



4.7.11 Spotted-tailed Quoll

4.7.11.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

The spotted-tailed quoll – northern subspecies (*Dasyurus maculatus gracilis*) is listed as Endangered under the EPBC Act and the NC Act. It is listed globally as Near Threatened on the IUCN Red List.

It is endemic to Australia and formerly occurred throughout the latitudinal range of the WTQ. It is now apparently extinct from the Atherton and Evelyn Tablelands, and there are few sightings south of 17°45'S (Burnett and Dickman 2018).

Historically the species occurred from the Paluma Range to near Cooktown. The southern-most population in the Paluma Range (Mt Spec) is now possibly extinct, with no records since the early 1940s despite high levels of visitation to the area. There are no recent records from the Big Tableland and Evelyn Tableland. The northern taxa is now thought to be confined to two extant populations: one centered on the Windsor and Carbine Tablelands, Thornton Peak, Mount Finnegan and associated smaller ranges, and the other centered on the Atherton Tablelands and associated mountain ranges (SPRAT 2021).

Since European settlement, the spotted-tailed quoll has declined in both distribution and abundance. Populations have become fragmented and isolated, and the mainland ranges has been reduced by 50-90 % (DELWP 2016)

Its population is estimated as 14,000 mature individuals and decreasing. Populations in north-eastern QLD are small, fragmented and < 1,000 individuals. The species is mostly uncommon (Burnett and Dickman 2018).

This is a forest-dependent species that occupies a wide range of habitat types, all characterised by relatively high and predictable seasonal rainfall (> 600 mm/yr). The northern subspecies is confined to upland closed forests (mostly > 900 m altitude) in the upper catchments of rivers draining east and west of the eastern escarpment in the Wet Tropics bioregion. Vegetation types comprise simple and complex notophyll vine forest, simple microphyll vine-fern forest and simple microphyll vine-fern thicket. The species uses multiple dens (possibly in excess of 20) and usually moves between them every 1-4 days. Denning occurs in tree hollows, logs, burrows, caves and rock crevasses (SPRAT 2021).

The species is territorial, with overlapping home ranges between 100 and 200 ha (SPRAT 2021). DELWP 2016 states home ranges of females is 88-1515 ha whilst that of males is 359-5512 ha. Animals have been recorded moving at least 8 km a day / 19 km in a week (DELWP 2016).

Habitat critical to the survival of the species includes large patches of forest with adequate denning resources and relative high densities of medium-sized mammalian prey. All habitats within its current distribution that are known to be occupied are considered important. The Atherton region is considered a 'stronghold' for the species, in that it is an area of high abundance (DELWP 2016).

There is no Listing Advice or approved Conservation Advice for this species (SPRAT 2021).

4.7.11.2 Known Threats

DELWP 2016 identifies the following threats to the spotted-tailed quoll:

- Habitat loss and modification – possibly the greatest threat to the species;
- Fragmentation;
- Timber harvesting;
- Poison baiting to control populations of red fox, wild dogs and European rabbit;



- Competition and predation from introduced predators including feral cats, foxes, and wild and domestic dogs – these impacts are likely to be magnified if they occur in conjunction with other threatening processes and/or if two or more introduced species are present;
- Deliberate killing by landholders, largely in response to raids on poultry runs;
- Road mortality;
- Bushfire and prescription burning;
- Poisoning by cane toads – the northern subspecies has been assessed as being at high risk of severe population declines due to invading cane toads; and
- Climate change – the fragmented populations of the northern subspecies that occupy highland rainforest habitats are considered to be particularly at risk.

Aspects of the biology and ecology of spotted-tailed quolls render them especially susceptible to threatening processes. They are generally solitary and occupy large home ranges, and consequently occur at low population densities. They have a relatively short lifespan and a low overall reproductive output. Natal female philopatry occurs, potentially limiting the ability of the species to recolonize fragmented patches of habitat. The distribution and abundance of suitable prey are thought to be factors that strongly influence the distribution and abundance of breeding females, and hence populations of the species (DELWP 2016).

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

- Threat abatement plan for predation by the European red fox (DEWHA 2008d)
- Threat abatement plan for predation by feral cats (DoE 2015c).

4.7.11.3 Survey Effort

Breeding occurs between June and September (SPRAT 2021), with movements increasing during this time. Surveys commencing in June therefore well timed to catch animals that are moving around, looking for a mate.

As described in **Section 4.2.2.3** an extensive camera trapping programme was undertaken across the full extent of the Project area, comprising nearly 6,000 camera trap nights between January and December 2021.














4.7.11.4 Project Area Habitat Assessment

The species has not been recorded within the Project area but there are a number of historic records within the broader Study area, from Tully Falls National Park to the east (the most recent of these dating from 1994) (ALA).

There is limited potential habitat for the spotted-tailed quoll within the Project area. As the northern subspecies is typically confined to upland closed forests > 900 m altitude, all notophyll, mesophyll and wet sclerophyll forest at or above this elevation has been mapped as preferred potential habitat. Below 900 m the same forest types are mapped as marginal potential habitat, see **Figure 4-35**.

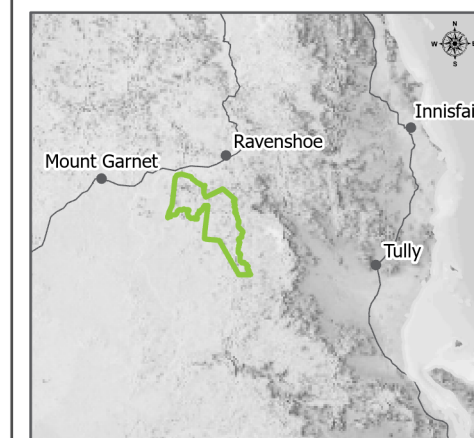
Chalumbin Wind Farm
Potential Habitat for Spotted-tailed quoll

Figure 4.35

-  Project Area Boundary
-  Study Area
-  Turbine
-  Met-mast
- Clearance Envelope
-  Stage 1
-  Stage 2
-  Threatened Fauna Record (ALA/WildNet)
-  Contour - 900m
-  Preferred Potential Habitat
-  Marginal Potential Habitat
-  Watercourse
-  Lot Boundary
-  Easement

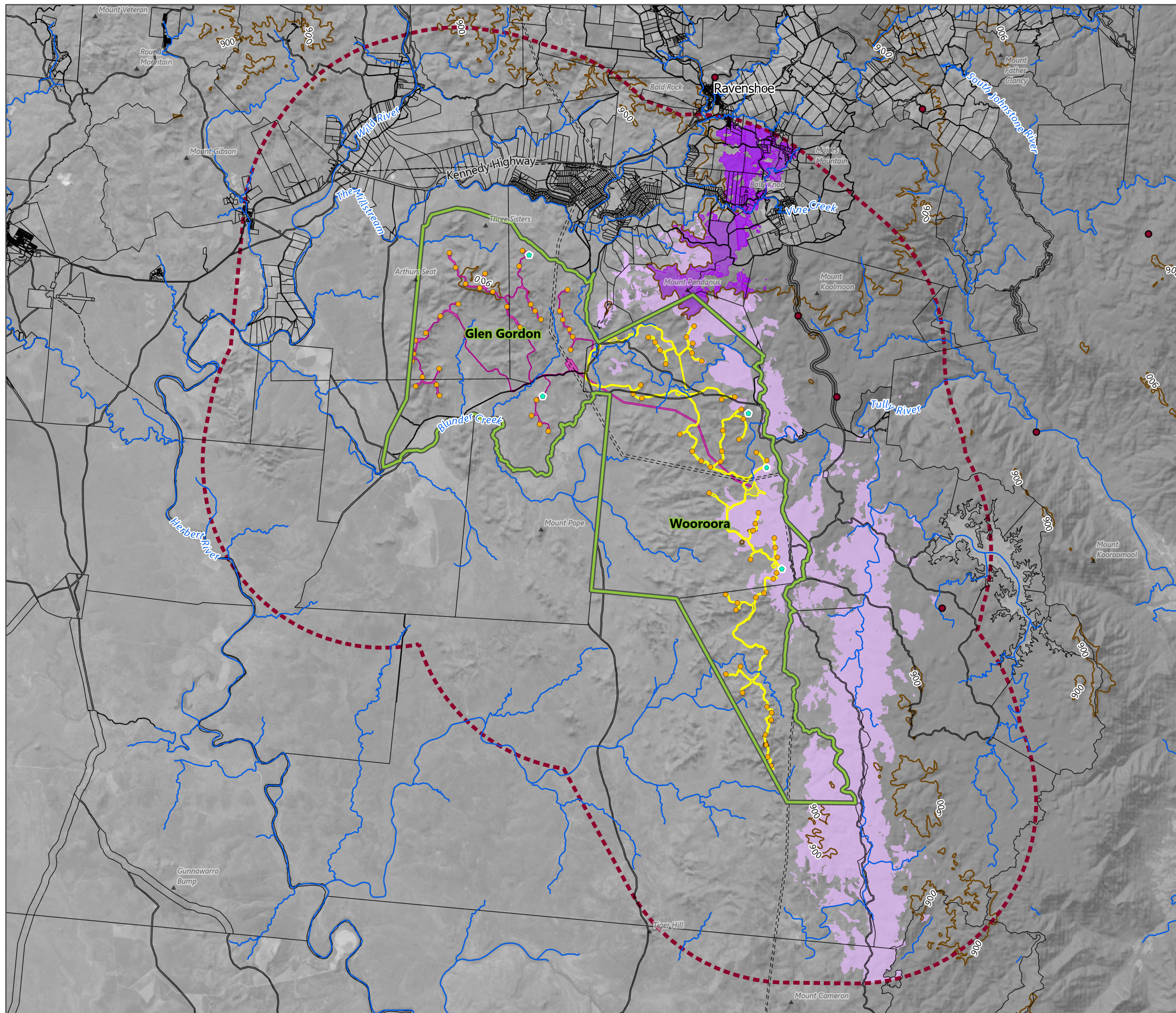
Date: 12/10/2022
Project: EPU-004

Author: TOD
Reviewed: NOD



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





4.7.12 Yellow-bellied Glider

4.7.12.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

The yellow-bellied glider – Wet Tropics subspecies (*Petaurus australis* Wet Tropics subsp.) is listed as Endangered under the EPBC Act and the NC Act. The yellow-bellied glider is listed as Near Threatened on the IUCN Red List.

The nominate species occurs from the Mount Windsor Tablelands in north Queensland to the Victoria/South Australia border. There is a distributional gap of approximately 400 km between the undescribed Wet Tropics subspecies and the nominate species.

The Wet Tropics subspecies occurs north from the Herbert River gorge to the Mount Windsor Tableland. There are 13 distinct populations occurring as three geographically separated metapopulations: one at Mount Windsor Tableland, one at Mount Carbine Tableland and the third extending from Atherton to Kirrama on the Atherton Tableland and ranges to the south (SPRAT 2021). The Atherton-Kirrama population occurs in a very narrow, almost linear, stretch of habitat that extends about 130 km north-south but is in many places less than 1 km wide. The distribution of this Atherton-Kirrama population contains many gaps; south of Ravenshoe (which is approximately the mid-point of the range of this population), these gaps are due to natural discontinuities of habitat but to the north they are due to clearing.

The total population is estimated to be 5,500 mature individuals. The extent of occurrence is approximately 3,458 km² and the area of occupancy is approximately 232 km² (TSSC 2020).

This species is found in tall open wet eucalypt forest adjacent to rainforest on the western fringe of the WTQ World Heritage Area. It is found at altitudes above 700 m altitude (SPRAT 2021). Floristics of forest habitat may vary from one location to another but the presence of two species, *Eucalyptus. Grandis* (for denning) and *E. resinifera* (a preferred feeding tree), is essential (Jessup et al 2020, SPRAT 2021). Known RE associations include 7.8.15ab, 7.8.16ab, 7.12.21ab, 7.12.22abde and 7.12.27b. These forests are typically dominated by *E. grandis* and *E. resinifera*, often with *B. integrifolia* (particularly in autumn and winter) and *Syncarpia glomulifera*.

DERM 2011 notes that yellow-bellied gliders have been recorded in five REs, with 7.12.21 and 7.12.22 comprising about 82 % of the mapped extent of potential habitat. These are considered essential habitat for the yellow-bellied glider when found in connection with each other. REs fringing these two also provide habitat resources and will be periodically visited by the species. The main use of RE 7.12.27 is likely to relate to feeding on the blossom of turpentine.

4.7.12.2 Known Threats

The Conservation Advice for the yellow-bellied glider (TSSC 2020) identifies the following threats:

- Inappropriate fire regime;
- Habitat loss (through clearing) and fragmentation;
- Habitat change due to livestock;
- Entanglement in barbed wire fencing;
- Climate change
- Habitat change associated with wood production;
- Feral cat predation.



SPRAT 2021 does not list any threat abatement plans as being relevant for this species.

4.7.12.3 Survey Effort

As described in **Section 4.2.2.3**, spotlighting for nocturnal fauna including yellow-bellied glider was undertaken for a total of 103 person hours. Spotlighting surveys within vegetation specifically identified as potential habitat for yellow-bellied glider (based on the presence of *Eucalyptus grandis* or *E. resinifera*) were undertaken by foot as these areas are not crossed by existing access tracks.

4.7.12.4 Project Area Habitat Assessment















There are three previous records of yellow-bellied glider within the Study area, to the east of the Project area within Koombooloomba National Park, dated 1990 and 1991 (ALA), see **Figure 4-36**.

One yellow-bellied glider was observed during spotlighting in March 2021, in a small patch of simple notophyll vine forest (RE 7.12.16a) surrounded by *E. grandis* open forest (RE 7.12.21) in the very north of the Wooroora property. This observation was within the WTQ World Heritage Area and nearly 2 km from the nearest proposed Project infrastructure.

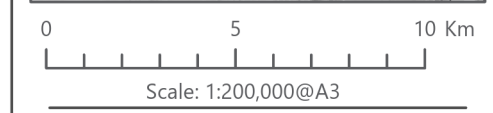
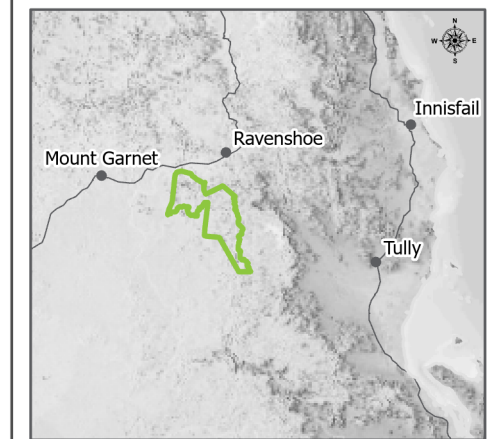
Across the Project area, the potential habitat for yellow-bellied glider has been mapped as vegetation belonging to REs 7.8.15ab, 7.8.16ab, 7.12.21ab, 7.12.22abde and 7.12.27b above an altitude of 600 m, with the distinction made between denning and foraging habitat depending on the dominant species (*Eucalyptus grandis* or *E. resinifera* respectively), see **Figure 4-36**.

Chalumbin Wind Farm
Observations and Potential Habitat
for Yellow-bellied glider

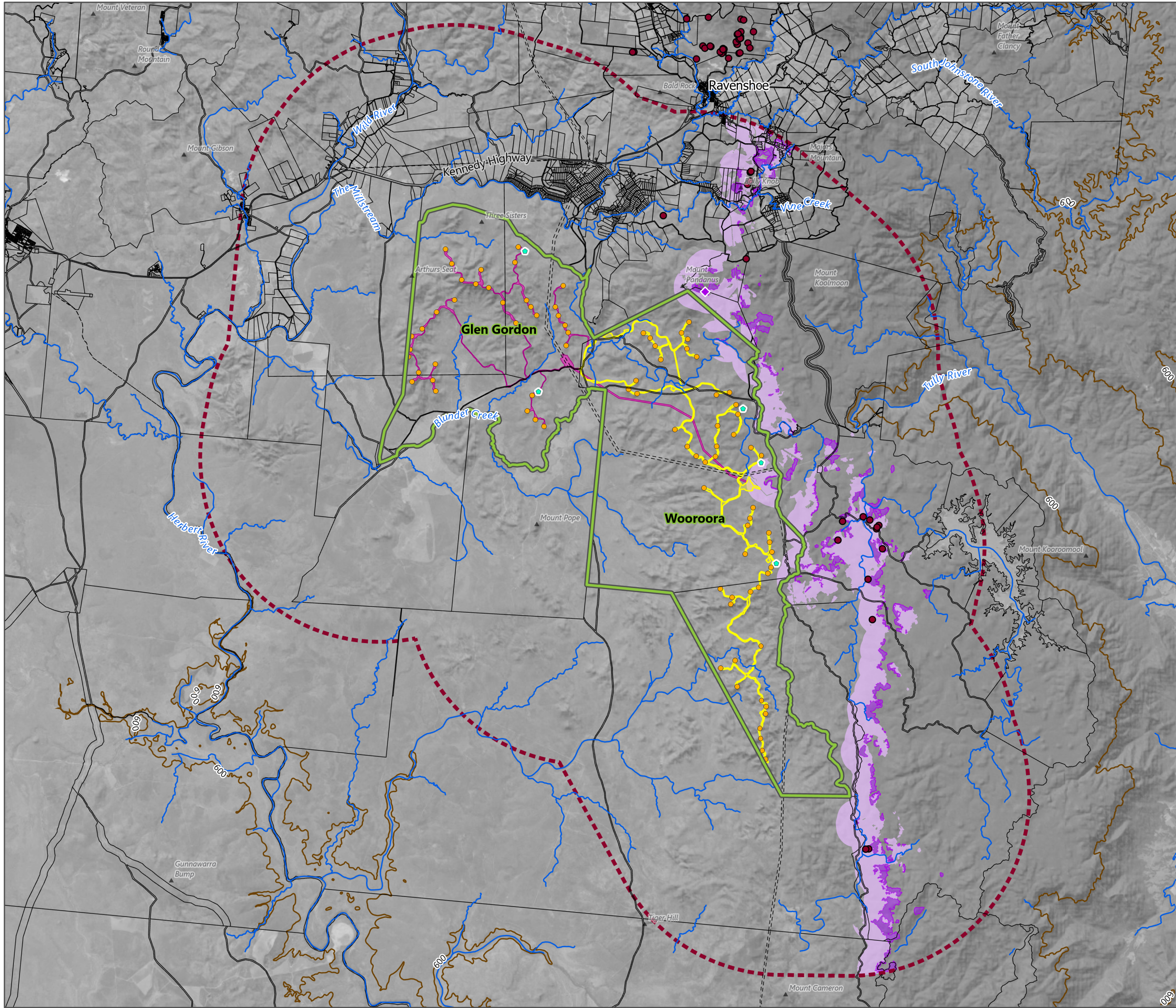
Figure 4.36

-  Project Area Boundary
-  Study Area
-  Turbine
-  Met-mast
- Clearance Envelope**
-  Stage 1
-  Stage 2
-  Survey Observation
-  Threatened Fauna Record (ALA/WildNet)
-  Contour - 600m
-  Potential Denning Habitat
-  Potential Foraging Habitat
-  Watercourse
-  Lot Boundary
-  Easement

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



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





4.8 Listed Threatened Reptile Species

4.8.1 Atherton Delma

4.8.1.1 Threat Status, Abundance, Distribution, Ecology and Habitat Preferences

The Atherton delma (*Delma mitella*) is listed as Vulnerable under the EPBC Act and Near Threatened under the NC Act. It is listed globally as Least Concern on the IUCN Red List.

The species is endemic to north Queensland, where it is known only from an area between Mareeba and Paluma (Hoskin et al 2018a), on the eastern side of the Atherton Tablelands (TSSC 2008).

The Atherton delma inhabits tall open forests, wet sclerophyll forests and rainforest edges, where it is found in tussock grass and other thick ground cover (TSSC 2008, DSEWPC 2011b, Hoskin et al 2018a).

4.8.1.2 Known Threats

Despite being difficult to find, the Atherton delma is not thought to be genuinely rare and has been found to be more widespread than initially thought. It is not thought to be subject to significant threats (Hoskin et al 2018a). The Conservation Advice for the species indicates that the main threats to the species are loss and disturbance to habitat (TSSC 2008).

SPRAT (2022) does not identify any threat abatement plans as being relevant to this species.

4.8.1.3 Survey Effort

The Survey guidelines for Australia's threatened reptiles (DSEWPC 2011b) indicate that data on this infrequently-collected species is insufficient to assess the efficacy of potential collections methods as most individuals have been found serendipitously.












4.8.1.4 Project Area Habitat Assessment

The Atherton delma has not been previously recorded within the Project area. There is one record from the northeast of the Study area dating from 1967 (ALA), see **Figure 4-37**.

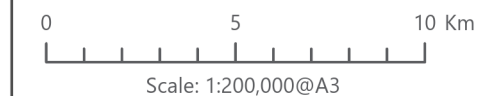
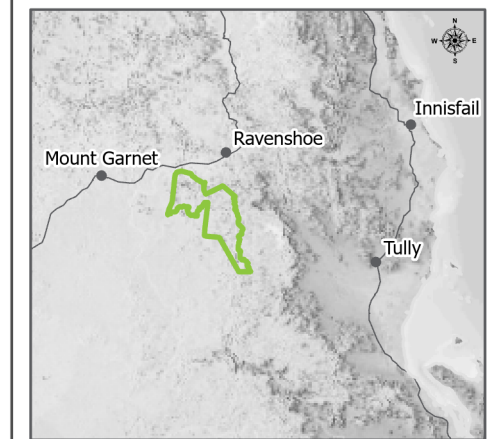
It was not recorded during surveys within the Project area. Potential habitat has been mapped as wet sclerophyll forests.

Chalumbin Wind Farm
Potential Habitat for *Atherton delma*

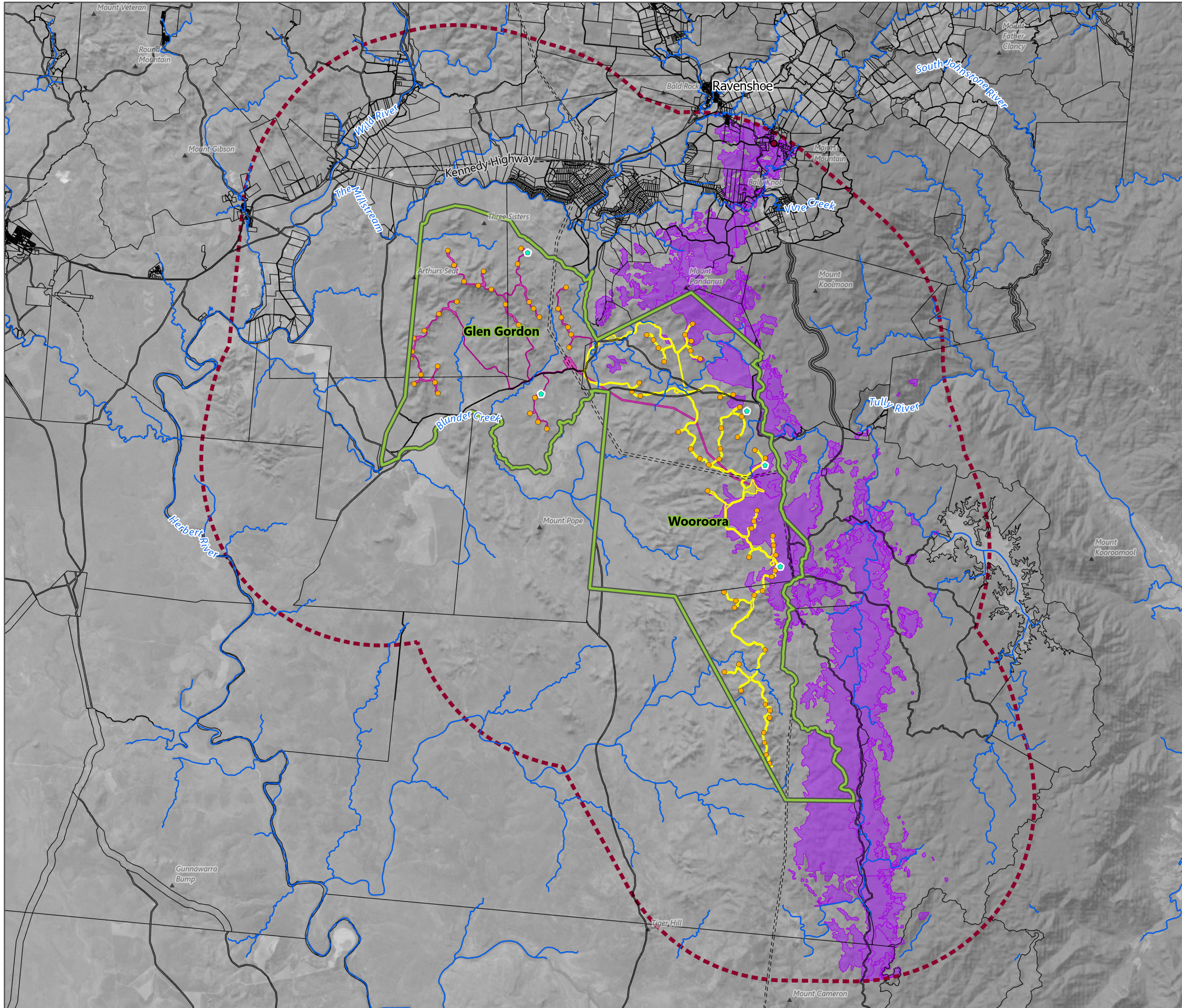
Figure 4.37

-  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



Data Source(s):
Digital Cadastral Database - Department of Resources (2022);
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4.9 Listed Threatened Migratory Species

Note the white-throated needletail is a listed migratory species but is also a listed threatened species and therefore has been discussed in **Section 4.6.5**.

4.9.1 Black-faced Monarch

4.9.1.1 Threat Status, Abundance, Distribution, Ecology and Habitat Preferences

The black-faced monarch (*Monarcha melanopsis*) is listed as Migratory under the EPBC Act and Special Least Concern under the NC Act. It is listed globally as Least Concern on the IUCN Red List.

The global population size has not been estimated but is likely to be at least tens of thousands based on its extensive breeding range (DoE 2015a).

The black-faced monarch is a migratory flycatcher that is widespread in eastern Australia. In Queensland it is widespread from the islands in the Torres Straits and the Cape York peninsula, south along the coast and eastern slopes of the Great Dividing Range to the southern border. It is also found in NSW, the ACT, Victoria, South Australia and West Australia (as a vagrant), as well as PNG. There has been no change in the species' range between 1977-1981 and 1998-2001 (SPRAT 2021).

The movement patterns of the black-faced monarch are poorly known. They spend spring, summer and autumn in eastern Australia, and winter in southern and eastern PNG (March to August). The species may be resident year-round in some parts of northeast Queensland and eastern PNG. They are usually seen singly or in pairs, however during migration, they may join flocks of mixed species (SPRAT 2021).

The black-faced monarch mainly occurs in rainforest ecosystems, including semi-deciduous vine thickets, complex notophyll vine-forest, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll thicket, warm temperate rainforest and occasionally cool temperate rainforest. It is also sometimes found in nearby open eucalypt forests (mainly wet sclerophyll forests), especially in gullies with a dense, shrubby understorey as well as in dry sclerophyll forests and woodlands, often with a patchy understorey. The species occurs in 'marginal' habitats during winter or during passage (migration) (SPRAT 2021, BirdLife International 2016a).

Important habitat for black-faced monarch is described in DoE 2015 as wet forest, specifically rainforest and wet sclerophyll forest and especially sheltered gullies and slopes with a dense understory of ferns and/or shrubs.

The black-faced monarch breeds in rainforest habitat and has been recorded breeding in the Atherton region. In north-eastern QLD, eggs are laid from November to January, incubation is 13-15 days and the fledging period is 7 days or slightly longer. The species is insectivorous and feeds mainly in rainforest as well as open eucalypt forest. It forages at all vertical levels within the forest, although most often in the low to middle levels, within 6m of the ground. The species is a known nest host to brush cuckoo (SPRAT 2021).

4.9.1.2 Known Threats

Individuals occasionally collide with windows and lighthouses (SPRAT 2021). DoE 2015a indicates that invasive species harmful to black-faced monarch include black rat and invasive vines of riparian habitat, such as rubber vine.

SPRAT 2021 identifies the following threat abatement plan as being relevant for this species:

- Threat abatement plan for predation by feral cats (DoE 2015a).



4.9.1.3 Survey Effort

An initial bird census was undertaken in January 2021. Following this, six bird utilisation surveys have been undertaken at 21 sites across the Project area (June 2021, October 2021, January 2022, April 2022, August 2022 and November 2022), as described in **Section 4.2.2.3**. This has resulted in a total survey effort to date of 205 person hours.













4.9.1.4 Project Area Habitat Assessment

The species has been historically recorded within the Study area, within the WTQWHA to the east of the Project (**Figure 4-38**). One black-faced monarch was observed during the diurnal bird surveys in January 2021.

Important habitat within the Project area has been mapped as rainforest communities, while potential habitat has been mapped as open eucalypt forest within 1 km of rainforests (**Figure 4-38**).

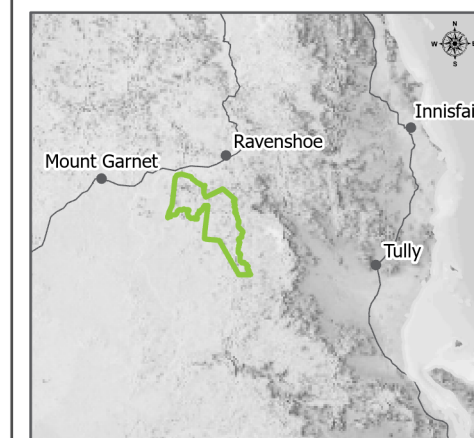
Chalumbin Wind Farm
Potential Habitat for Black-faced monarch

Figure 4.38

-  Project Area Boundary
-  Study Area
-  Turbine
-  Met-mast
- Clearance Envelope
-  Stage 1
-  Stage 2
-  Threatened Fauna Record (ALA/WildNet)
-  Important Habitat
-  Potential Habitat
-  Watercourse
-  Lot Boundary
-  Easement

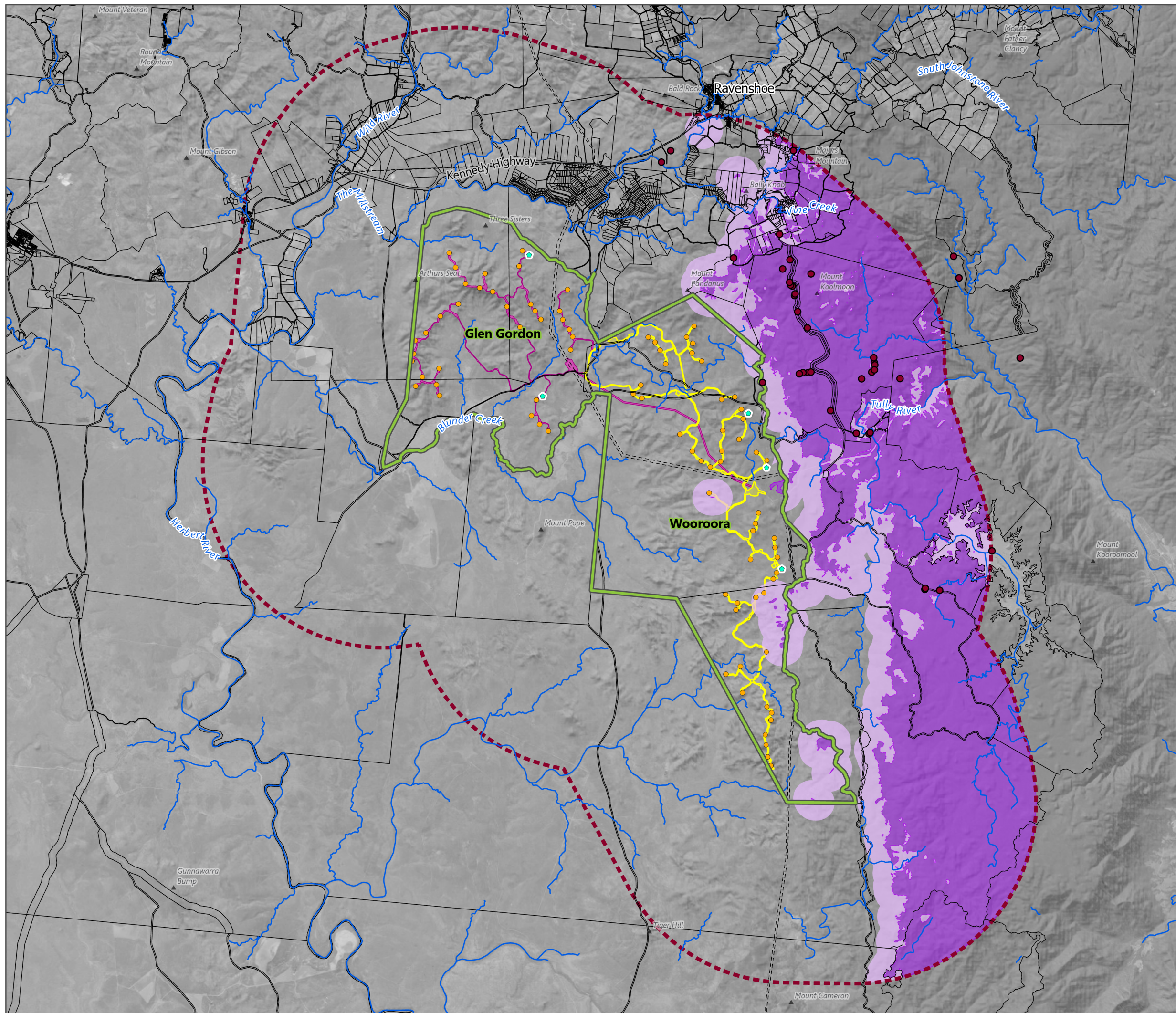
Date: 12/10/2022
Project: EPU-004

Author: TOD
Reviewed: NOD



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





4.9.2 Fork-tailed Swift

4.9.2.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

The fork-tailed swift (*Apus pacificus*) is listed as Migratory under the EPBC Act and Special Least Concern under the NC Act. It is listed globally as Least Concern on the IUCN Red List.

Globally, the fork-tailed swift is native to Australia, Bangladesh, Bhutan, Cambodia, China, Guam, Hong Kong, India, Indonesia, Japan, Kazakhstan, Korea, Lao, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, PNG, Philippines, Russia, Taiwan, Thailand, Timor-Leste and Vietnam (SPRAT 2021). The global population has not been quantified, but is thought to be stable and at least 100,000 mature individuals based on estimates within its breeding range (DoE 2015a).

The fork-tailed swift is a non-breeding visitor to all states and territories of Australia. In Queensland, there are many coastal records of this species between Cooktown and Townsville, and they are also commonly found in drier habitat inland as far west as Longreach (SPRAT 2021).

The species breeds in northern Asia and spends the non-breeding season (typically October – March inclusive) in Australia, moving further south as the summer progresses. In Australia, it is almost exclusively aerial, occurring from heights of less than 1 m up to more than 1,000 m above the ground. They mostly occur over inland plains but sometimes over foothills and coastal areas. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland and saltmarsh. They sometimes occur over rainforests, wet sclerophyll forest or open forest. They often occur in areas of updrafts, especially around cliffs. They sometimes feed aerially among tree-tops in open forest. The species is insectivorous (SPRAT 2021).

4.9.2.2 Known Threats

There are no significant threats to the fork-tailed swift in Australia. Potential threats include habitat destruction and predation by feral animals. Due to the wide range of the species, the potential impacts are thought to be negligible (SPRAT 2021).

SPRAT 2021 identifies the following threat abatement plan as being relevant for this species:

- Threat abatement plan for predation by feral cats (DoE 2015a).

4.9.2.3 Survey Effort

An initial bird census was undertaken in January 2021. Following this, six bird utilisation surveys have been undertaken at 21 sites across the Project area (June 2021, October 2021, January 2022, April 2022, August 2022 and November 2022), as described in **Section 4.2.2.3**. This has resulted in a total survey effort to date of 205 person hours.

4.9.2.4 Project Area Habitat Assessment

There is one previous record of the fork-tailed swift to the east of the Study area, within Koombooloomba National Park.

One individual fork-tailed swift was recorded during the diurnal bird counts in January 2021, flying at an approximate height of 40 m (within RSA height). Three fork-tailed swifts were observed during the April 2022 BUS, also flying within RSA height. No habitat mapping has been undertaken for fork-tailed swift as this species could occur in any airspace over the Project area.



4.9.3 Latham's Snipe

4.9.3.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

Latham's snipe (*Gallinago hardwickii*) is listed as Migratory under the EPBC Act and Special Least Concern under the NC Act. It is listed globally as Least Concern on the IUCN Red List. The Action Plan for Australian Birds 2020 lists it as Vulnerable due to a sudden decline in population density on Japanese breeding grounds following drought and fire in the Australian non-breeding grounds (Garnett and Baker 2021).

The species' extent of occurrence is estimated at 3,000,000 km², and this estimate is considered to be of high reliability. This extent of occurrence is thought to be stable at present and is considered likely to remain relatively stable. The area of occupancy is approximately 3,000 km², however this estimate is considered to be of low reliability. The area of occupancy is presumed to have declined since the arrival of Europeans although there are no quantitative data to support this. This decline is thought to be the result of widespread loss of habitat due to the drainage and clearance of wetlands and the impact of hunting (SPRAT 2021).

The species' distribution is naturally fragmented because its preferred habitat of freshwater wetlands occurs in patches throughout the non-breeding grounds; due of the species' mobility, this is unlikely to have any effect on its survival.

Latham's snipe breeds in Japan and far eastern Russia during the northern hemisphere summer, migrating south to winter in eastern Australia. The global population is estimated at 25,000 to 100,000 birds but this is considered to be of low reliability due to the dispersed nature of population in both breeding and non-breeding areas. A more recent population estimate of 19,000 birds is provided in the Action Plan for Australian Birds 2020 (Garnett and Baker 2021). The entire population migrates to Australia, as such global threats are likely to affect the species in Australia. Global warming represents a potential threat that could threaten the species throughout its range in the future (SPRAT 2021).

It is difficult to determine which sites are most important for Latham's snipe in Australia due to difficulties in surveying for the species. However, six important sites (defined as those with major populations) have been identified, in Victoria, Tasmania and South Australia (SPRAT 2021).

The routes of migration between Japan and Australia are poorly known but evidence suggests the journey between breeding grounds and Australia probably only takes a few days. They arrive in northern Australia from July to November and slowly move southward to spend the non-breeding period in south-eastern Australia. Few, if any, birds remain in northern Australia over the southern summer (SPRAT 2021).

Latham's snipe is a non-breeding visitor to south-eastern Australia and is a passage migrant through northern Australia. It has been recorded along the east coast of Australia from the Cape York peninsula through to South Australia. It is occasionally recorded at sites located to the west of this core range (SPRAT 2021).

The species occurs in permanent and ephemeral wetlands at altitudes up to 2000 m above sea level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). The structure and composition of the vegetation that occurs around these wetlands is not important in determining the suitability of habitat for the species (SPRAT 2021).

Latham's snipe usually occurs singly or in small, loose groups of less than a dozen birds. Migrating flocks may contain up to 200 birds when they arrive in Australia. The species is highly dispersive, moving in response to rainfall and availability of food (SPRAT 2021).



4.9.3.2 Known Threats

The current major threat to Latham's snipe appears to be modification and loss of habitat caused by the drainage of wetlands for residential, agricultural and industrial development. The species is also potentially threatened by predation by foxes and is said to be sensitive to disturbance by humans and grazing cattle. Land management practices such as mowing during summer can also render habitat unsuitable for the species for several months (SPRAT 2021).

SPRAT 2021 identifies the following threat abatement plan as being relevant for this species:

- Threat abatement plan for predation by the European red fox (DEWHA 2008d).

4.9.3.3 Survey Effort












An initial bird census was undertaken in January 2021. Following this, six bird utilisation surveys have been undertaken at 21 sites across the Project area (June 2021, October 2021, January 2022, April 2022, August 2022 and November 2022), as described in **Section 4.2.2.3**. This has resulted in a total survey effort to date of 205 person hours.

4.9.3.4 Project Area Habitat Assessment

The species' preferred habitat includes open, freshwater wetlands with low, dense vegetation (swamps, flooded grasslands or heathlands, bogs) or habitat with saline or brackish water during migration and have been found in modified or artificial habitats close to human activity. Foraging and roosting habitat are characterised by areas of mud exposed or beneath shallow water with low, dense vegetation (SPRAT 2021). There is minimal suitable habitat within the Project area, as mapped in **Figure 4-39**. The species has been previously recorded within the Study area, in the General Plain wetland to the west of the Project area, in 2014 and 2015 (ALA, see **Figure 4-39**). It has not been recorded within the Project area.

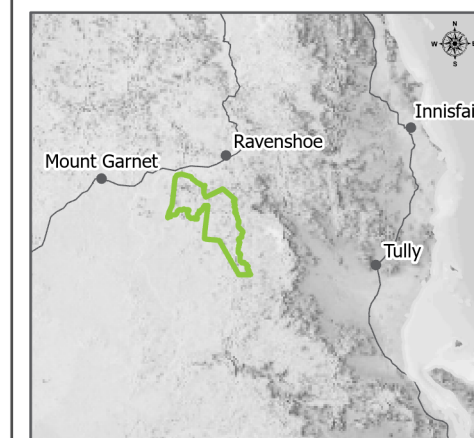
Chalumbin Wind Farm
Potential Habitat for Latham's snipe

Figure 4.39

-  Project Area Boundary
-  Study Area
-  Turbine
-  Met-mast
- Clearance Envelope**
-  Stage 1
-  Stage 2
-  Threatened Fauna Record (ALA/WildNet)
-  main.habitat_APS
-  Watercourse
-  Lot Boundary
-  Easement

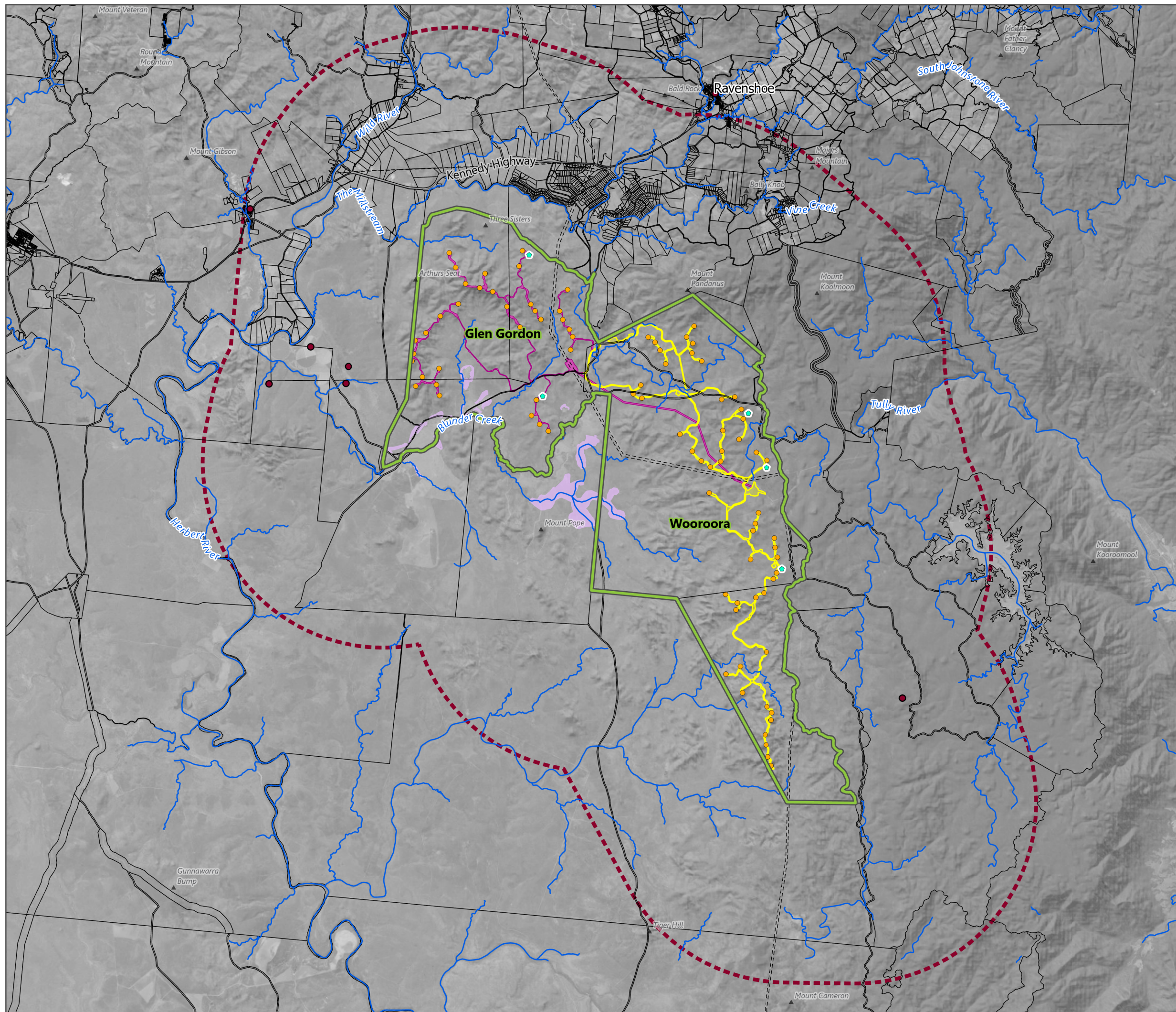
Date: 12/10/2022
Project: EPU-004

Author: TOD
Reviewed: NOD



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





4.9.4 Rufous Fantail

4.9.4.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

The rufous fantail (*Rhipidura rufifrons*) is listed as Migratory under the EPBC Act and Special Least Concern under the NC Act. It is listed globally as Least Concern on the IUCN Red List.

The global population size has not been quantified but, given the area of the habitat occupied and the densities recorded, must be at least in the 100s of thousands. In Australia this species is considered to be common and secure, and there is no evidence of population change (DoE 2015a).

Globally, the rufous fantail is widespread from the Mariana Islands, south through Yap, Sulawesi, east through southern PNG, to the Solomon Islands and Micronesia, and south to Australia. It is considered a common and secure species (SPRAT 2021).

The rufous fantail occurs in coastal and near coastal districts of northern and eastern Australia. Breeding populations occur from the South Australia-Victoria border, through south and central Victoria, on and east of the Great Divide in NSW and north to about the NSW-Queensland border. There is no evidence for historical changes in the distribution of the rufous fantail in Australia (SPRAT 2021).

Three subspecies are 223orter223223223223 in Australia. *R. r. intermedia* occurs along the north-eastern seaboard of Australia, from northern NSW along the coast to the Cape York peninsula. This is core breeding and non-breeding habitat with local movements and altitudinal migration observed as well as regular long-distance migration to PNG (DoE 2015a).

Movement patterns are not fully understood but *R. r. intermedia* possibly moves altitudinally in the Atherton region, where reporting rates above 500 m asl were 37 % in summer and 0 % in winter. Some birds may winter from Cape York peninsula to the Torres Strait Islands and southern PNG, other populations may be resident (SPRAT 2021).

The species inhabits wet sclerophyll forests, often in gullies dominated by eucalypts, usually with a dense shrubby understorey including ferns. They also inhabit subtropical and temperate rainforests. The species may be found in drier and more open habitats during migration, including dry sclerophyll forests and woodlands with a shrubby or heath understorey. In north and northeast Australia, they often occur in tropical rainforest and monsoon rainforest, including semi-evergreen mesophyll vine forests, semi-deciduous vine thickets or thickets of paperbarks (SPRAT 2021).

The rufous fantail is usually seen singly or in pairs, but occasionally in small groups. There is some evidence from banding studies to suggest that individuals return to or move through the same location each season (SPRAT 2021).

The rufous fantail forages mainly in the low to middle strata of forests, sometimes in or below the canopy or on the ground. In Paluma Range in Queensland they tend to forage more at lower levels during the wet season than in the dry season. They are insectivorous (SPRAT 2021).

4.9.4.2 Known Threats

No threat abatement plan has been identified as relevant for this species (SPRAT 2021).

The main threat to populations of rufous fantail is probably fragmentation and loss of core moist forest breeding habitat through land clearing and urbanization, particularly forest remnants and corridors along the species' migration routes (SPRAT 2021).



4.9.4.3 Survey Effort

An initial bird census was undertaken in January 2021. Following this, six bird utilisation surveys have been undertaken at 21 sites across the Project area (June 2021, October 2021, January 2022, April 2022, August 2022 and November 2022), as described in **Section 4.2.2.3**. This has resulted in a total survey effort to date of 205 person hours.












4.9.4.4 Project Area Habitat Assessment

There are multiple prior records of the species within the broader Study area, primarily but not exclusively from within the WTQWHA (ALA). Preferred habitat has been mapped as rainforest and wet sclerophyll forests (**Figure 4-40**), noting that the majority of the Project area could form potential habitat during the migration period when the species is also found in more open habitats.

One individual was recorded on camera trap in April 2021 on a rocky drainage line dominated by brush box (*Lophostemon confertus*) (**Figure 4-40**).

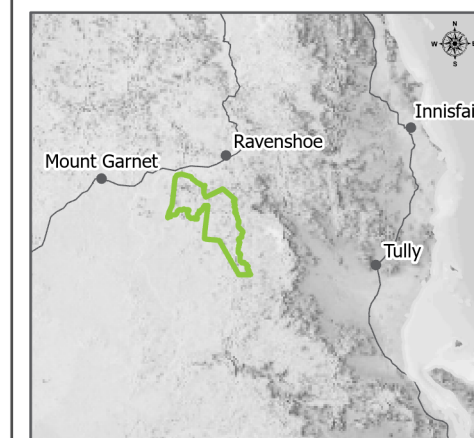
Chalumbin Wind Farm
Potential Habitat for Rufous fantail

Figure 4.40

-  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

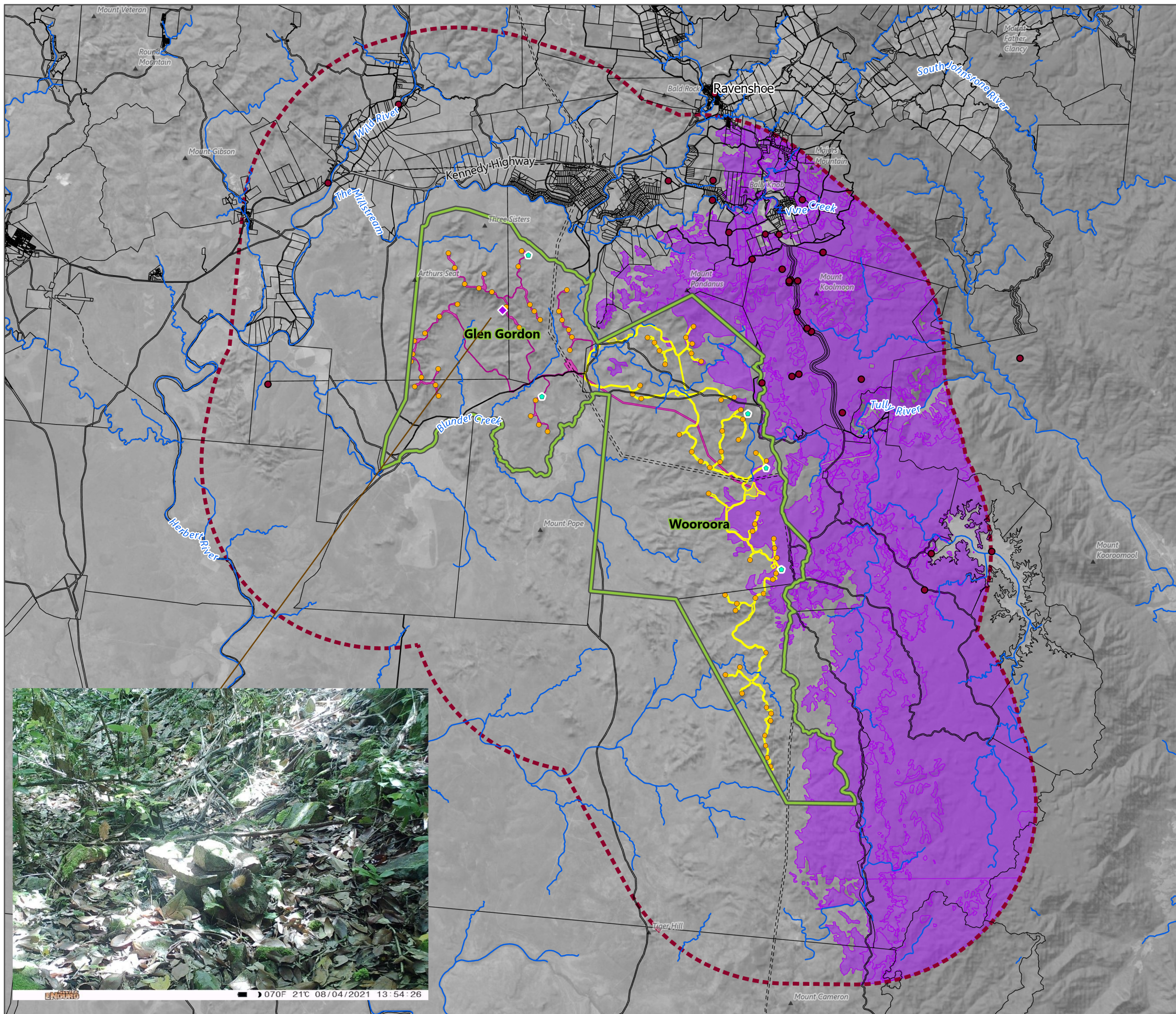
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4.9.5 Satin Flycatcher

4.9.5.1 Threat Status, Distribution, Population, Ecology and Habitat Preferences

The satin flycatcher (*Myiagra cyanoleuca*) is listed as Migratory under the EPBC Act and Special Least Concern under the NC Act. It is listed globally as Least Concern on the IUCN Red List. There has been no significant change in abundance in the period between the first two Australian Bird Atlases (SPRAT 2021) and it was not assessed in the most recent Action Plan for Australian Birds 2020.

Satin flycatchers are migratory, moving north in autumn to spend winter in northern Australia and PNG. They return south in spring to spend summer in south-eastern Australia. They are inconspicuous on passage, possibly because movements are made singly, in pairs or small loose groups through the tree-tops, and possibly at night. Their migration route appears to follow the Great Divide. Some individuals winter in northern Queensland (including around Atherton), and their movements are described as erratic. Satin flycatchers show some site fidelity, returning to the same area each year to breed in the Emerald and Gembrook districts of Victoria (SPRAT 2021).

The species is widespread in eastern Australia and vagrant to New Zealand. In Queensland, it is widespread but scattered in the east, mainly on passage or non-breeding periods (DoE 2015a). It is patchily recorded on the Cape York peninsula but is more widespread (although still scattered) further south. It is mostly found in coastal areas but also on the Great Divide and occasionally further west. The species is widespread in southeast Queensland, eastern NSW, eastern and southern Victoria, eastern Tasmania. It also occurs at many scattered sites in PNG and offshore islands (SPRAT 2021).

The species inhabits heavily vegetated gullies in eucalypt-dominated forests and taller woodlands near wetlands or watercourses, and coastal forests, woodlands, mangroves, dry open woodland with grassy ground cover during migration (BirdLife International 2017a). The species is mostly absent from rainforests (SPRAT 2021) although wintering birds in northern Queensland will use the rainforest-gallery forests interface (DoE 2015a).

Satin flycatchers are mostly insectivorous and are arboreal foragers, feeding high in the canopy and subcanopy.

4.9.5.2 Known Threats

Populations of satin flycatchers are said to have been reduced by clearing and logging of forests in south-eastern Australia, mainly the loss of mature forests. The species is largely absent from regrowth forest (SPRAT 2021).

SPRAT 2021 does not identify any threat abatement plans as being as relevant for this species.

4.9.5.3 Survey Effort

An initial bird census was undertaken in January 2021. Following this, six bird utilisation surveys have been undertaken at 21 sites across the Project area (June 2021, October 2021, January 2022, April 2022, August 2022 and November 2022), as described in **Section 4.2.2.3**. This has resulted in a total survey effort to date of 205 person hours.

4.9.5.4 Project Area Habitat Assessment

There are two prior records of satin flycatcher within the Study area, one undated and one from 1981 (ALA).

The majority of the Project area is considered potential habitat for the species, which inhabits eucalypt forest and woodlands at high elevations, but not rainforests (**Figure 4-41**).

One satin flycatcher was observed during the bird 226orter226226226226226 surveys in October 2021 (**Figure 4-41**).