhyolite	25.82	236.41	10.92
9.3.15 *Eucalyptus tereticornis +/- Casuarina cunninghamiana +/- Melaleuca* spp. fringing woodland on channels and levees	1.03	629.92	0.16
9.3.16 *Eucalyptus tereticornis* and/or *E. platyphylla* and/or *Corymbia clarksoniana* woodland on alluvial flats, levees and plains	14.64	708.37	2.07
9.5.5a Mixed woodland to open forest of *Eucalyptus crebra*, *Corymbia clarksoniana* and *C. citriodora* subsp. *citriodora +/- E. portuensis* with a generally open sub-canopy of canopy species *+/- Callitris intratropica* and *Acacia* spp. The open shrub layer often contains juvenile canopy species, *Petalostigma pubescens*, *Acacia flavescens* and other *Acacia* spp. *Themeda triandra* is the dominant species in a dense grassy ground layer. Occurs on Tertiary plateaus and remnants	12.96	1,996.97	0.65
9.8.4 *Eucalyptus crebra* and/or *E. tereticornis* open woodland on basalt plains	5.37	633.58	0.85
9.12.2 *Eucalyptus portuensis, Corymbia citriodora subsp. citriodora, E. granitica* or *E. crebra, C. intermedia* or *C. clarksoniana* mixed woodland on steep hills and ranges on igneous hills close to Wet Tropics boundary	333.55	8,493.61	3.93
9.12.4 *Eucalyptus shirleyi* and/or *E. melanophloia* and/or *Corymbia peltata* and/or *Callitris intratropica* low open woodland on igneous rocks	0.99	18.00	5.51
Non-remnant	60.88	1,168.07	5.21
Total	**1,250.26**	**31,936.35**[4]	**3.91**

[4] Includes those REs not within the Project footprint

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Chalumbin Wind Farm

Ground Truthed Regional Ecosystems

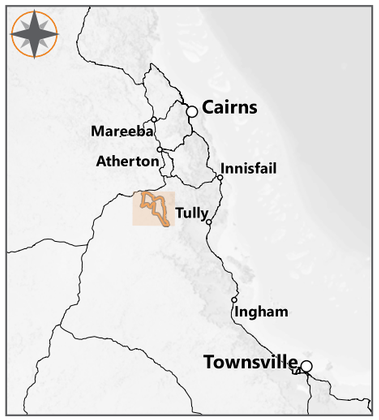
Figure 6.1

- Project Area
- Wind Turbine
- Project Footprint
- Potential Broad-leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland TEC

Gound-truthed Regional Ecosystems

- Endangered
- Of Concern
- Least Concern
- Major Road
- River
- Creek
- Lot Type Parcel
- Easement

Date: 2021-06-22
Author: TOD
Reviewed: CC
Project: EPU-004



0 1 2 3 4 5 km

1:125000 @ A3

Data Source(s):
Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2021)
Queensland Imagery Whole Of State
Satellite Public Basemap Service

6.1.2 Threatened Flora Species

Surveys confirmed the presence of three EPBC Act-listed threatened flora species within the Project area, as described below. The locations of these threatened flora observations are mapped in **Figure 6-2**.

6.1.2.1 Prostanthera clotteniana

Nine records of *Prostanthera clotteniana* (Critically Endangered) were noted across the Project area, all within the vegetation community RE 7.12.65 (rock pavement or areas of skeletal soil on granite and rhyolite of dry western or southern areas +/- shrublands to closed forests of *Acacia* spp. and/or *Lophostemon suaveolens* and/or *Allocasuarina littoralis* and/or *Eucalyptus lockyeri* subsp. *Exuta*):

- Eight sites within an area of approximately 130 ha on the Wooroora property, to the south of the existing powerline. These observations were within an altitude range of 780 – 790 m asl;
- One site was to the north of the existing powerline on the Wooroora property, at an altitude of 790 m.

Plate 6-1 ***Prostanthera clotteniana***

6.1.2.2 Triplarina nitchaga

Eight records of *Triplarina nitchaga* (Vulnerable) were noted within the Project area, all within the vegetation community RE 7.12.65 (rock pavement or areas of skeletal soil on granite and rhyolite of dry western or southern areas +/- shrublands to closed forests of *Acacia* spp. and/or *Lophostemon suaveolens* and/or *Allocasuarina littoralis* and/or *Eucalyptus lockyeri* subsp. *Exuta*) in the northwest of the Glen Gordon property, in the area known as Arthur's Seat. Arthur's Seat is one of two previously documented populations of the species (DEWHA 2008a). The species was recorded within an altitude range of 840 – 875 m asl.

Plate 6-2 *Triplarina nitchaga*

6.1.2.3 Homoranthus porteri

Homoranthus porteri (Vulnerable) was recorded 30 times during the various vegetation surveys across the Project area, all within the vegetation community RE 7.12.65 (rock pavement or areas of skeletal soil on granite and rhyolite of dry western or southern areas +/- shrublands to closed forests of *Acacia* spp. and/or *Lophostemon suaveolens* and/or *Allocasuarina littoralis* and/or *Eucalyptus lockyeri* subsp. *Exuta*) in the following locations:

- In the northwest of the Glen Gordon property, in the vicinity and to the east of Arthur's Seat, within an altitude range of 830 – 860 m asl (corresponding to the same broad area where *Triplarina nitchaga* was also observed, see above);
- On an adjacent ridgeline to the east of the above site, at an altitude of approximately 920 m asl. Extensive protected plants surveys were conducted along the ridgelines in this part of the Project area, with individuals occurring in discrete pockets on the rocky pavements;
- An area to the south of the existing powerline in the Wooroora property, corresponding to the area where *Prostanthera clotteniana* was also observed (see above); and

- One site to the north of powerline easement in Wooroora, also corresponding to a *Prostanthera clotteniana* observation.

Plate 6-3 ***Homoranthus porteri***