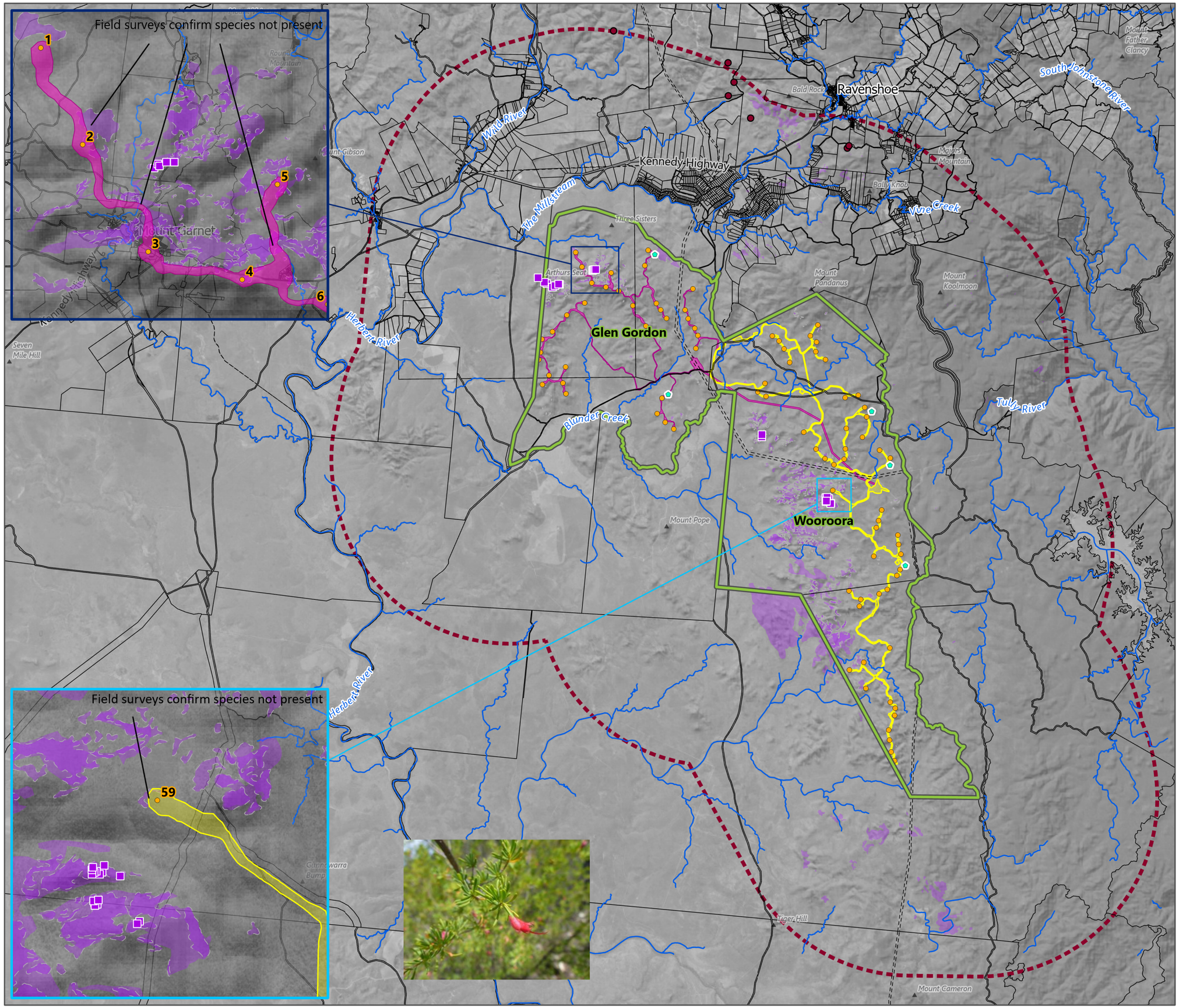


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## Chalumbin Wind Farm

Observations and Habitat for *Homoranthus porteri*

**Figure 4.14**

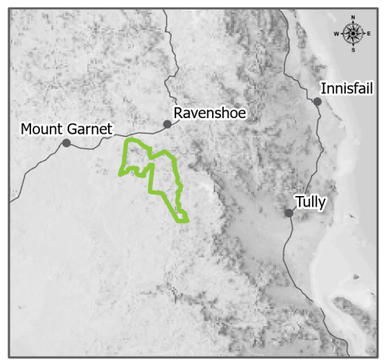
- Project Area Boundary
- Study Area
- Turbine
- Met-mast

Clearance Envelope

- Stage 1
- Stage 2
- Survey Observation
- Threatened Fauna Record (ALA/WildNet)
- Potential Habitat
- Rock Pavement
- Watercourse
- Lot Boundary
- Easement

Date: 12/10/2022 Author: TOD

Project: EPU-004 Reviewed: NOD

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Scale: 1:200,000@A3

Data Source(s):
Digital Cadastral Database - Department of Resources (2022); Regional Ecosystem Mapping, WildNet - Department of Environment and Science (2022); Atlas of Living Australia (2020) Earthstar Geographics, © State of Queensland (Department of Resources) 2022, Maxar

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### 4.4.3 Prostanthera clotteniana

#### 4.4.3.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

*Prostanthera clotteniana* is listed as Critically Endangered under the EPBC Act and Endangered under the NC Act. It has not been assessed for global threat status on the IUCN Red List.

The population size of *Prostanthera clotteniana* is not known. It was thought to be extinct prior to its rediscovery in 1999. Known locations and habitats straddle the Wet Tropics and Einasleigh Uplands bioregions, in the Herberton-Dindon-Ravenshoe-Atherton area (DoE 2015b). Four small subpopulations are known, one of which is within State Forest 511 (formerly Timber Reserve 245), west of Ravenshoe, from a few rocky hilltops (SPRAT 2021).

The species' extent of occurrence has been calculated as approximately 13 $km^2$, taking into consideration the fragmented distribution. The area of occupancy has been calculated to be less than 2 $km^2$, therefore its geographic distribution is very restricted (DoE 2015b). As such, every population of the species is considered important (DoE 2015b).

This species occurs in very rocky areas, with shallow acidic soil, on cliff faces, rocky outcrops and stony hills amongst stunted *Eucalyptus* woodland, at 700-800 m asl (SPRAT 2021). All known sites are on the rhyolites of the Glen Gordon and Walsh Bluff volcanics in the upper Walsh and Herbert River catchments. It is confined to rocky rhyolite areas in drier woodlands on steep, rocky hills west of the Wet Tropics rainforests and tall wet forests.

Recruitment and establishment are very slow (4-10 years) due to the species being an obligate seed generator and being severely impacted by frequent fires within known localities (DoE 2015b); moderate intensity fires will kill mature plants outright. The species is vulnerable to localised extinction if fire regimes fall outside their range of tolerance in terms of the time to maturity (3-5 years), adult longevity (4-10 years) and seed-bank persistence (if fires are too frequent, sufficient seed banks do not have time to establish). The region in which the species occurs has been subject to very frequent wildfires in recent years (DoE 2015b).

#### 4.4.3.2 Known Threats

Current known threats to *Prostanthera clotteniana* include inappropriate fire regimes, habitat loss caused by mining, illegal collection and weed invasion (DoE 2015b). There are infestations of weeds throughout the Project area, including but not limited to lantana (*Lantana camara*) and Siam weed (*Chromolaena odorata*). As the Project area is remote and comprises working agricultural enterprises (with locked gates in some areas) that are not easily accessible to the public, collection is unlikely to be occurring currently.

No Threat Abatement Plans have been identified as relevant for this species. There is no adopted or made Recovery Plan for this species (SPRAT 2021).

#### 4.4.3.3 Survey Effort

Surveys to identify the presence of and potential habitat for *Prostanthera clotteniana* within the Project area were undertaken in September-October 2020, March 2021 and June 2021, as described in **Section 4.2.2.2**. Initial surveys focused on identifying potential habitat for the species across the entire Project area, followed by more detailed surveys in accordance with the Flora Survey Guidelines – Protected Plants (DES, 2020) within and in proximity to areas where the Project footprint intersects potential habitat.

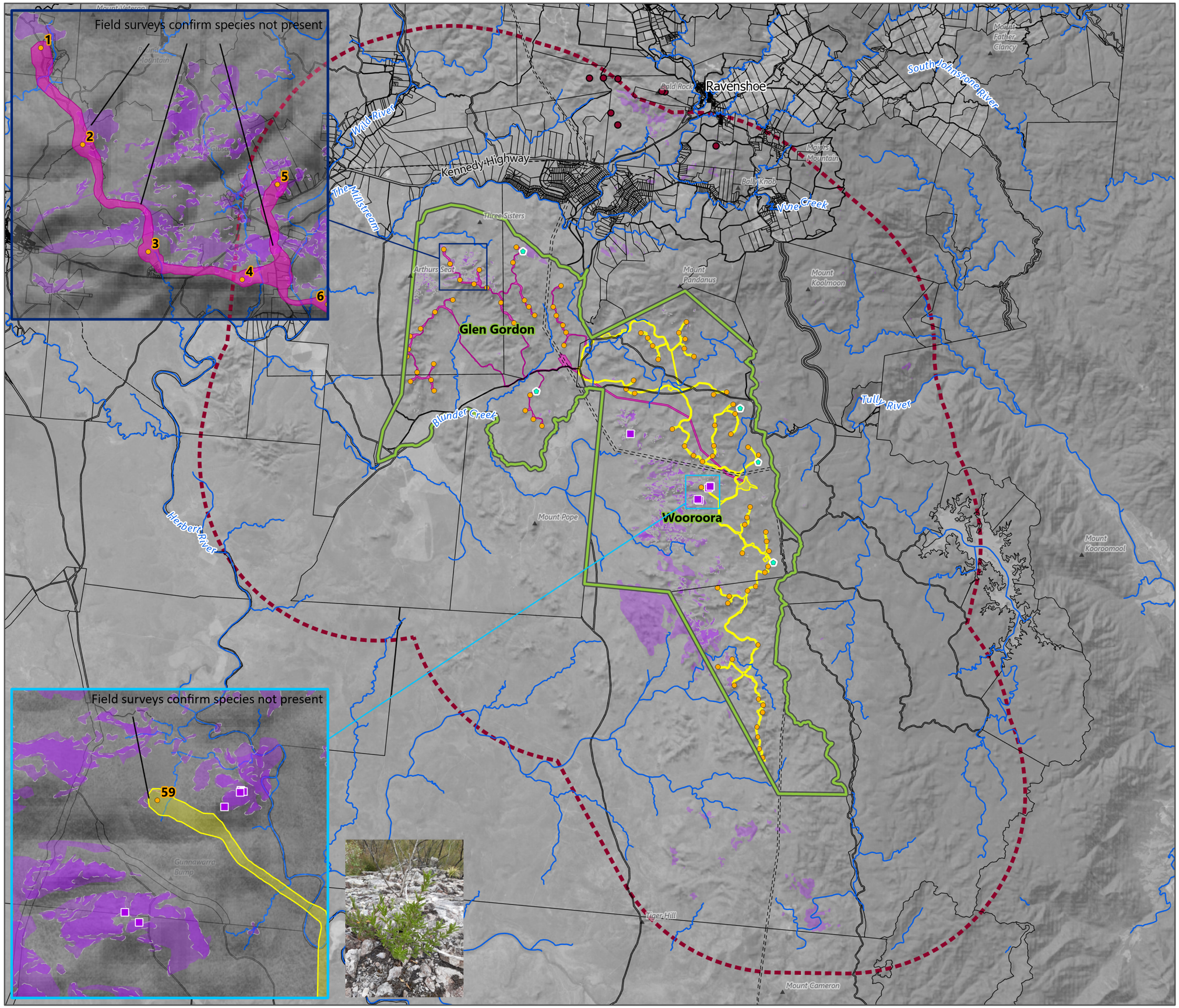
#### 4.4.3.4 Project Area Habitat Assessment

*Prostanthera clotteniana* was listed in the PMST (**Appendix B**) as known to occur within the Project area (see **Figure 4-15**).

*Prostanthera clotteniana* was recorded in nine locations 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*):

- Eight sites were 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.

Habitat was mapped as rocky pavement shrubland complex on granite and rhyolite outcrops which broadly (but not exclusively) correlates to REs 7.12.57 (BVG 9d) and 7.12.65k (BVG 29b). This habitat was initially identified and mapped across the site using stereoscopic interpretation of high-quality satellite imagery; the habitat mapping was subsequently refined on completion of the vegetation field surveys (described in **Section 4.2.2.2**).

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## Chalumbin Wind Farm

Observations and Habitat for *Prostanthera clotteniana*

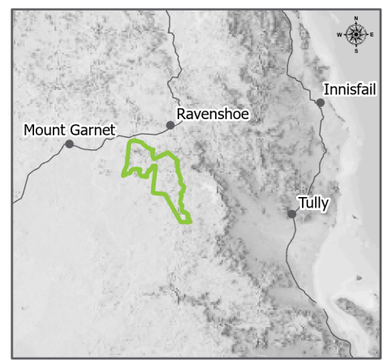
**Figure 4.15**

- Project Area Boundary
- Study Area
- Turbine
- Met-mast

Clearance Envelope

- Stage 1
- Stage 2
- Survey Observation
- Threatened Fauna Record (ALA/WildNet)
- Potential Habitat
- Rock Pavement
- Watercourse
- Lot Boundary
- Easement

Date: 12/10/2022 Author: TOD
Project: EPU-004 Reviewed: NOD

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Scale: 1:200,000@A3

Data Source(s):
Digital Cadastral Database - Department of Resources (2022); Regional Ecosystem Mapping, WildNet - Department of Environment and Science (2022); Atlas of Living Australia (2020) Earthstar Geographics, © State of Queensland (Department of Resources) 2022, Maxar

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### 4.4.4 Triplarina nitchaga

#### 4.4.4.1 Threat Status, Distribution, Ecology and Habitat Preferences

*Triplarina nitchaga* is listed as Vulnerable under the EPBC Act and NC Act. It has not been assessed for global threat status on the IUCN Red List.

Only two small populations of *Triplarina nitchaga* are known, both of which are near Ravenshoe, north Queensland. One population is at Nitchaga Creek amongst granite outcrops near a stream, in open forest dominated by *Syncarpia glomulifera, Eucalyptus resinifera*, and *Leptospermum brachyandrum*. The other population is at Arthurs Seat, where it grows on rhyolite hillside and dry gully, in open forest dominated by *Corymbia citriodora, Eucalyptus acmenoides, E. abergiana, Homoranthus 137orter* and *Labichea nitida* (Bean 1995). Its distribution is not known to overlap with any EPBC listed TECs (DEWHA 2008a).

The total population size of *Triplarina nitchaga* is not known, but as it is only known from a couple of isolated sites, every population is considered important (DEWHA 2008a).

#### 4.4.4.2 Known Threats

The main potential threats to the species are inappropriate fire regimes and localized extinction due to small population size (DEWHA 2008a).

No Threat Abatement Plans have been identified as relevant for this species. There is no adopted or made Recovery Plan for this species (SPRAT 2021).

#### 4.4.4.3 Survey Effort

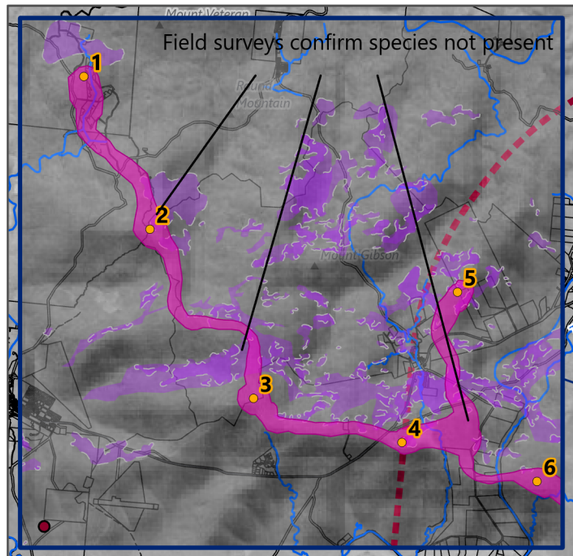
Surveys to identify the presence of and potential habitat for *Triplarina nitchaga* within the Project area were undertaken in September 2020, March 2021 and June 2021, as described in **Section 4.2.2.2**.

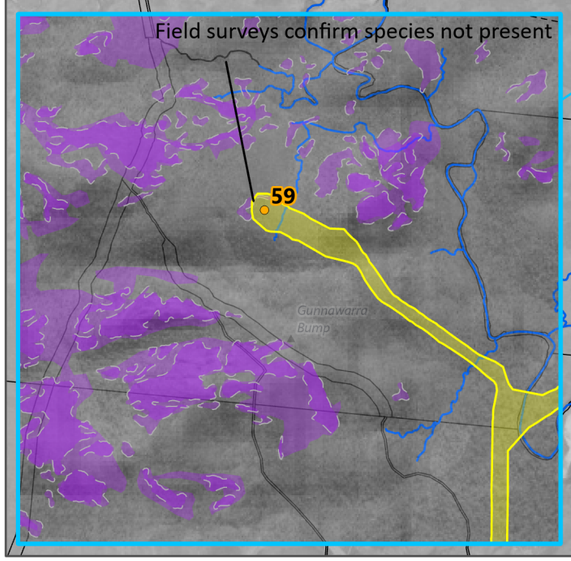
#### 4.4.4.4 Project Area Habitat Assessment

*Triplarina nitchaga* was listed in the PMST (**Appendix B**) as known to occur within the Project area and it has previously been recorded within the Project area (see **Figure 4-16**).

*Triplarina nitchaga* was recorded in one distinct location within the Project area, at Arthur's Seat, which is a known population (**Figure 4-16**). This population is 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*. The species was recorded within an altitude range of 840 – 875 m asl.

Habitat was mapped as rocky pavement shrubland complex on granite and rhyolite outcrops which broadly (but not exclusively) correlates to REs 7.12.57 (BVG 9d) and 7.12.65k (BVG 29b). This habitat was initially identified and mapped across the site using stereoscopic interpretation of high-quality satellite imagery; the habitat mapping was subsequently refined on completion of the vegetation field surveys (described in **Section 4.2.2.2**).




Ravenshoe
Kennedy Highway
Wild River
Tine Millstream
Three Sisters
Arthurs Seat
Glen Gordon
Blunder Creek
Herbert River
Wooroora
Mount Pope
Tiger Hill
Mount Cameron
Mount Pandanus
Mount Koolmoon
Mount Kooroomool
Bald Rock
Bald Knob
Majors Mountain
Vine Creek
South Johnstone River
Tully River
Mount Father Clancy
Mount Veteran
Mount Gibson
Gunnawarra Bump

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**Chalumbin Wind Farm**

Observations and Habitat for
*Triplarina nitchaga*

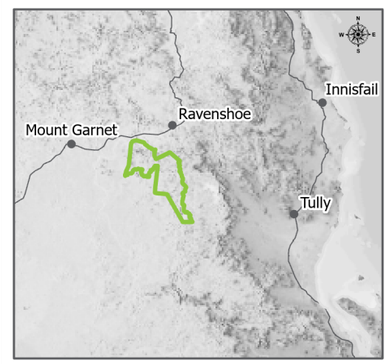
**Figure 4.16**

- Project Area Boundary
- Study Area
- Turbine
- Met-mast

Clearance Envelope
- Stage 1
- Stage 2

- Survey Observation
- Threatened Fauna Record (ALA/WildNet)
- Potential Habitat
- Rock Pavement
- Watercourse
- Lot Boundary
- Easement

Date: 12/10/2022 Author: TOD
Project: EPU-004 Reviewed: NOD

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Scale: 1:200,000@A3

Data Source(s):
Digital Cadastral Database - Department of Resources (2022); Regional Ecosystem Mapping, WildNet - Department of Environment and Science (2022); Atlas of Living Australia (2020) Earthstar Geographics, © State of Queensland (Department of Resources) 2022, Maxar

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## 4.5 Listed Threatened Amphibian Species

### 4.5.1 Australian Lace-lid

#### 4.5.1.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

The Australian lace-lid (*Litoria dayi*) is listed as Vulnerable under the EPBC Act and NC Act. It is listed globally as Endangered on the IUCN Red List.

The Australian lace-lid is rainforest species and is restricted to the Wet Tropics bioregion. It previously occurred throughout this bioregion, from Paluma to Cooktown, at altitudes between 0 and 1,200 m, with an original extent of occurrence of 9,000 km$^2$. The species has disappeared from upland sites throughout the Wet Tropics but populations still exist in the foothills and lowlands (SPRAT 2021).

The species is associated with rainforest and rainforest margins. In montane areas it prefers fast-flowing rocky streams although it will also frequent slower watercourses where ample vegetation exists along the margins. It may be found on rocks, boulders and vegetation in or adjacent to streams (SPRAT 2021).

#### 4.5.1.2 Known Threats

The reason(s) for the species' decline are largely unknown. The species occurs within the WTQWHA where clearing and logging has been prohibited since 1988. Other possible causes include prolonged exposure to cold, dry weather inhibiting breeding, degradation of habitat by feral pigs and disease such as that caused by the amphibian chytrid fungus.

SPRAT 2021 lists the following threat abatement plans as relevant to this species:

- Threat abatement plan for infection of amphibians with chytrid fungus resulting in chytridiomycosis (DoEE 2016); and
- Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (DoEE 2017).

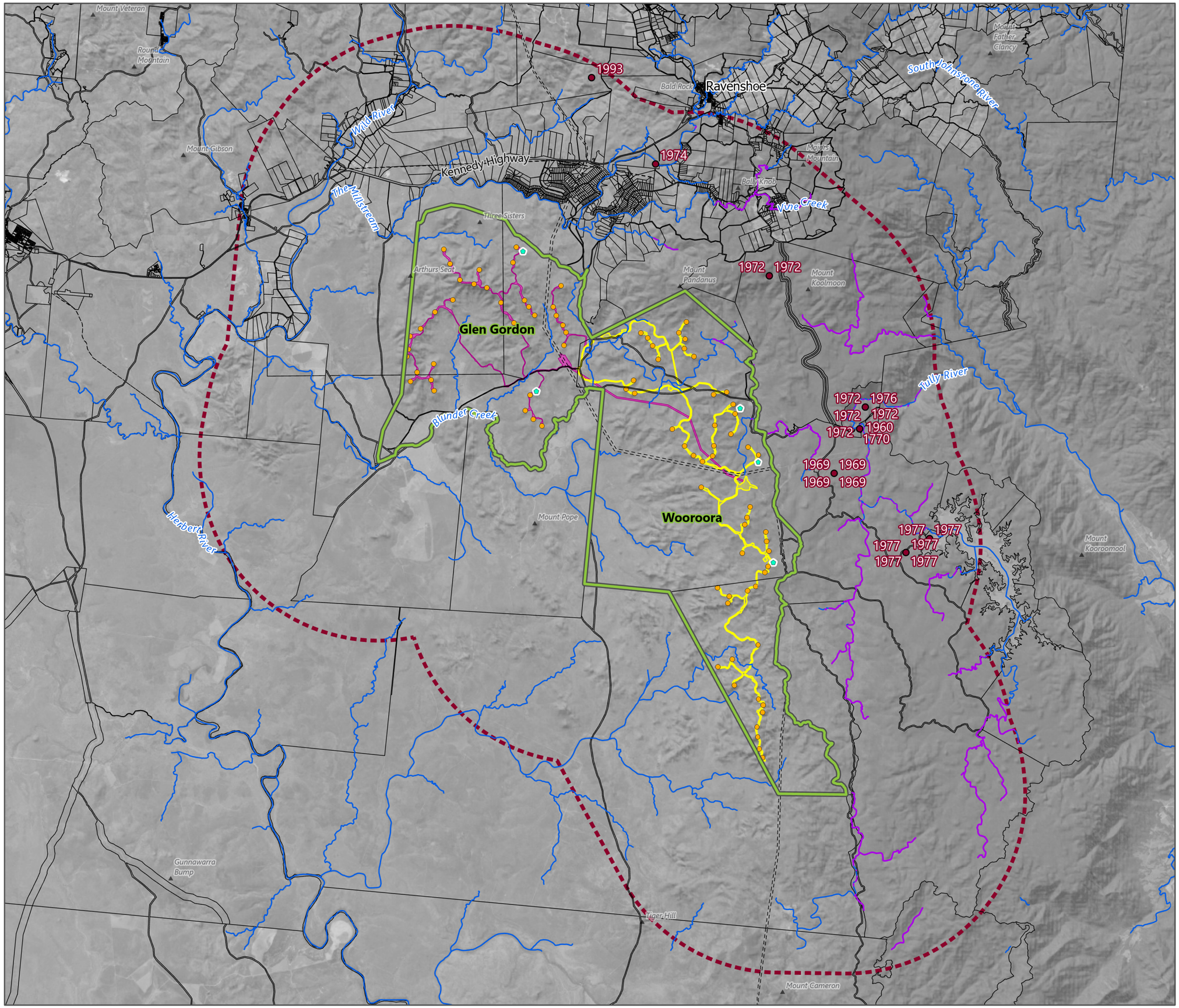
#### 4.5.1.3 Survey Effort

Methods that have been successfully used in the past include visual encounter surveys, call surveys and larval sampling (SPRAT 2021). Call surveys should be conducted during the known calling period for the species, between September and April (DEWHA 2010c).

Targeted nocturnal searches and call playback were undertaken in March 2021, June 2021, December 2021 and January 2022. The total survey effort was 140 person hours across the Project area.

#### 4.5.1.4 Project Area Habitat Assessment

The Australian lace-lid has not been recorded previously within the Project area and was last recorded within the broader Study area in 1977 (near Koombooloomba Dam). There is limited potential habitat for the Australian lace-lid within the Project area, which has been mapped as upland rainforest and wet sclerophyll forest alongside perennial streams (see **Figure 4-17**).

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# Chalumbin Wind Farm

Potential Habitat for Australian lace-lid

**Figure 4.17**

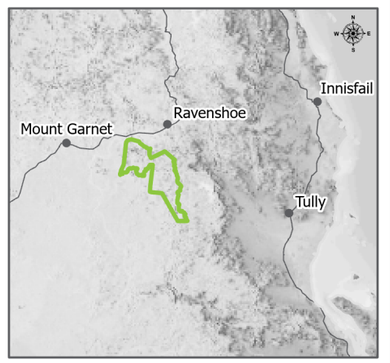
- Project Area Boundary
- Study Area
- Turbine
- Met-mast

Clearance Envelope

- Stage 1
- Stage 2
- Threatened Fauna Record (ALA/WildNet)
- Potential Habitat
- Watercourse
- Lot Boundary
- Easement

Date: 12/10/2022 Author: TOD

Project: EPU-004 Reviewed: NOD

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Scale: 1:200,000@A3

Data Source(s):
Digital Cadastral Database - Department of Resources (2022); Regional Ecosystem Mapping, WildNet - Department of Environment and Science (2022); Atlas of Living Australia (2020) Earthstar Geographics, © State of Queensland (Department of Resources) 2022

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### 4.5.2 Magnificent Brood Frog

#### 4.5.2.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

The magnificent brood frog (*Pseudophryne covacevichae*) is listed as Vulnerable under the EPBC Act and NC Act. It is listed globally as Endangered on the IUCN Red List.

The magnificent brood frog is range-restricted and all previous records have been on rhyolites of the Glen Gordon volcanics at altitudes greater than 800 m; this may be a function of the past survey efforts for the species focusing on such areas. The species was formerly known only from a small area near Ravenshoe and Herberton, having been found at 22 discrete locations from the Bluff State Forest to the Ravenshoe State Forest immediately to the north of the Project area; known sites are on timber reserve, state forest, Millstream National Park, the Ravenshoe rubbish dump reserve, road reserves and freehold land. In 2013 it was found approximately 160 km to the southeast, on the western slopes of Mount Spec, Paluma Range (TSSC 2017).

The magnificent brood frog has been identified in 36 populations over an area 27 km by 9 km. These known populations cover small areas, with the largest site being approximately 0.5 ha and most sites being less than 0.1 ha. The estimated total area of known occupancy is less than 50 ha, noting that this may be a limitation of survey effort for the species. The number of calling males at each site ranges from 1-20 (McDonald et al 2000).

The magnificent brood frog appears to be restricted to specific habitats. They breed in and around seepage[14] areas in open eucalypt forests where the dominant plant species include yellow stringybark (*Eucalyptus acmenoides*), lemon scented gum (*E. citriodora*), pink bloodwood (*E. intermedia*), yellow jacket (*E. leichhardtii*), stringybark (*E. reducta*), red mahogany (*E. resinifera*) and turpentine (*Syncarpia glomulifera*). The understorey of these forests is comprised of kangaroo grass (*Themada triandra*), grass trees (*Xanthorrhoea* sp.), sedges (*Gahnia* sp.), swamp box (*Lophostemon suaveolens*) and she-oaks (*Allocasuarina littoralis* and *A. torulosa*). Most seepage areas support tussocks of kangaroo grass. However, where cattle grazing has reduced this cover, the frogs have been located in leaf litter build-up within small first order streams (TSSC 2017).

Male frogs call from about September to June, depending on the characteristics of each wet season. Actual breeding only occurs after sufficient rain has fallen to first soak the ground (after it has dried out during the dry season), creating seepages and then sufficient runoff to get creeks flowing. This is believed to begin at the onset of the wet season, usually December and lasting to about April. Further rain events are necessary to provide water to maintain seepages and to keep water in the creeks, allowing tadpoles time to develop into frogs. Eggs are laid in brooding chambers on moist soil in or near a seepage, usually under vegetation. After hatching (10-11 days later), the tadpole makes its way down the seepage or is washed into first order streams where development continues in small pools (SPRAT 2021). It is not known what habitat the frogs use over the dry season. As the total population is likely to be very small, all of the known habitat is considered to be critical for survival (TSSC 2017).

#### 4.5.2.2 Known Threats

Habitat loss and degradation appear to be the greatest threats to the magnificent brood frog. 97 % of known sites are located on unprotected land, most of which is in state forest or timber reserve (McDonald et al 2000). As most of the species' distribution is not protected, it is vulnerable to degradation from grazing, logging, road works and clearing. Chytridiomycosis may be a potential threat to this species, but no evidence of infections has been identified (TSSC 2017).

[14] Also sometimes referred to as a flush, a seepage is a moist to wet area where water (usually groundwater) reaches the soil surface from an underground aquifer. In contrast, springs usually have a higher volume of water than seepages. Seepages mostly occur at lower elevations but can occur higher up slopes if groundwater is sufficiently abundant.

Grazing and trampling has the potential to degrade and destroy the seepage areas used by the frogs for breeding. Similarly, erosion and subsequent siltation may cover seepage areas if future logging or clearing occurs. Roads and cuttings can alter the water quality and hydrology, and may affect seepage areas and first order streams. Regrowth forest uses more water than old growth and therefore has the potential to reduce seepages (McDonald et al 2000).

Both host properties are used for cattle grazing and cattle have unrestricted access to seepage areas potentially used by the magnificent brood frog.

No Threat Abatement Plans have been identified as relevant for this species (SPRAT 2021).

#### 4.5.2.3 Survey Effort

The magnificent brood frog working group is currently compiling survey guidelines specific to the magnificent brood frog, as the species can be difficult to detect in the field, particularly when away from water (Magnificent Brood Frog Working Group meeting minutes, 17/09/2021). Methods currently being assessed by the magnificent brood frog working group include testing for eDNA in creeks, use of bioacoustics, use of detector dogs and habitat suitability modelling to improve understanding of how biophysical variables such as humidity, temperature, air pressure, groundwater, etc. could be used to predict when the species might be calling (Magnificent Brood Frog Working Group meeting minutes, 17/09/2021).

One survey method that has been successfully used in the past is call survey (SPRAT 2021). Call surveys should be conducted during the known calling period, between December and May (DEWHA 2010c). The species generally calls from seepage areas at the base of grass tussocks on wet summer and autumn nights. It is primarily nocturnal but may also call on overcast days (SPRAT 2021). Males only call when conditions are suitable and therefore the species may be missed if surveys are not conducted at the right time.

Targeted nocturnal searches and call playback were undertaken in March 2021, June 2021, December 2021, January 2022, December 2022 and January 2023. The total survey effort was 220 person hours across the Project area.

#### 4.5.2.4 Project Area Habitat Assessment

Magnificent brood frog has previously been recorded within the Project area (see **Figure 4-18**) although the magnificent brood frog working group has more recently not been granted access by the landowner to undertake repeat surveys (Magnificent Brood Frog Working Group meeting minutes, 17/09/2021).

Magnificent brood frogs were observed at six locations within the Project area during the March 2021 surveys. Two observations each comprised a relatively large group of male frogs (numbering approximately 15 and 20 individuals). Magnificent brood frogs were also observed during spotlighting surveys at three further locations in June 2021 and two further locations in January 2022. A number of repeat observations of magnificent brood frogs were also made at previous locations in December 2021, January 2022 and December 2022.

Of the 11 locations where the species has been recorded within the Project area, 8 are below 800 m asl, which contradicts the published lower limit of the species' elevation range.

The 10 m LiDAR data for the Project area was interrogated to identify minor gullies and flow lines that could be considered potential brood frog breeding habitat ("zero order streams"). A Topographical Wetland Index (TWI)[15] analysis was also performed to identify where seepages are most likely to develop when the water table is high enough. Potential breeding habitat for magnificent brood frog was mapped as these potential seepages, and zero and first order streams on rhyolites of the Glen Gordon volcanics. Non-breeding habitat was mapped as open

[15] TWI is used to quantify topographic controls on hydrological processes. It is a function of both the slope and the upstream contributing area per unit width orthogonal to the flow direction, and can therefore be used as a proxy for soil moisture.

eucalypt forest within a 50 m buffer around the potential breeding habitat. This is shown in **Figure 4-18**, along with all recorded observations of magnificent brood frogs and sites that were surveyed but returned negative results.

The Project will result in the clearing of 120.5 ha of potential magnificent brood frog habitat.

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# Chalumbin Wind Farm

Observations and Potential Habitat for Magnificent broodfrog

## Figure 4.18

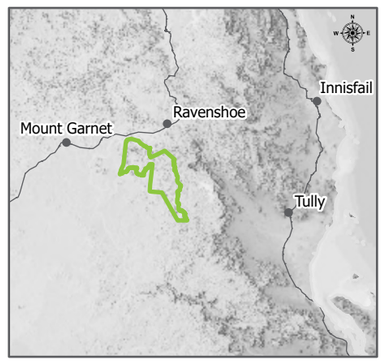
- Project Area Boundary
- Study Area
- Turbine
- Met-mast

Clearance Envelope

- Stage 1
- Stage 2
- Watercourse
- Survey Observation
- MBF Survey Site
- Threatened Fauna Record (ALA/WildNet)
- Potential habitat
- Glen Gordon Volcanics
- Lot Boundary
- Easement

Date: 27/02/2023 Author: TOD

Project: EPU-004 Reviewed: NOD

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Scale: 1:200,000@A3

Data Source(s):
Digital Cadastral Database - Department of Resources (2022); Regional Ecosystem Mapping, WildNet - Department of Environment and Science (2022); Atlas of Living Australia (2020) Earthstar Geographics, © State of Queensland (Department of Resources) 2022

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### 4.5.3 Mountain Mistfrog

#### 4.5.3.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

The mountain mistfrog (*Litoria nyakalensis*) is listed as Critically Endangered under the EPBC Act and the NC Act. It is listed globally as Critically Endangered on the IUCN Red List.

The population size of mountain mistfrog is not known although it was estimated at fewer than 50 mature individuals at the time of its last IUCN assessment in 2004 (Hero et al 2004a). It has not been recorded since 1990 and is possibly now extinct but may still persist in remote areas. If the species does persist, it is likely to be in very small numbers (fewer than 250 mature individuals) with an inferred continuing decline and a likely extent of occurrence of less than 100 $km^2$ (TSSC 2019a).

The mountain mistfrog formerly occurred across two thirds of the Wet Tropics region, from Douglas Creek near Cardwell to Alexandra Creek, Thornton Peak, at altitudes between 380 m and 1,020 m asl. Adult mountain mistfrogs were last recorded in April 1990, whilst tadpoles and metamorphs were last recorded in November 1990 on the Carbine Tableland. This species had apparently disappeared from sites on the Atherton Tableland much earlier. It was recorded from various sites on the Atherton Tableland prior to 1973 but was not encountered in Danbulla State Forest during 1989 to 1992 or at any Atherton Tableland site (including historic locations and other potentially suitable habitat) during surveys conducted between 1991 and 1992 (SPRAT 2021, TSSC 2019a, NQTFRT 2001). In 2013 in ideal weather conditions, intensive surveys failed to locate the species (SPRAT 2021, TSSC 2019a).

The mountain mistfrog is a rainforest specialist, endemic to the Wet Tropics bioregion. It has an obligate association with perennial streams. It is found in upland rainforest and wet sclerophyll forest alongside fast-flowing streams where there is white water from riffles and cascades (SPRAT 2021). The species was only known from locations above 300 m altitude (NQTFRT 2001). This historical extent of occurrence for this species was approximately 6,000 $km^2$ (SPRAT 2021, TSSC 2019a). Its habitat is extremely well protected throughout its range (NQTFRT 2001), within the following reserves: Wooroonooran, Daintree, Crater Lakes, Crater and Palmerston National Parks, Mount Lewis, Maalan, Ravenshoe, Herberton Range and Kirrama State Forests, and Daintree Timber Reserve (SPRAT 2021).

#### 4.5.3.2 Known Threats

The mountain mistfrog is one of seven species of frogs occurring in upland rainforest streams in north-eastern Queensland that experienced substantial range contractions and population declines between 1988 and late 1994. These species share the common characteristics of having a high degree of habitat specialisation, and reproduction in fast-flowing streams. The declines are believed to be caused by the amphibian chytrid fungus although dead or dying individuals of mountain mistfrog specifically were not found (TSSC 2019a).

SPRAT 2021 lists the following threat abatement plans as relevant to this species:

- Threat abatement plan for infection of amphibians with chytrid fungus resulting in chytridiomycosis (DoEE 2016); and
- Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (DoEE 2017).

#### 4.5.3.3 Survey Effort

Methods that have been successfully used in the past include visual encounter surveys, call surveys and larval sampling (SPRAT 2021). Call surveys should be conducted during the known calling period for the species, between October and March (DEWHA 2010c).

Targeted nocturnal searches and call playback were undertaken in March 2021, June 2021, December 2021 and January 2022. The total survey effort was 140 person hours across the Project area.

#### 4.5.3.4 Project Area Habitat Assessment

Mountain mistfrog has been historically recorded on the boundary between the Project area and the WTWHA (Wildlife Online and ALA), see **Figure 4-19**. The last recorded observation is dated 1981. It was not observed during targeted wet season surveys despite other amphibians being recorded from areas of suitable habitat (including in the vicinity of the historic record noted above).

Limited potential habitat has been mapped within the Project area as upland rainforest and wet sclerophyll forest alongside perennial streams, see **Figure 4-19**.