

**SUMMARY OF DRAFT PUBLIC ENVIRONMENT REPORT – CHALUMBIN WIND FARM**  
**-INCLUDING DETAILED KEY POINTS FOR SUBMISSIONS-**

EPBC ACT REFERRAL: 2021/8983

Submitting a public comment via email: [info@chalumbinwindfarm.com.au](mailto:info@chalumbinwindfarm.com.au).

Submitting a public comment via mail: Chalumbin Wind Farm Pty Ltd c/ Ark Energy, Level 6, 200 Adelaide Street, Brisbane, QLD 4000

**\*\*PLEASE SCREENSHOT OR PHOTOCOPY YOUR SUBMISSION** and send a copy to Stop Chalumbin Wind Farm so we can collate them and make sure they are submitted to the Minister.

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**THE GUIDELINES FOR THE CONTENT OF A DRAFT PUBLIC ENVIRONMENT REPORT – CHALUMBIN WIND FARM state:**

- ✓ The PER should enable interested stakeholders and the Minister to understand the environmental consequences of the proposed development.
- ✓ Information provided in the PER should be objective, clear, and succinct.
- ✓ The level of analysis and detail in the PER should reflect the level of significance of the expected impacts on the environment

MNES = Matters of National Environmental Significance

CBW: Chalumbin Wind Farm PTY LTD. CBW is a subsidiary company set up by Epuron. It is now owned by Ark Energy, which is in turn owned by Korea Zinc, the world's largest lead & zinc producer. Ark Energy press release Dec 21: Ark Energy's mandate is to decarbonise the energy supply of Korea Zinc.

Executive Summary

Introduction (page 14-15)

- The Project has been designed taking into account site constraints and opportunities, and community and stakeholder input. From an original development concept of 200 wind turbines capable of harnessing the economic wind resource, the Project was refined to 95 wind turbines for the referral in July 2021.
- Following further studies and stakeholder engagement since that time, the following significant changes have been made:
- Consideration of an alternate access via Innot Hot Springs for heavy vehicles in response to concerns from residents along the existing proposed access via Wooroora Road. The feasibility of this alternate access is dependent on ongoing investigations into the load rating of the Herbert River bridge to accommodate heavy vehicles; and
- Consideration of a construction camp in response to concerns from residents in Ravenshoe about potential displacement of the community from affordable housing stock as a consequence of the construction workforce.

**INTRODUCTION PER RESPONSE (page 14-15)**

**The developer has continually stated that the development has been reduced from 200 turbines due to community input. This is a lie. As stated above, 95 is the number of turbines submitted in the earliest documentation submitted to both state and federal authorities. Late 2021 it was reduced from 95 to 94 turbines. On the 5<sup>th</sup> Nov 2022, one day before the draft PER was released it was announced it had been further reduced to 86. A reduction of just nine in total not the 114 claimed.**

Description of the action (page 16-17)

- 1071.1 ha development area
- 15-30 full time jobs quote 'generated during operation' 10-20 technicians, project manager, administration and 'other support roles'

## DESCRIPTION OF THE ACTION PER RESPONSE (page 16-17)

### ○ Employment post construction

In the EPBC Act referral the developer stated in the signed declaration that *“Approximately 10-15 full-time jobs will be generated during operation typically 10 technicians, a project manager, administration and support roles.”* The lack of employment post-construction generated significant community anger. As a result the developer changed the number to 15-30. *However, if you look at the description the breakdown of those roles, they remain unchanged other than the ‘to 30’ inserted after the 10.* Doing the math the low-end estimate equates to the total of 15 positions outlined originally. The rest is just spin. Also, nowhere does it state these jobs will be concurrent or throughout the life of the development. The 10 technicians will require specialist skills and it is unlikely these jobs will be filled from within the local community.

## Description of the Environment (page 17-20)

- Development site bordered by the Wet Tropics World Heritage Area / national parks and reserves to the east. Ravenshoe Forest Reserve to the Nth, Yourka special wildlife reserve to the SE.
- Nearest turbine to WTQWHA 600m.
- Project area located on the boundary of Wet Tropics bioregion to the east, and Einasleigh Uplands bioregion to the west.
- Vegetation generally of remnant status.
- Development area is located on the NE edge of the Herbert River catchment, the largest catchment of the Wet Tropics region. Blunder Creek = largest waterway to traverse the development site.
- The riparian vegetation associated with this waterway, and the waterway itself, provide habitat for a range of native species. Having permanent water available in various stretches of the creek, this waterway provides refuge habitat for wildlife during drier periods.
- Project area defined by a taller series of hills forming ridgelines, connected by numerous saddles or knolls.
- Wind turbine predominantly locations situated on the northern and eastern ridgelines elevations from 730 - 990m
- Listed threatened ecological community types: 2
- Listed threatened species: 18
- Listed migratory species: 6
- The Indigenous values of the Wet Tropics NHP are not definitively mapped. As consultation and engagement progresses, more is learned about the cultural landscape of the Project area. The consultation and engagement continues to identify cultural sites, stories of creation beings movements across the Project area, and places of importance to Jirrbal people today.
- The National Heritage List criteria describe the characteristics of a ‘cultural landscape’, and these are explored within this PER. Oral traditions also include Jirrbal intangible cultural heritage on their beliefs, traditions, customs, stories, and other non-physical cultural practices and knowledge, cultural heritage values that are a highly significant component of the Jirrbal cultural landscape.

## 2.0 DESCRIPTION OF THE ACTION

### 2.1 Project Area, Project Footprint and Staging

- Total size of both host properties (aka project area): 77158.65 acres (31225ha)+ adjoining road reserves.
- Development size (aka project footprint): 2646.74 acres (1071.1ha).
- Developer claims they will ‘rehabilitate’ construction clearing totalling 1667.22 acres (674.7 ha).
- Leaving a balance of 979.52 acres (396.4).
- Will be built in two stages:
  - Stage 1 Wooroora – 52 turbines.
  - Stage 2 Glen Gordon – 34 turbines.
  -

## PROJECT AREA, PROJECT FOOTPRINT & STAGING PER RESPONSE [2.1]

Remnant vegetation accounts for 95% of the development area. [EPBC Act referral section 3.7]

**“Rehabilitate”** can be defined as to *‘return something, especially an environmental feature to its former condition.’* [online dictionary]

- The claim that 1667.22 acres of bulldozed land can be ‘rehabilitated’ does not stack up. The impression the developer is trying to create is that the land will be bulldozed then restored to previous condition. This is not going to happen and is entirely impossible. Remnant vegetation encompasses untouched biodiversity that has evolved over countless years. It is inter-connected, and each part playing a crucial role in its function. The suggestion mature forests can be bulldozed and returned to their former condition by seed or tube stock planting is preposterous.. By the time the site is decommissioned in 30 years, the area will again be bulldozed to remove the turbines and associated infrastructure.
- Terrain advise a cost of \$60000 - \$70000 per ha\* for revegetation and maintenance for 5 years. That equates to \$47 million dollars to revegetate the area. Note the word revegetate not ‘rehabilitate’.
- Is it believable that the developer is going to outlay this money? How long will this revegetation take? Does the capacity even exist for this scale of revegetation to be carried out? [\*Source: CWF Community Advisory Group minutes 22<sup>nd</sup> July 2022]
- The developer states in the PER ‘*At the end of the initial operations phase, infrastructure may be repowered with new equipment.. or decommissioned, with the site rehabilitated to facilitate continuation of the current land use (agriculture) or an alternative land use’.* [draft PER Executive Summary Description of the action page 16-17]
  - ❖ When decommissioned the area will again be bulldozed to remove the turbines and associated infrastructure.
  - ❖ The developer states: ‘*rehabilitated for agriculture or an alternative use’.* Cleared land and pastureland are suitable for agriculture. Is this the intention?

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#### 2.21 Project Components

- 86x turbines up to 160m tall, blades 90m, max tip height 250m
- 86x handstand area 1.5-2.0ha
- foundations
- blade laydown areas
- 2x new Powerlink substations
- 2x battery energy storage systems
- 2x collector substations
- medium voltage overhead & underground powerlines
- high voltage overhead powerlines
- 5x permanent monitoring masts
- 122km of unsealed roads
- fire breaks
- stockpile areas
- permanent site entrance Wooroora road.
- alternative optional site entrance ‘being investigated’ via Innot Hot Springs
- upgrade works Wooroora road
- fencing
- security
- 2x temporary concrete batching plants
- temporary construction compounds
- stockpile area
- temporary site offices
- workshops
- warehouses
- permanent site offices

### **PROJECT COMPONENTS PER RESPONSE [2.2]**

#### **Alternative optional site entrance**

- ❖ The developer has faced fierce community backlash from residents in Wooroora road over the impacts the heavy haulage and construction vehicles will have on their amenity. The developer has only stated the ‘consideration\*’

and ‘investigation’ of an alternate route. There is no commitment nor any obligation within the draft PER to make use of the alternate route. [*\*Draft PER Executive Summary page 15*]

### **Temporary Concrete Batching Plants**

- ❖ This is a critical issue. 68,800m<sup>3</sup> of concrete is required for the foundations for the turbines alone. [Source: draft PER section 2 page 57] This is in addition to the considerable amount required for the other infrastructure outlined above. Where will the water for these batching plants come from? This is not disclosed in the draft PER, nor has it been detailed in any previous state or federal development submission. Without doubt, the developer plans to extract water from the Herbert River catchment – most likely Blunder Creek. This cannot be allowed to occur.
- ❖ A report on all the MNES listed species that live in this and other waterways within the development area has been omitted from the draft PER. Endangered species of flora and fauna are found in this creek, and the removal of water from this catchment will have a catastrophic impact that has not been assessed. Similarly, water for other construction related purposes should not be taken from local waterways.

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## **2.3 PROJECT DEVELOPMENT STAGES**

### **2.31 Construction**

- Final investment decision (FID) of stage 1 ETA Dec 2022.
  - Construction of stage 1 to commence as soon as approval obtained.
  - Final investment decision (FID) of stage 2 ETA Dec 2023.
  - Construction of stage 2 to commence mid-2023.
  - Construction time 24-30 months (both stages sequentially).
  - Commissioning ETA stage 1 2025 / stage 2 2026.
- 250-350 construction staff proposed to stay in ‘local accommodation’, Most likely Ravenshoe, Millstream, or Innot Hot Springs.
  - Developer currently investigating the feasibility of an alternative accommodation option close to the Project area following feedback on the stressed accommodation market in the broader region and the potential to further reduce construction related impacts on nearby residents.
  - Water will be used for dust suppression and bulk earthworks. Supply options states include ‘the construction of bores or dams’ subject to consultation.

### **CONSTRUCTION PER RESPONSE [2.31]**

- ❖ Ravenshoe, and the wider tablelands area is in a housing and homelessness crisis. Rental properties are being sold, tenants are being displaced, and with no rental availability, individuals and entire families are being forced into living in cars and in tents. The stated construction workforce of 350 people cannot be housed in the area with existing accommodation. Period. The only way that accommodation can be made available is through displacing locals. A developer offering inflated rents is the inevitable outcome.
- ❖ The developer has only offered to ‘consider’ and to ‘investigate’ the construction of an accommodation camp in the PER. There are no details provided. There is not even a site identified. If it was going to be built the location and size of the compound certainly would have been included in the draft PER. It wasn’t because it is simply an offer ‘to consider’ that looks good to approval authorities, as an attempt to address this critical issue. It has been 16 months since the EPBC Act referral was lodged. In all that time no arrangements or commitments have been made to construct a compound.

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## **THE GUIDELINES FOR THE CONTENT OF A DRAFT PUBLIC ENVIRONMENT REPORT – CHALUMBIN WIND FARM state:**

- Describe any feasible alternatives to the proposed action.

### **3.0 FEASIBLE ALTERNATIVES**

Alternatives assessed within this development:

1. The “No Action” Alternative.
2. An Alternative Location in the Northern QREZ  
Offshore wind farm not considered as Great Barrier Reef WHA is not feasible location.  
Alternative options:
  - a. Gulf Plains Bioregion.

- b. Einasleigh Uplands Bioregion
  - Due to proximity to grid infrastructure (b) = better alternative option of the two.
  - 30% increase in capital and operational costs.
  - Require 2 to 3 years of feasibility studies.
  - Located within the Chalumbin Project Area. MNES that may be significantly impacted by the alternative location are consistent with those identified for the Chalumbin Wind Farm. With the exception of those MNES encountered within rainforest environments of the Wet Tropics bioregion. [Location is further away from WTWHA].
- 3. An Alternative Configuration at Chalumbin
  - a. More intensive (up to 200) turbines = clearing of rainforest / more impacts.
  - b. Less intensive 34 turbines on Glen Gordon only = larger separation between development and WTWHA, shorten duration of loss of amenity Wooroora Rd residents, reduce development site by half – lessening impacts. Decreased generation capability.
- 4. Avoidance of all Magnificent Brood Frog Habitat Alternative
  - a. Avoidance through design is not practicable as watercourse crossing are required for access tracks to each tower location. Therefore, the alternative option for avoid magnificent brood frog habitat is effectively the “No Action” alternative.
  - b. Development approach: avoiding where practicable the known populations of the species. Where avoidance is not possible, compensation measures including land-based offsets, and \$250,000 towards research.
- 5. Avoidance of all Wet Sclerophyll Forest Alternative
  - a. Would reduce development to 49 turbines
  - b. Unfeasible [*Executive Summary Draft PER page 17*]
- 6. The Fossil Fuel Alternative
  - a. New coalfired power station proposed CQ
  - b. In theory, this fossil fuel alternative would negate the requirement for the Chalumbin Wind Farm Project and one more wind farm generator of a similar size and scale.
  - c. The fossil fuel alternative = significant departure from Australia’s commitments under the Paris Climate Accord and the Glasgow Climate Pact.
  - d. Fossil fuel alternative would contribute to the ongoing acceleration of climate change.

### **FEASIBLE ALTERNATIVE PER RESPONSE [3.0]**

The Guidelines for the Content of a Draft PER – Chalumbin Wind Farm state: **‘Information provided in the PER should be objective.’**

- ❖ **The ‘No Action’ Alternative**
- ❖ **By no reasonable standard, could the ‘No Action’ option be described as having been assessed objectively, and therefore is not compliant with PER guidelines.**
- ❖ **\*A single paragraph underplays the benefits of this alternative stating: *“The values of the Project area described in Section 4.0 would remain on their current trajectory (i.e. largely intact but with ongoing grazing activities and an increasing pest animal presence), and the potential impacts associated with the Project described in Section 5.0 would not occur.”***
- ❖ **This is in stark contrast to the half page of claimed ‘lost opportunities’ the developer outlines. A cost-benefit analysis has not been carried out in regard to this alternative. Significant benefits that balance the stated ‘lost opportunities’ have been omitted. Example: *‘Lost opportunity to access the land and resultant loss of annual benefits to landholders in relation to commercial agreements to sub-lease the land for the proposed wind farm.’* Landholders of just two properties will benefit in the claimed manner. By contrast, a considerable number or residents will be significantly impacted, and their loss of amenity affected by the development. This has been completely omitted.**
- ❖ **Avoidance of all Magnificent Brood Frog Habitat Alternative**  
**The catastrophic impacts Chalumbin poses to this species are such that all known habitats must be avoided. In the absence of this being ‘practicable’ as the developer claims, the development must not be allowed to proceed, and the development must be deemed manifestly unsuitable for this location.**

❖ **Options that have not been assessed:**

1. **Nuclear**

Although legislation including the EPBC Act currently prohibits the nuclear option, there is an increased awareness taking place about the advantages of this option in achieving net zero emissions. Namely, a substantially reduced construction footprint, 24/7 baseload power generation, and high output capacity.

2. **Offshore wind developments outside of the Great Barrier Reef WHA**

3. **Solar on existing cleared pastureland**

Solar installations on the extensive existing cleared land around the Tablelands, and elsewhere is a potential feasible renewable energy option that has not been assessed – why?

4. **Wind Turbine developments beyond the Cairns-Townsville (Northern QREZ) region**

There are exceptional wind resources around Bowen QLD, and the wider Gladstone and Rockhampton regions, and there are ample potential locations available without significant impacts to MNES. (Extensive grassland areas north of Bowen and outside of Gladstone & Rockhampton population areas). A wind turbine development in this region, could have presented viable alternatives. A comparison between these areas and Ravenshoe shows the average wind speed on a month-to-month basis can be over double that of Ravenshoe\*. Why were areas outside the Nth QREZ excluded as alternative locations? It is of note that coal in central QLD was listed as a feasible alternative, yet other wind turbine locations were ignored? Why? Could it be because it is not in the financial interests of the developer to show that viable, perhaps better locations exist for this development, without the biodiversity and WTWHA impacts? [\*Note: comparison based at wind speed 10m above ground level]. [Source: Weatherspark.com]

❖ The guidelines state ‘describe any feasible alternatives.’ Why were all feasible alternatives (including option 2-4) not considered?

❖ By failing to comply with being ‘objective’ in the assessment, the developer has breached the Guidelines for the Content of a Draft PER – Chalumbin Wind Farm.

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**DESCRIPTION OF THE ENVIRONMENT [4.0]**

- **Listed threatened ecological communities (TECs) (2 species):**
  - Mabi forest (complex notophyll vine forest 5b) TEC – critically endangered; and
  - Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland TEC^ endangered
- **Listed threatened species (18 species):**
  - North Queensland lace (Aponogeton bullosus) – endangered
  - Homoranthus porteri - vulnerable
  - Prostanthera clotteniana – critically endangered
  - Triplarina nitchaga - vulnerable
  - Australian lace-lid (Litoria dayi) – vulnerable
  - Magnificent brood frog (Pseudophryne covacevichae) - vulnerable
  - Mountain mistfrog (Litoria nyakalensis) – critically endangered
  - Masked owl (northern subspecies) (Tyto novaehollandiae kimberli) - vulnerable
  - Red goshawk (Erythrorchis radiatus) - vulnerable
  - Southern cassowary (southern population) (Casuarius casuarius johnsonii) - endangered
  - White-throated needletail (Hirundapus caudacutus) – vulnerable, migratory
  - Ghost bat (Macroderma gigas) – vulnerable^
  - Koala (Phascolarctos cinereus) – vulnerable
    - (Koala declared endangered 12/02/22 however, PER Guidelines stipulate that listing events that occurred after the controlled action decision (10 August 2021) does not affect the assessment and approval process. Therefore, the koala is assessed under this PER through its former vulnerable listing)
  - Northern greater glider (Petauroides volans minor syn. Petauroides minor in Queensland) - vulnerable;
  - Northern quoll (Dasyurus hallucatus) - endangered
  - Spectacled flying-fox (Pteropus conspicillatus) - endangered
  - Spotted-tailed quoll (North Queensland subspecies) (Dasyurus maculatus gracilis) - endangered
  - Yellow-bellied glider (Wet Tropics subspecies) (Petaurus australis Wet Tropics subspecies) – endangered

- **Listed migratory species (6 species):**
  - Black-faced monarch (*Monarcha melanopsis*)
  - Fork-tailed swift (*Apus pacificus*)
  - Latham’s snipe (*Gallinago hardwickii*)
  - Rufous fantail (*Rhipidura rufifrons*)<sup>^</sup>
  - Satin flycatcher (*Myiagra cyanoleuca*)<sup>^</sup>
  - Spectacled monarch (*Monarcha trivirgatus*)<sup>^</sup>
- **The WTQ World Heritage Area**
- **The WTQ National Heritage place**
  - <sup>^</sup> Denotes a TEC or species that was not listed in Section 5 of the PER Guidelines but has nonetheless been assessed as part of this PER due to the potential to be impacted by the Project.

#### 4.1.1.1 Historic Land Use

- Northern portion of the Project area, including Wooroora Homestead, Glen Gordon Homestead and Kara Outstation, were previously a ‘focus’ of Jirrbal activity both before European colonisation and in the early pastoral history.
- Archaeological evidence shows that the earliest known human occupation near the rainforest areas east of the Project area was 31,000 years ago.
- For 2,500 years Jirrbal people occupied both rainforest and open forest landscapes throughout the broader region. This included the open forest areas of the Project area.
- The Wooroora and Glen Gordon Stations were established for pastoral purposes from the late 1800s.
- Late 1800’s to 1960s, the stations were expanded through help of many Jirrbal people living and working on the land (clearing and mustering).
- It is around the late 1800s when there was considerable conflict between the European pastoralists and the Jirrbal people.

#### 4.1.1.2 Current Land Use

- Developments area currently used for cattle grazing, with areas ranging from degraded (in the north) to relatively undisturbed (in the south).

#### 4.1.2 Protected Area Estate

The Project area is not located within any Protected Area.

Notable Protected Areas located adjacent or within the region include:

\*The eastern boundary of Project area is bordered by national parks and reserves for a total distance of 37.9km:

##### Tully Falls National Park

- Is part of the WTQWHA and one of wettest areas of QLD.
- It comprises wet sclerophyll forest, upland rainforest, clear mountain streams and waterfalls.
- Supports iconic fauna species such as Lumholtz’s tree-kangaroo and southern cassowary.

##### Koombooloomba National Park

- Is part of WTWHA.
- The western part of the property supports 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.
- Supports the yellow-bellied glider & Lumholtz’s tree-kangaroo.

##### Koombooloomba South Forest Reserve

- Is part of the WTQWHA.
- Was converted from a timber reserve 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

\* South-eastern boundary borders a Queensland special wildlife reserve , Yourka Station, managed by Bush Heritage Australia.

#### 4.1.3 Bioregion

Located boundary Wet Tropics bioregion (east), Einasleigh Uplands bioregion (west). Eastern & southern parts are within Kirra-Hinchinbrook bioregion

#### 4.1.4 Vegetation

- Generally remnant vegetation within Project area.
- Small patches Rainforest – none within development footprint.
- In flatter parts generally within proximity to homesteads, some clearing for grazing has occurred.
- Of the ground-truthed (meaning condition verified by onsite surveys):
  - Status: Of Concern x29 vegetation management classes
  - Status: Endangered x1 vegetation management class  
*[RE 7.8.19 Corymbia clarksoniana open forest to woodland on basalt].*

*\*Additional Info: The Regional Ecosystem (RE) description database lists the biodiversity status (BD Status) and the vegetation management class (VM class) of each regional ecosystem. The BD status is based on an assessment of the condition of remnant vegetation in addition to the criteria used to determine the class under the Vegetation Management Act.*

#### 4.1.5 Hydrology

- The Project area located on NE edge of the Herbert River catchment, the largest catchment of the Wet Tropics region.
- The Herbert River flows in a generally SE direction intersecting 15 major tributaries before discharging approx. 5.081 trillion litres annually into the Coral Sea near Lucinda.
- The Herbert River is a contributor of dissolved inorganic nitrogen and fine sediments being released into the Great Barrier Reef Marine Park. It is managed under the Reef 2050 Water Quality Improvement Plan to reduce the amounts of fine sediments, nutrients (nitrogen and phosphorus) and pesticides flowing to the Great Barrier Reef.
- Blunder Creek is the largest waterway to traverse *[travel across or through]* the Project area.
- The riparian vegetation associated with this waterway, and the waterway itself, provide habitat for a range of native species.
- Having permanent water available in various stretches of the creek, this waterway provides refuge habitat for wildlife during drier periods.
- The majority of infrastructure associated with the Project will avoid direct and indirect impacts to Blunder Creek.
- In addition to Blunder Creek, there is a series of stream orders 1, 2 and 3 across the site, including within the Project footprint. Third order streams present include Lily, Pandanus, Oaky and Kara Creeks = tributaries to Blunder Creek.
- Waterways include creeks with a soft substrate bottom, and rocky gullies with distinct water holes and densely vegetated riparian vegetation.
- The majority of the lower order waterways within the Project area were not running or were holding stagnant water during dry-season flora surveys (Oct 2020). During the wet-season fauna surveys (Jan-Mar 2021), all waterways were at the upper limit of their capacity with scattered flooding events.

#### 4.1.8 Elevation

- The proposed wind turbine locations are predominantly situated on the eastern and northern ridgelines, or occasionally located on other isolated scattered hills within the properties, with elevations ranging from 730 m to 990 m

#### 4.1.9 Climate

- Mean annual rainfall across weather stations 894 – 1719mm.

#### 4.1.9 Climate Change

- The Far North Queensland region is predicted to experience higher temperatures, greater frequency, and duration of extreme temperatures (heatwave), more intense rainfall but with increased variability, and more intense tropical cyclones but at a lower frequency. There is an additional risk of increased bushfire intensity, although these predictions are less robust.
- Biodiversity is globally predicted to disperse to higher altitudes or to the higher latitudes to remain within its preferred climatic envelope.



- Within the context of the WTQ World Heritage Area, there are considerable barriers for dispersal of species from existing protected areas due to limited habitat connectivity at a landscape scale. Dispersal in the region is therefore expected to occur most frequently within the existing protected area network including the WTQ World Heritage Area which offers greatest opportunity to reach the more suitable climates at higher elevations relative to the coastal lowlands (Van Der Wal et al 2012).
- It is predicted that seven frog species, five mammal species, three bird species and three skink species would lose over half their present habitat with only a 1°C temperature.
- The cumulative impacts of habitat fragmentation leave wildlife susceptible to competition, disease and predation from invasive pests and weeds which ultimately reduces their capacity to adapt to change, particularly in isolated areas, thus increasing their exposure to extinction.

## 4.2.2 Field Assessment

### 4.2.2.1 Survey Teams, Timing and Weather Conditions



## 4.2.2 Field Assessment

### 4.2.2.1 Survey Teams, Timing and Weather Conditions

A summary of the surveys undertaken to date, including the timing of the surveys and the team members involved, is presented in **Table 4-3**.

**Table 4-3 Summary of Survey Timing and Teams**

| Survey  | Timing             | Survey Team        | Years of Experience |
|---|--------------------|--------------------|---------------------|
| Protected plants survey at proposed meteorological monitoring mast location | 23 September 2020  | Dr Paul Williams   | > 25 years          |
| Spring vegetation surveys   | 20-29 October 2020 | Dr Paul Williams   | > 25 years          |
|   |                    | Darren Maxwell     | > 25 years          |
|   |                    | Nicholas Heard     | 8 years             |
|   |                    | Corey Callahan     | 8 years             |
| Fauna reconnaissance survey   | 20-21 October 2020 | Terry Reis         | > 25 years          |
|   |                    | Nikki O'Donnell    | > 20 years          |
| Wet season fauna surveys  | 19-31 January 2021 | Terry Reis         | > 25 years          |
|   |                    | Dr Bruce Thomson   | > 30 years          |
|   |                    | Ben Nottidge       | > 15 years          |
|   |                    | Rhys Sharry        | 3 years             |
|   |                    | Janelle VanderBeek | 3 years             |
|   |                    | Alex Wright        | 1 years             |
| Additional protected plants surveys in new areas of Project footprint       | 16-19 March 2021   | Dr Paul Williams   | > 25 years          |
|   |                    | Selina Carruthers  | 1 year              |
| Supplemental wet season fauna surveys                                       | 23-31 March 2021   | Ben Nottidge       | > 15 years          |
|   |                    | Nikki O'Donnell    | > 20 years          |
|   |                    | Rhys Sharry        | 3 years             |
| Protected plants surveys at additional two meteorological monitoring masts  | 30 March 2021      | Darren Maxwell     | > 25 years          |
| Dry season fauna surveys  | 19-28 June 2021    | Dr Bruce Thomson   | > 30 years          |



| Survey  | Timing                                 | Survey Team        | Years of Experience |
|---|--|--------------------|---------------------|
|   |  | Ben Nottidge       | > 15 years          |
|   |  | Janelle VanderBeek | 3 years             |
|   |  | Wise Lum           | 3 years             |
| Early dry season bird utilisation surveys                                     | 19-28 June 2021                        | Mervyn Mason       | > 25 years          |
|   |  | Rhys Sharry        | 3 years             |
| Protected plants surveys at additional sites within the Project footprint     | 23 June 2021                           | Ben Nottidge       | > 15 years          |
| Additional (late dry season) bird utilisation surveys                         | 5-17 October 2021                      | Mervyn Mason       | > 25 years          |
|   |  | Janelle VanderBeek | 3 years             |
| Greater glider habitat assessment   | 9-15 December 2021                     | Mervyn Mason       | > 25 years          |
|   |  | Sonny Royal        | 2 years             |
| Targeted magnificent brood frog surveys                                       | 7-11 December 2021, 12-16 January 2022 | Janelle VanderBeek | 3 years             |
|   |  | Rhys Sharry        | 3 years             |
| Additional (early wet season) bird utilisation surveys                        | 18-27 January 2022                     | Mervyn Mason       | > 25 years          |
|   |  | Janelle VanderBeek | 3 years             |
| Targeted surveys for the North Queensland Lace ( <i>Aponogeton bullosus</i> ) | 3-10 February 2022                     | Darren Maxwell     | > 25 years          |
|   |  | Selina Carruthers  | 1 year              |
| Additional (late wet season) bird utilisation surveys                         | 6-14 April 2022                        | Mervyn Mason       | > 25 years          |
|   |  | Sonny Royal        | 2 years             |
| Additional (early dry season) bird utilisation surveys                        | 9-17 August 2022                       | Mervyn Mason       | > 25 years          |
|   |  | Selina Carruthers  | 2 years             |

Weather conditions leading up to and during these surveys are summarised in **Table 4-4**. Rainfall was measured at the Ravenshoe Alert gauge (weather station 31200) approximately 10 km from the Project area while temperature was measured at the Walkamin Research Station (weather station 31108) approximately 70 km from the Project area.

The Project area received significant rainfall in the weeks immediately prior to the start of the wet season fauna surveys, associated with Tropical Cyclone Imogen. Heavy rainfall also occurred leading up to the supplemental wet season fauna surveys in March 2021, with the result that both survey events can be considered as indicative of wet season conditions. Rainfall in the two months prior to the dry season surveys was lower than the 1968-2021 average and can therefore be considered as indicative of dry season conditions.

**Table 4-4 Weather Conditions Indicative of the Project Area Prior to Surveys (BOM, 2022)**



|                               | Sep 2020    | Oct 2020    | Nov 2020    | Dec 2020    | Jan 2021               | Feb 2021    | Mar 2021    | Apr 2021    | May 2021    | June 2021   |
|-------------------------------|-------------|-------------|-------------|-------------|------------------------|-------------|-------------|-------------|-------------|-------------|
| Rainfall (mm)                 | 35 (22.1)   | 19 (46.6)   | 22 (52.8)   | 75 (138.4)  | 43 <sup>10</sup> (255) | 293 (281)   | 143 (272.4) | 183 (121.9) | 54 (64.8)   | 35 (58)     |
| Mean minimum temperature (°C) | 16 (14.8)   | 16.7 (16.7) | 18.2 (18.5) | 20.5 (19.8) | 20.7 (20.3)            | 20.6 (20.5) | 19.5 (19.6) | 18.8 (18.1) | 16.1 (16.2) | 15.4 (14)   |
| Mean maximum temperature (°C) | 26.6 (27.2) | 29.6 (29.3) | 31.2 (30.6) | 31.6 (30.8) | 28.9 (30.1)            | 29.2 (29.3) | 29 (28.2)   | 27 (26.7)   | 25.1 (25.1) | 25.2 (23.7) |

Numbers in brackets represent the relevant meteorological averages between years 1968 and 2021.

| July 2021   | August 2021 | Sept 2021   | Oct 2021    | Nov 2021    | Dec 2021    | Jan 2022    |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 32 (45.2)   | 26 (27.3)   | 44 (23.1)   | 41 (46.3)   | 164 (57.8)  | 159 (139.3) | 289 (255)   |
| 15.2 (13.1) | 15.3 (13.3) | 15.5 (14.8) | 17.9 (16.7) | 19.7 (18.5) | 19.8 (19.8) | 20.5 (20.3) |
| 26.1 (23.4) | 25.1 (24.7) | 26 (27.2)   | 32.1 (29.4) | 30.9 (30.6) | 31.1 (30.8) | 30.6 (30.1) |

<sup>10</sup> The volume of rainfall recorded at Ravenshoe Alert station for January 2021 appears to have been incorrectly recorded as it would not suggest the cyclonic conditions experienced on site, nor is it comparable with rainfall data recorded over the same period at nearby weather stations: Innot Hot Springs to the west (363.4 mm), Woodleigh Station to the west (381.6 mm), Greenhaven to the northeast (653.8 mm) and Sutties Creek to the east (653 mm)

#### **FIELD ASSESSMENT – SURVEY TEAMS, TIMING & WEATHER CONDITIONS PER RESPONSE [4.2.2.1]**

- ❖ Extremely limited hours spent on surveys.
- ❖ Survey work for the aquatic plant, North Queensland lace is listed in table 4.3 as being conducted over a 7-day period in Feb 2022. The draft PER page 105 states 6 days, page 125 of the same document states 5 days.
- ❖ If the duration of survey work cannot even be accurately represented, what hope is there that the survey work undertaken was of the standard required for the assessment of MNES listed species?!
- ❖ Regardless, this is a shockingly short duration to survey this species. Rainfall in Feb 2021 was the highest of the year at 293mm. Jan 2022 289mm It is exceptionally difficult (near impossible) to spot this species in areas of turbidity, particularly during periods of increased water levels, following heavy rain.
- ❖ Targeted Magnificent Brood Frog Surveys just 4 days in Dec and 4 days in Jan. An astonishingly short duration for an elusive species, with a large area of potential habitat.

#### 4.2.2.3 Fauna Surveys

##### 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 and set to record bat calls between dusk and dawn.
- During the wet season, six Anabats were deployed at five locations each, and for two consecutive nights at each location. During the dry season, six Anabats were deployed at three locations each, for two consecutive nights at each location.
- In total, 96 survey nights at 48 locations were achieved using the Anabats.

#### **FAUNA SURVEYS – PASSIVE ACOUSTIC DETECTION PER RESPONSE [4.2.2.3]**

- ❖ **Method outlined is of insufficient duration to accurately identify Microbat species over such a large area.**

##### 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, northern greater glider, and yellow-bellied glider.
- Spotlighting involved walking or slowly driving through areas of potential habitat.
- 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. Remaining ridgelines were targeted during an additional 35 person-hours of spotlighting undertaken in June 2021

#### **FAUNA SURVEYS - SPOTLIGHTING PER RESPONSE [4.2.2.3]**

- ❖ **The integrity of the spot lighting method as outlined is insufficient in both scale and operational procedure to accurately identify target species.**
- ❖ **'Fauna Survey Limitations' draft PER page 115 states: '*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.*'**
- ❖ **Spotlighting was limited to tracks which has the least likelihood of bearing results, due to their proximity to areas of disturbance.**
- ❖ **Associated vehicle noise and lighting will have dramatically reduced observed species. This is particularly the case with shy and elusive, and notoriously difficult species to observe, such as Koala.**
- ❖ **Surveys were undertaken in a vehicle generating mechanical and road noise, and that is deemed as acceptable surveying technique? All this on a 2646.74-acre (1071.1ha) development area?!**
- ❖ **Target species are notoriously timid and elusive. Noise generated by vehicles driving, will by any reasonable assessment, have significantly reduced the likelihood of species being seen.**

##### Nocturnal Active Searches

- Nocturnal active searches and call playback were undertaken on several watercourses within the Project area for frogs, including 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. Additional targeted surveys for magnificent brood frog were undertaken over 5 nights in December 2021 and 5 nights in January 2022.

##### Diurnal Bird Counts [Diurnal definition: of or during the day / daily; or each day]

- During the wet season, diurnal bird counts were undertaken at 28 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 37 person hours.

### **FAUNA SURVEYS – DIURNAL BIRD COUNTS PER RESPONSE [4.2.2.3]**

- ❖ **Method used as outlined is manifestly inadequate insufficient in scale, in duration (just 20 minutes), in personnel, and in total hours undertaken. It can not be relied upon for accuracy.**

#### Bird Utilisation Surveys [page 111-112]

- During the dry season (19-28 June 2021), bird utilisation surveys (BUS) following a Before-After-Control-Impact (BACI) design were undertaken as per the requirements of State Code 23 and Appendix C of the Final PER Guidelines.
- BUS were undertaken at 21 locations across the Project area, comprising 17 impact sites and four control sites.
- Survey sites were distributed as evenly as possible across the Project area to maximise coverage of potential wind turbine locations. Given the large extent of the Project area and the ruggedness of the terrain, vantage-point surveys (VPS) were preferred over standard point count surveys as they maximise the observer's field of view across the Project area. The sites for each VPS were located at the highest point in the landscape, with a viewshed radius of up to 1 km, depending on visibility.
- Control sites were located at least 1.5 km from proposed turbine locations, outside the wind farm development footprint and in areas of similar habitat.
- A spotting scope with a variable, 25x to 50x magnification was used to maximise bird detection and identification, and the survey effort was a 20-minute period at each location, repeated twice (once in the morning up to 10am and once in the afternoon after 3pm). This resulted in a total survey effort of 1,680 minutes or 28 person-hours.

Bird activity was stratified into height bands to accommodate the potential Rotor Swept Area (RSA) for the turbines, which has provisionally been identified as between 40 m and 265 m.
- Bands were defined as:
  - below the Raptor Swept Area (RSA): 0 m to 40m
  - within the likely RSA: 40m to 265m
  - above the RSA: > 265 m
- The BUS were repeated between 5—17 October 2021, 18—25 January 2022, 6—14 April 2022 and 9—17 August 2022 adding a further bird survey effort of 112 person-hours and amounting to a total effort to date of 140 person-hours

### **FAUNA SURVEYS – BIRD UTILISATION SURVEYS PER RESPONSE [4.2.2.3]**

- ❖ **When man hours are described in minutes it indicates survey time is so low as to be preposterous.**
- ❖ **For the developer to submit that the equivalent of 1 person performing 3.5 weeks work (based on a 38hr week), could adequately conduct sufficiently detailed surveys at 21 sites is unbelievable.**
- ❖ **To compound that by selecting only 21 locations on a development site totalling 2646.74acres defies belief!**

#### Survey of Potential Red Goshawk Nesting Habitat [page 114]

- A nest considered possibly belonging to red goshawk was observed in the Project area in January 2021, in riparian vegetation.
- The nest was unoccupied (as would be expected in late January) but appeared to have been recently built (no older than the 2019-20 breeding season).
- Photographs of the nest were sent to four recognised red goshawk experts; one (a QPWS ranger) stated the nest was likely to belong to the red goshawk while two others considered it was 'possibly' belonging to the red goshawk (the fourth did not respond).
- There are a small number of alternative raptor species that the nest could belong to. It was therefore considered necessary to actively survey appropriate areas of potential habitat during the nesting season.
- In northern Australia red goshawks lay eggs from July to September and fledge young from October to December (DEWHA 2010b). The chicks are dependent on the adults until they leave the natal territory by the end of December. Surveys undertaken in October are therefore appropriate to identify nesting pairs that are actively tending to chicks.
- Further correspondence with avian experts indicates that the nest is highly likely to belong to the grey goshawk (*Accipiter novaehollandiae*).

- The Survey guidelines for Australia's threatened birds (DEWHA 2010b) indicate that red goshawks are very secretive birds and generally silent; their presence is most likely to be detected by the location of nests.
- Therefore, the survey guidelines recommend that searches for their characteristic nests are undertaken within patches of the tallest forest which requires ground searches along river banks. Driving slowly through woodland tracks and scanning groups of tall trees for nests can also be effective. Soaring birds can also sometimes be located from vantage points such as mountain tops. The recommended survey effort guide is 50 hours over 8 days for a 50 ha area.
- The survey team spent a total of 263 person hours over 13 days surveying the Project area for red goshawk. Of this, 83 person hours were spent undertaking dedicated searches for red goshawk nests across the 165 ha area mapped as potential nesting habitat. Transects were a mixture of driven and walked.
- An additional 180 person hours were spent undertaking visual surveys for soaring red goshawks.

## **FAUNA SURVEYS – SURVEY OF POTENTIAL RED GOSHAWK NESTING HABITAT PER RESPONSE**

### **[4.2.2.3]**

- ❖ **Photo of nest was sent to four recognised Red Goshawk experts for positive identification. Of those four, three responded. One of those a QPWS positively identified the nest as belonging to the Red Goshawk. Both other experts advised it was 'possibly' a Red Goshawk nest. From that position, and without explanation, the developer wants us to accept that actually, it is not a Red Goshawk nest, it is in fact a Grey Goshawk nest! As discussed elsewhere in this document, the reason becomes clear later in the PER. There is no doubt there was a deliberate attempt to discredit the initial identification of the nest that occurred. Three different version of events are recorded two of which are in this same PER document! [refer to page 26 of this document].**
- ❖ **Based on the precautionary principle, and in line with best practice under the EPBC Act in protecting MNES, the nest must be regarded as belonging to red goshawk for assessment purposes**
- ❖ **The recommended survey effort guide is stated as 50 hours per 50ha area. The development site is 1071.1ha. Therefore, by that calculation 1071.1 hours of survey should have occurred. Instead, the developer states just 443 hours of surveying, in total was performed.**
- ❖ **A 2010 report titled Distribution, status and habitat of the Red Goshawk in Qld states '*These raptors are difficult to locate.*' The Australian government survey guidelines for Australia's Threatened Birds states the species is '*Very secretive. Generally silent.*' and '*Presence most likely detected by location of nests*'. The National Recovery Plan for the Red Goshawk states: '*The red goshawk is a solitary and secretive bird that is generally silent. Even when nesting, red goshawks are inconspicuous; they do not usually reveal themselves by flying off in alarm when approached.*' The assumption clearly, therefore, cannot be inferred, that because this notoriously secretive species was not observed, that it does not inhabit the development area.**

### Fauna Survey Limitations [page 115]

- Wet season surveys were planned for late January 2021.
- That 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 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.



## FAUNA SURVEYS LIMITATIONS - PER RESPONSE [page 115]

- ❖ The integrity of fauna surveys overall have been severely compromised by the methods used, total survey hours, and number of survey points / amount of habitat surveyed. This has been further impacted by environmental and other factors. This includes:
  - Flooding limiting survey work in proximity of turbine sites, limiting the ability of survey work, has contributed towards an unsatisfactory assessment.
  - 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.
- ❖ This has contributed towards a narrow-band survey approach, that can not be relied upon for accuracy for MNES assessment purposes.

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## 4.4 LISTED THREATENED FLORA SPECIES

### 4.4.1 NORTH QUEENSLAND LACE

- North Queensland lace (*Aponogeton bullosus*) status: **Endangered** under the EPBC Act and NC Act. Not assessed on the (IUCN) Red List.
- The population size of North Queensland lace is not known.
- The species occurs between Tully and Cairns, and west to the Ravenshoe area; its distribution overlaps with that of the Mabi Forest TEC. It has been recorded from Wooroonoran and Tully Falls National Parks.
- North Queensland lace is a rooted, fully submerged, perennial aquatic species.
- It grows in cool, rapidly flowing freshwater rivers and streams in both sunny and shady positions.

#### 4.4.1.2 Known Threats

- Collection aquarium trade.
  - Project Area = private property, locked gates, inaccessible unlikely to be occurring.
- Encroachment of exotic plants from riparian zones.
  - There are some exotic species present but overall the vegetation is in good condition.
- Clearing of surrounding vegetation for farming, particularly dairying, resulting in changes to water flow and degradation of water.
  - Both host properties are used for cattle grazing but at relatively low density and the majority of the Project area is remnant vegetation, including riparian zones.

#### 4.4.1.3 Survey Effort

- Surveys to identify the presence of and potential habitat for North Queensland lace within the Project area were undertaken in Feb 2022, as described in Section 4.2.2.2.
- As the species flowers between the months of Sept and April (Calvert 2016), this survey period is considered appropriate. All semi-perennial watercourses within the Project area were surveyed, from both banks to the extent practicable given the dense coverage of Lantana in some areas. The total survey effort came to approximately 100 person hours.

#### 4.4.1.4 Project Area Habitat Assessment

- North Queensland lace was listed in the PMST as likely to occur within the Project area. It has previously been recorded within the Bluff State Forest and the Millstream (part of the Herbert River catchment) to the north of the Study area, with the most recent record dating from 2018 (ALA).
- It has also been recorded from Tully Falls National Park in 2001 (ALA), which forms part of the Tully River catchment. Locations of previous records are generalized due to sensitivity concerns.
- North Queensland lace has not been previously recorded within the Project area.
- All existing records of North Queensland lace have occurred in permanent, flowing watercourses (Dr Paul Forster, Principal Botanist, Queensland Herbarium, pers comm).
- The majority of mapped watercourses across the Project area are highly ephemeral and generally dry for periods longer than the 6-8 weeks that North Queensland lace can remain as an underground tuber (Calvert 2016).
- These watercourses were not surveyed as they do not meet the definition of potential habitat for the species.

- Targeted surveys for North Queensland lace over the course of five days did not identify its presence within the Project area. However, it was observed within the Study area, and it does have the potential to occur in a small number of semi-permanent watercourses within the Project area.
- These watercourses are fringed with riparian vegetation that is likely to provide the necessary light and temperature regimes within the streams to support the species.
- Collectively these watercourse sections measure 40 km in length and flow into the Herbert River downstream of where the Millstream flows into the Herbert River.
- None of these watercourse sections are intersected by proposed Project infrastructure, as illustrated in Figure 4-13.
- The species was observed near the Herbert River bridge, which may require upgrading if the Innot Hot Springs alternative route to site is established. Impacts to the species are not expected to occur (refer to Section 5.6.2.2)

#### **DRAFT PER LISTED THREATENED FLORA SPECIES – NORTH QLD LACE 4.4.1**

- ❖ Survey work is listed in table 4.3 (page 9 of this document) as being conducted over a 7-day period in Feb 2022 by 2 people. Page 105 of the draft PER states 6 days. Page 125 says 5 days.
- ❖ The watercourses with potential habitat are stated to be 40km long. Surveys were conducted from the banks (where even possible) due to lantana preventing access. This species is not readily seen. It typically occurs in moderate to fast flowing water, with turbidity levels increasing significantly in periods of faster flow. Surveys were conducted in Feb 2022. Feb 2021 had the highest rainfall of any month over a one-year period 293mm – more than double any other month. While Feb 2022 figures are not provided, Jan 2022 is stated to be 289mm. High rainfall results in increased flow, increased volume and increased turbidity. It is near impossible that this species could have been observed under these conditions. [Source: Matt Lachlan]
- ❖ In order to properly survey this species, investigation would need to be conducted when water levels are at the lower end of normal, and water visibility is clear. Access to the waterway is required – commonly this species is only seen from being in close proximity, and often a mask / snorkel is needed to confirm its presence. It can resemble other species from above the water – particularly with turbidity. It does not have a rigid leaf structure, so it moves in line with currents. It is not a plant that sits upright in the water, the only exception being very small plants at the margins of the waterway (uncommon), and in times of substantially impeded flow due to natural or man mad intervention. [Source: Matt Lachlan]
- ❖ The survey work conducted is manifestly inadequate and was performed at a period where it would be near impossible to impossible to observe this species even if it was prevalent in the waterways surveyed. As such, no credibility can be attributed to the survey work undertaken to date.

#### **4.5 LISTED THREATENED FAUNA SPECIES**

##### **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 areas in open eucalypt forests. [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].**



- Dominant plant species include yellow stringybark, lemon scented gum, pink bloodwood, yellow jacket, stringybark, red mahogany and turpentine.
- The understorey of these forests is comprised of kangaroo grass, grass trees, sedges, swamp box, and she-oaks. 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.
- **Eggs are laid on moist soil in or near a seepage, usually under vegetation. After hatching, the tadpole makes its way down the seepage or is washed into first order streams where development continues in small pools.**
- **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.**

#### 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.**
- 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.
- 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.**

#### 4.5.2.3 Survey Effort

- The magnificent brood frog working group (MBFWG) 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.
- Methods currently being assessed by the (MBFWG) 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.
- One survey method that has been successfully used in the past is call survey. Call surveys should be conducted during the known calling period, between Dec and May.
- 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.
- **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.**

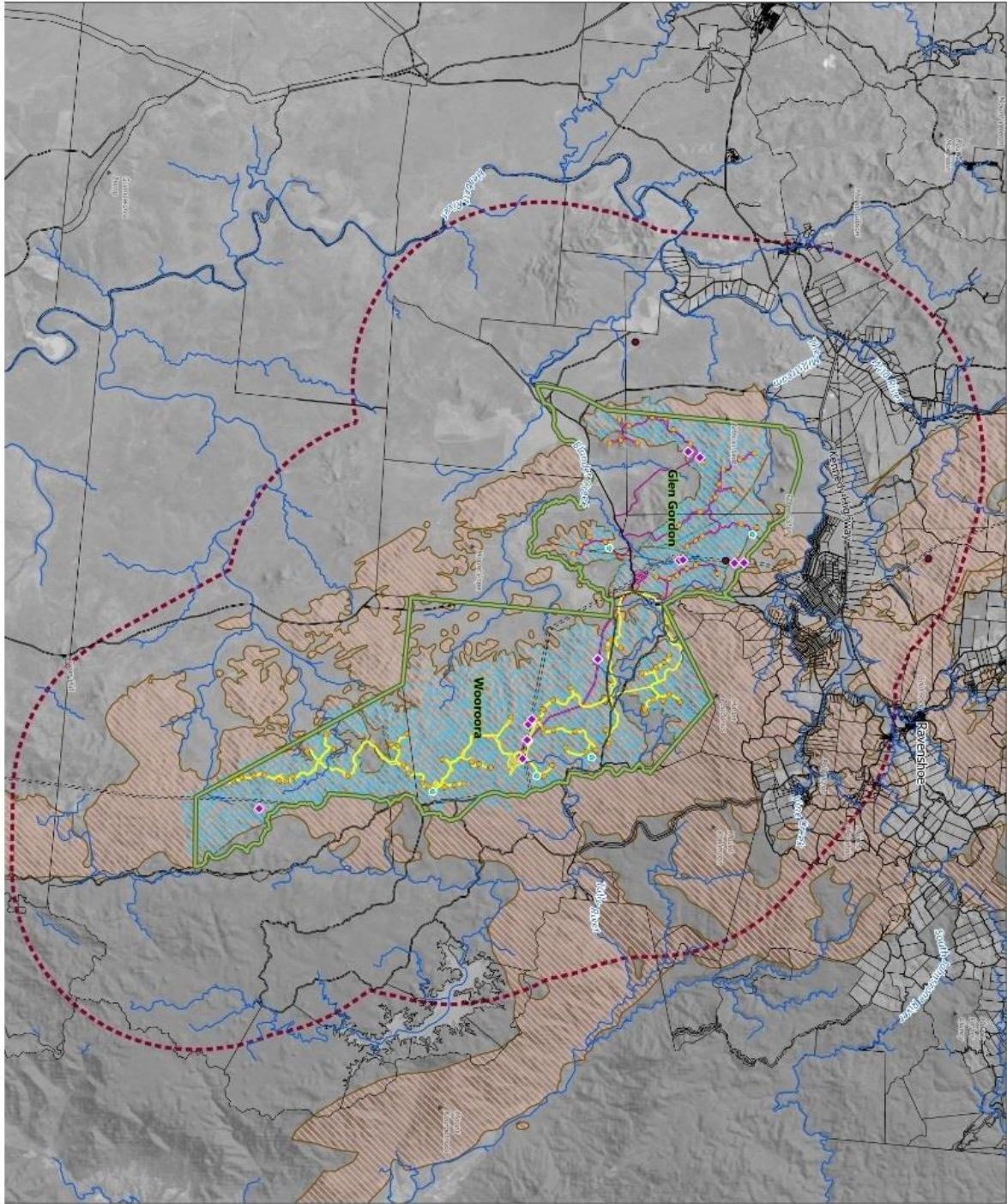
#### 4.5.2.4 Project Area Habitat Assessment


- Magnificent brood frog has previously been recorded within the Project area 19).
- **The magnificent brood frog working group has more recently not been granted access by the landowner to undertake repeat surveys.**
- 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 and January 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) analysis was also performed to identify where seepages are most likely to develop when the water table is high enough. 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.

- 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 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.
- **As the total population is likely to be very small, all of the known habitat is considered to be critical for survival.**
- **The Project will result in the clearing of 120.5 ha (297.76 acres) of magnificent brood frog habitat.**

# MAGNIFICENT BROOD FROG HABITAT MAP





**ARK ENERGY**


**Chalumbin Wind Farm**  
Observations and Potential Habitat  
for Magnificent broodfrog

**Figure 4.18**

**STUDY AREA**

- ▬ Project Area Boundary
- ▬ Turbine
- Met-mast
- ▬ Clearance Envelope
- ▬ Stage 1
- ▬ Stage 2
- ▬ Watercourse
- Survey Observation
- Threatened Fauna Record (ALA/Wildnet)
- ▬ Potential Habitat
- ▬ Glen Gordon Volcanics
- ▬ Lot Boundary
- ▬ Easement

Date: 17/08/2022      Author: TOJ  
 Project: EPU-004      Reviewed: NOD



Scale: 1:500,000 @ A3

0      5      10 Km

Data Sources:  
 Digital Orthophoto Database - Department of Resource, 2022a.  
 Regional Topographic Mapping, State of Western Australia, 2020.  
 Environmental Observations, © State of Western Australia, 2022.  
 Resource, 2022.

Path: \\server1\bin\K\Consist\1\doc\info\p\A\exo - Doc\mms\proj\epu\epu\LP-004 - Chalumbin\03\4\Cartograph\11\_F\_R\_Summs-03\11\_JEP\_Summs-03.apx

## 4.6.2 MASKED OWL

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

- The masked owl (northern subspecies) (*Tyto novaehollandiae kimberli*) is listed as Vulnerable under the EPBC Act and the NC Act. The nominate species is listed globally as Least Concern on the IUCN Red List.
- The distribution within Australia is poorly known, and three subpopulations have been suggested: Kimberley, Northern Territory and Cape York. In Queensland it occurs along the southern rim of the Gulf of Carpentaria, Cape York Peninsula and south to Atherton Tablelands and the Einasleigh-Burdekin divide.
- The species appears to occur as several small subpopulations, with an estimated total of 2,000 mature individuals in the nominate subspecies.
- The population is suspected to be declining.
- Has been recorded from riparian forest, open forest, Melaleuca swamps and the edges of mangroves, as well as the edges of sugar cane fields.
- **It requires large old-growth trees with large hollows for nesting.**
- It usually nests in patches of closed forest and feeds largely on small to medium sized terrestrial mammals.
- A study on the southern subspecies identified a core range of approximately 155 ha. The subspecies probably breeds in March-October and nests are 7-8 km apart.
- It is sedentary and territorial.  
The masked owl has a large home range and hence low population density).

### 4.6.2.1 Known Threats

- The northern subspecies has undoubtedly been affected by broad-scale changes to the environment caused by altered fire regimes, grazing by livestock and feral animals, and the invasion of native woodlands by exotic plants, particularly introduced pasture grasses.
- The most likely cause of the species' decline is a shortage of food, as small and medium-sized native mammals are becoming increasingly uncommon across much of northern Australia
- The current regime of more intense, frequent and extensive fires may also reduce the availability of the large trees and hollows required for nesting. One study has found that possums (specifically, common brushtail
- The main factors identified as making the northern subspecies eligible for listing in the Vulnerable category are a limited number of mature individuals (approximately 3,000), a suspected continuing decline in population size and a geographic distribution that may be precarious for the survival of the species.
  - Threat abatement plan to reduce the impacts on northern Australia's biodiversity by the five listed grasses (DSEWPC 2012a).

### 4.6.2.3 Survey Effort

- An assessment of hollow-bearing trees for occupation by nocturnal fauna (including masked owls) was undertaken across the Project area and these areas were then targeted for survey using call playback and spotlighting in the wet and dry season, in line with relevant guidelines
- The total survey effort comprised 103 person hours with call playback being undertaken on 12 days.

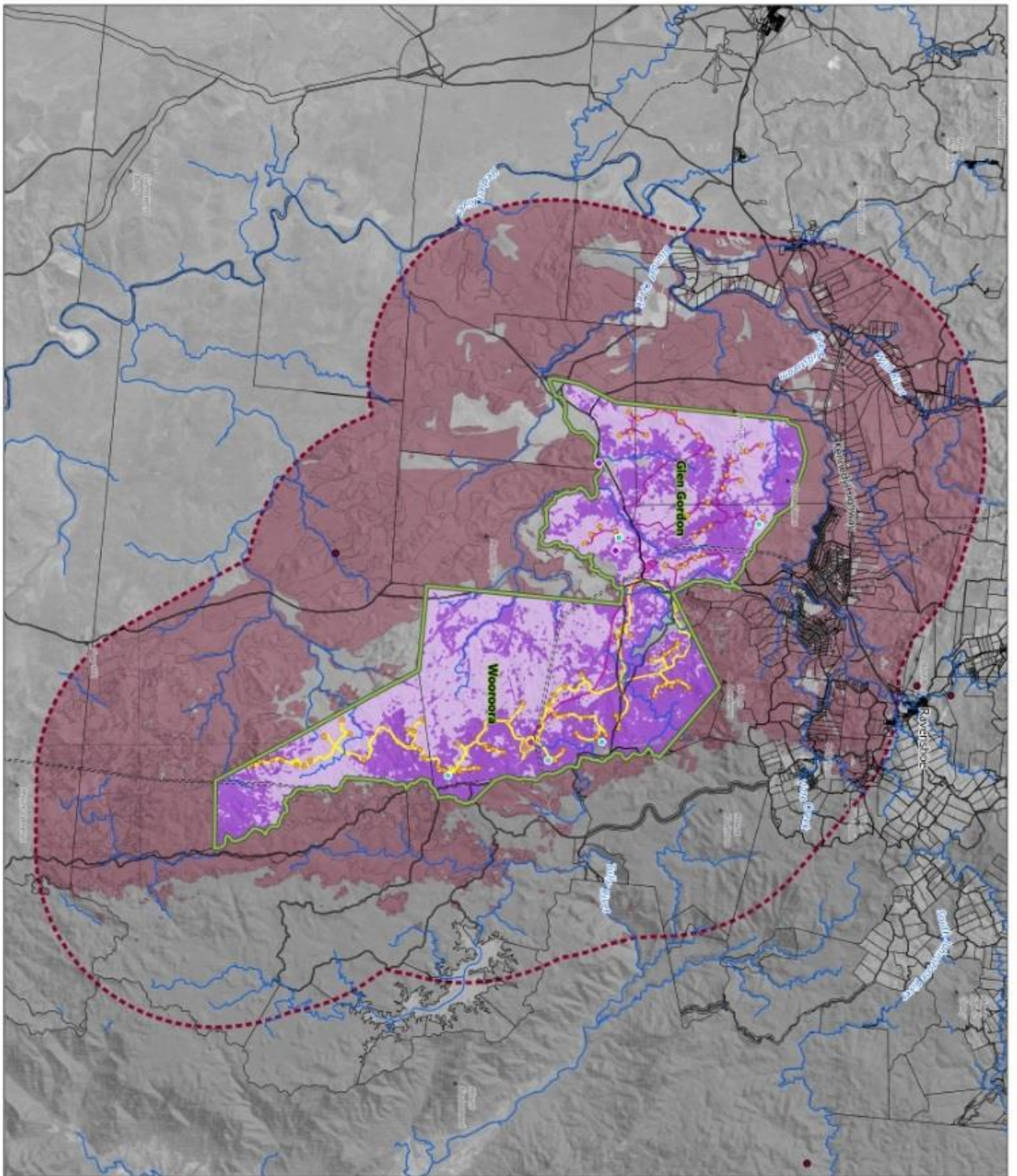
### 4.6.2.4 Project Area Habitat Assessment

- The masked owl requires large hollows for nesting, and usually nests in patches of closed forest.
- The demonstrated correlation between tree diameter at breast height (DBH) and presence of hollows is well established and is increasingly used as an indicator of tree habitat value. Size thresholds for what constitutes a "large tree" within a particular ecosystem type is guided by the probability of hollow presence in different tree species in different regions, meaning some species may contain hollows at smaller diameters than other species.
- Light Imaging Detection And Ranging (LIDAR) data was acquired for the Project area in March 2021 to assist with the 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 mapping of ‘large trees’ across the study area was undertaken through the derivation of allometric relationships between DBH and tree height measurements of habitat trees captured during a greater glider habitat assessment in December 2021 and extrapolated across the entire site using tree height data extracted from LiDAR data.
- Using the recommended threshold for DBH for “large trees” of 41.2 cm in the Wet Tropics bioregion ,the habitat assessment data was plotted to indicate an allometric relationship on site between DBH and tree height. A conservative intercept of 13 m tree height was selected as a threshold for the height of tall trees when using the mean of all species
- A density of 25 large trees per ha was considered indicative of the species’ preference for nesting in “closed forest”.
- Masked owl habitat within the Project area was mapped as follows):
  - Nesting habitat comprises rainforest, riparian forest or open eucalypt forest containing “large trees” at a density of > 25 trees per ha; and
  - Additional foraging habitat was mapped as rainforest, riparian forest and open forest within a buffer area around nesting habitat based on a core range of 155 ha.
- Potential habitat within the broader Study area (where LIDAR data was not available to derive tree heights) was conservatively mapped as rainforest, riparian forest and open forest.
- **The Project will result in the clearance of 534.2 ha of nesting and foraging habitat and an additional 507 ha of foraging-only habitat = 1041.2ha (2572.86 acres)**



# MASKED OWL HABITAT MAP



**ARK ENERGY**

**Altexo**

**Chalumbin Wind Farm**

Observations and Potential Habitat  
for Masked owl

**Figure 4.21**

- Project Area Boundary
- Study Area
- Turbine
- Met-mast
- Clearance Envelope
- Stage 1
- Stage 2
- Watercourse
- Survey Observation
- Threatened Fauna Record (AA/WildNet)
- Nesting Habitat
- Foraging Habitat
- Potential Habitat
- Lot Boundary
- Easement

Date: 13/10/2022 Author: TOO  
 Project: PFU 004 Reviewer: NCO

Scale: 1:250,000 GMS

0 5 10 km

Data Source: Queensland Department of Resources (2022)  
 Digital Capital Expenditure (DCE) Survey (2022) State of Living Australia (2020)  
 Environment and Survey (2022) State of Living Australia (2020)  
 Esri/ArcGIS Online, © State of Queensland Department of Resources (2022)

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#### 4.6.3 RED GOSHAWK

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

- The red goshawk (*Erythrotriorchis radiatus*) is listed as Vulnerable under the EPBC Act and Endangered under the NC Act. The red goshawk is listed globally as Near Threatened in the IUCN Red List and as Endangered in the Action Plan for Australian Birds.
- The red goshawk is endemic to Australia. It occurs in a patchy, widespread distribution across coastal and sub-coastal regions of northern and eastern Australia.
- The distribution of the red goshawk is not severely fragmented. It is suspected that there is some fragmentation but there is no evidence this is severe.
- Historically the red goshawk occurred from the northeast tip of New South Wales, across Queensland and the Northern Territory, to the north of Western Australia.
- However, there is evidence to suggest that the mainland population may now be smaller than previously estimated and that the species' range may have contracted to the north.
- There is no clear data to indicate past declines in the species' extent of occurrence, and there is no information available on predicted future changes in the extent of occurrence.
- The red goshawk is suspected to have always had a very large distributional range and extent of occurrence within which it was very sparsely distributed.
- The Action Plan for Australian Birds 2020 estimates there is a population of 1,340 mature individuals in a single population, which is declining.
- The species inhabits biodiverse, extensive, multi-species mosaics of mostly Eucalypt-dominated open forests and woodlands, in permanently watered, varied terrain.
- Its present association with rugged terrain may be an artefact of past patterns of habitat clearance.
- Nests are restricted to trees that are taller than 20 m (mean height = 31 m) and within 1 km of a watercourse or wetland
- Pairs are believed to remain within the nesting territory all year but may expand their home range when not breeding.
- Breeding generally occurs in spring, with laying from May to October in the north.
- **The estimated home range is 120 km<sup>2</sup> for a breeding female and 200 km<sup>2</sup> for a male.**
- The same breeding territories may be occupied year after year (although not necessarily the same nest). Adults are year-round residents in northern Australia and, as is common among large bird-eating raptors, **they have large home ranges.**
- Population turnover is probably low. Juveniles may disperse widely and are probably responsible for the bulk of sightings outside the core breeding areas
- Northeast QLD (north of 20°S) and eastern Cape York Peninsula are considered to be the strongholds for the species in eastern Australia and this has been corroborated by extensive field surveys (DERM 2012).
- A recognised species expert, Dr Richard Seaton of the Australian Wildlife Conservancy, stated in a radio interview in May 2020 with the ABC Kimberley that there are currently no known nesting pairs south of Cape York.
- **Garnett and Baker 2021 indicate that red goshawks breed from the Kimberley east to the Cape York Peninsula and may breed at very low densities in the Wet Tropics and Einasleigh Uplands, although data is scarce.**
- Generally, records south of the Cape York Peninsula over the last decade are increasingly scant, with the exception of tracked individuals.
- In northern QLD red goshawks are mainly associated with extensive, uncleared mosaics of native vegetation, especially riparian vegetation, open forest and woodland that contain a mix of eucalypt, ironbark and bloodwood species.
- Red goshawk habitat has to be open enough for fast attack and manoeuvring in flight, but provide cover for ambushing of prey. Therefore, forests of intermediate density are favoured, or ecotones between habitats of differing densities, e.g. between rainforest and eucalypt forest, between gallery forest and woodland, or on edge of woodland and forest where they meet grassland, etc.
- **The red goshawk is a visitor to the Atherton areas, in June to October – however this observation may represent an extension of home-range when not breeding.**
- Diet is 95 % birds (SPRAT 2021), especially those in the 100-250 g range.
- The usual method of capture is hunting from concealed, or occasionally exposed, perches. They occasionally use rapid contour hunting and often seize prey in flight. They actively perch hunt early and late in the day, while flying for much of the time between 1200 and 1600 hours.

- They fly for prolonged periods (up to 60 minutes) through and just above the canopy, occasionally soaring up to approximately 1,000 m for up to 30 minutes.

#### 4.6.3.2 Known Threats

- Vegetation clearance is thought to have caused the historical decline in NSW and southern QLD.
- Ongoing declines may also be attributed to habitat fragmentation and degradation.
- Reduced fire frequencies, leading to vegetation thickening and a reduction in habitat suitability may also be a threat.
- Declines in abundance of the key prey species caused by the loss or degradation of freshwater wetlands, loss of hollow-bearing trees in which prey breed, over-grazing by livestock and feral herbivores, and altered fire regimes (including both increased and decreased fire frequencies) may also be impacting the species' long-term viability

#### 4.6.3.3 Survey Effort

- In northern Australia, the species starts nest-building in May, lays eggs from July to September and fledges young from Oct to Dec. The fledged young remain around the nest area for another month or so.
- Surveys for nests in late October are therefore appropriately timed to identify birds on a nest, if present.
- The survey method for red goshawk recommended in The Survey Guidelines for Australia's Threatened Birds is to search for their characteristic nests within patches of the tallest forest along riverbanks.
- In eastern Australia's ranges, searching for nests is more difficult but soaring birds can sometimes be located from vantage points such as mountain tops. Some success has also been had surveying this species using call playback during the breeding season.
- All three of these methods were used during Project surveys.
- The recommended survey effort guide for red goshawk is 80 hours / 10 days of area searches (or 50 hours over 8 days to cover 50 ha)
- Project ecologists spent a total of 263 person hours over 13 days surveying the Project area for red goshawk. Of this, 83 person hours were spent undertaking dedicated searches for red goshawk nests across the 165 ha area mapped as potential nesting habitat
- Transects were a mixture of driven and walked. Call playback was only utilised near the single potential nest identified during these surveys.
- An additional 180 person hours were spent undertaking bird utilisation surveys (timed counts of all birds observed which would include any soaring red goshawks, if present) at 21 vantage points across the Project area, including within potential nesting and foraging habitat for red goshawk.

#### 4.6.3.4 Project Area Habitat Assessment

- **The species was known to nest historically on the Yourka Nature Reserve immediately to the south of the Project area, with the last recorded sighting in ALA dating from 2007.**
- No red goshawks have been observed during any of the Project surveys. In January 2021, a nest considered as possibly belonging to red goshawk was observed in the Glen Gordon property, in riparian vegetation to the north of the main property access road. The nest was unoccupied (as would be expected in late January) but appeared to have been recently built (no older than the 2019-20 breeding season).
- Photographs of the nest were sent to a number of recognised bird specialists (including a QPWS ranger, a member of BirdLife Australia, a staff member of the AWC and another experienced ornithologist); one agreed the nest resembled that of a red goshawk, two others considered it was 'possibly' belonging to a red goshawk and one was certain that the nest was not that of a red goshawk but instead belonged to a grey goshawk (a non-threatened species that was observed during surveys).
- As with the masked owl a tree height layer was derived from LiDAR data and interrogated to estimate the abundance and distribution of large trees (>20 m) within 1 km of permanent water (a watercourse or a wetland) which could be potential red goshawk nesting trees. This resulted in an area of approximately 165 ha being identified as potential red goshawk nesting habitat within the Project area. These areas were the focus of targeted red goshawk nest surveys in October 2021.



- Bird utilisation surveys were undertaken as part of the same survey, which would have identified any soaring red goshawks if present. No red goshawks were observed during the survey. No new potential red goshawk nests were identified.
- The previously identified potential red goshawk nest was revisited and appeared to be disused. There was no evidence of bones, food or faeces under the nest. Call playback was undertaken in proximity to the nest for 30 minutes and the only species to respond was a pied currawong.
- There is no evidence of any breeding pairs nesting within the Project area in the current nesting season and no evidence of any red goshawks currently using any part of the Project area for foraging.
- **The potential for juvenile red goshawks to use the Project area for foraging whilst undertaking the vast migrations for which they are known cannot be discounted.**
- **As the species has not been recorded from within the Project area (nor within the broader Study area for approximately 15 years), no habitat critical to the survival of the species has been mapped within the Project area.**
- Potential nesting habitat within the Project area has been mapped as remnant vegetation up to 1 km from a watercourse (stream order 3 or greater) and with a canopy height greater than 20 m. Potential foraging habitat within the Project area and the broader Study area (for which canopy height data is not available) has been mapped as any other remnant or regrowth vegetation that is not rainforest.
- Potential nesting and foraging habitat are mapped in Figure 4-22 along with previous species records and observations from Project survey

#### **RED GOSHAWK THREAT STATUS, POPULATION, ECOLOGY & HABITAT PREFERENCE PER RESPONSE [4.6.3.1]**

- ❖ **The presence of a Red Goshawk nest within any part of the development site could have had a significant impact on the approval of the development. Given their peril, and large home range (up to 200km), of this species, most of the map likely would have been upgraded to critical habitat. The species is part of a national recovery plan. It is also included in the 100 Priority Species Threatened Species Strategy. It is functionally extinct in NSW, and it is believed to be that way in SEQ [Source: Dr Richard Seaton of the Australian Wildlife Conservancy].**
- ❖ **The survey results of a study undertaken into the distribution of the Red Goshawk show known sightings in the Einasleigh Uplands region and in the Wet Tropics region which covers most of the development area. [Source: Distribution, status and habitat of the Red Goshawk in QLD Czechura et al].**
- ❖ **The species has a very large home range of up to 200km therefore covering the entire development site and the wider area.**
- ❖ **The recommended survey effort guide is stated as 50 hours per 50ha area. The development site is 1071.1ha. Therefore, by that calculation 1071.1 hours of survey should have occurred. Instead, the developer states just 443 hours of surveying, in total was performed.**
- ❖ **A 2010 report titled Distribution, status and habitat of the Red Goshawk in Qld states ‘these raptors are difficult to locate.’ The Australian government survey guidelines for Australia’s Threatened Birds states the species is ‘Very secretive. Generally silent..’ and ‘Presence most likely detected by location of nests’. The National Recovery Plan for the Red Goshawk states: ‘The red goshawk is a solitary and secretive bird that is generally silent. Even when nesting, red goshawks are inconspicuous; they do not usually reveal themselves by flying off in alarm when approached.’**
- ❖ **Despite not being included with the PER, habitat critical to the survival of the species was mapped in the MNES report and a copy of that map is on page 27. Also attached is the Red Goshawk potential habitat map from the draft PER (page 28). Independent survey sighting map also attached (page 29).**
- ❖ **What does this developer do when they have a species that risks derailing a development? Fabricate a story of course...**

## **RED GOSHAWK NEST 'LIKELIHOOD' TIMELINE**

### **MNES REPORT CHALUMBIN WIND FARM VOLUME (page 92) 22/06/2021**

'A nest considered **highly likely** to belong to red goshawk was observed in the Glen Gordon property, in riparian vegetation to the north of the main property access road. The nest was unoccupied (as would be expected in late January) but appeared to have been recently built (no older than the 2019-20 breeding season). Photographs of the nest were sent to a number of **recognised red goshawk experts**; one (a QPWS ranger) confirmed the nest as belonging to the red goshawk while two others considered it was 'possibly' belonging to the red goshawk.'

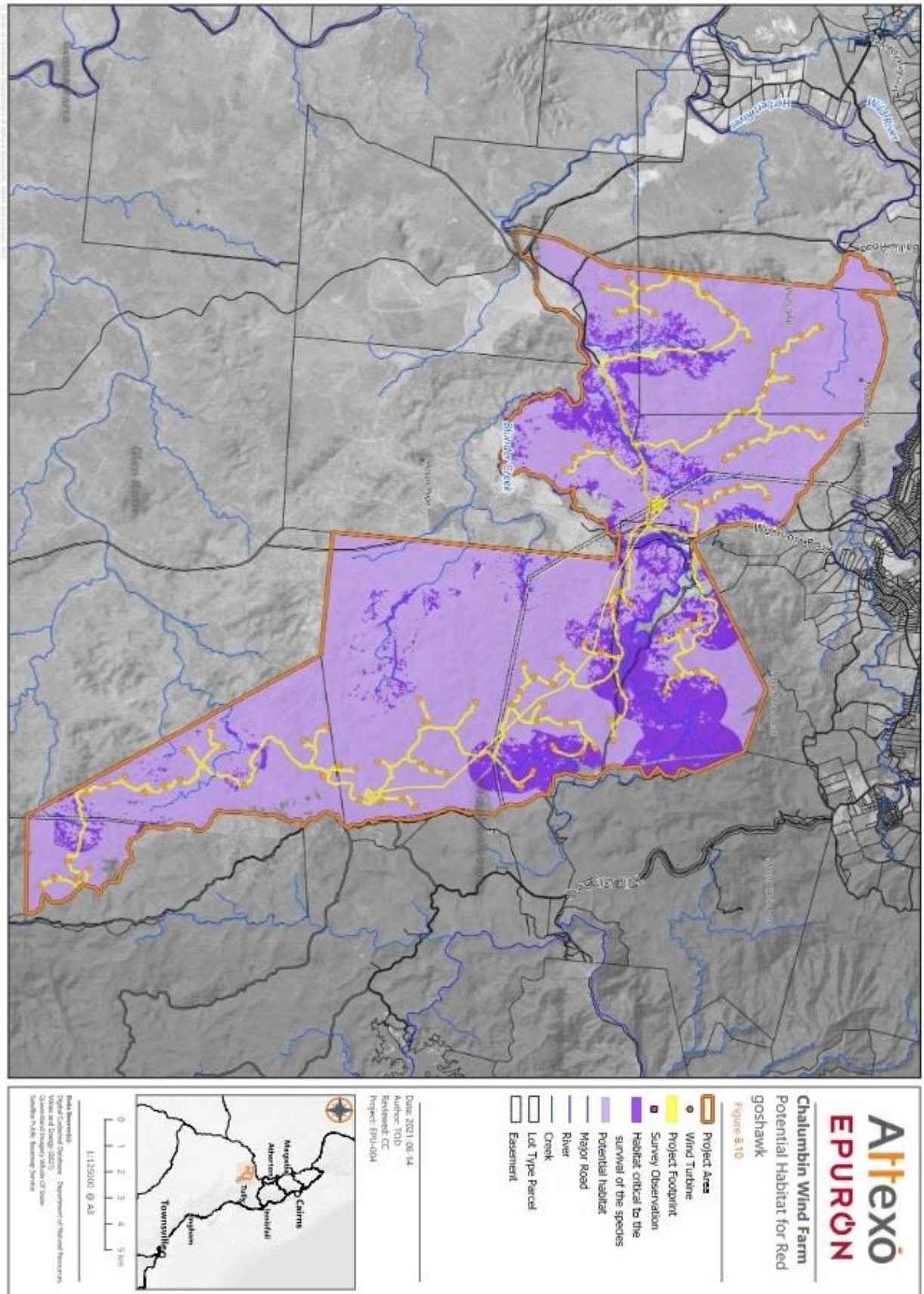
### **DRAFT PER CHALUMBIN WIND FARM (page 114) 03/11/2022**

'A nest considered **possibly** belonging to red goshawk was observed in the Project area in January 2021, in riparian vegetation. The nest was unoccupied (as would be expected in late January) but appeared to have been recently built (no older than the 2019-20 breeding season). Photographs of the nest were sent to four **recognised red goshawk experts**; one (a QPWS ranger) stated the nest was likely to belong to the red goshawk while two others considered it was 'possibly' belonging to the red goshawk (the fourth did not respond).'

### **DRAFT PER CHALUMBIN WIND FARM (page 152) 03/11/2022**

'In January 2021 a nest considered as **possibly** belonging to red goshawk was observed in the Glen Gordon property, in riparian vegetation to the north of the main property access road. The nest was unoccupied (as would be expected in late January) but appeared to have been recently built (no older than the 2019-20 breeding season). Photographs of the nest were sent to a **number of recognised bird specialists** (including a QPWS ranger, a member of BirdLife Australia, a staff member of the AWC and another experienced ornithologist); one agreed the nest **resembled that of a red goshawk**, two others considered it was 'possibly' belonging to a red goshawk and one was **certain that the nest was not that of a red goshawk but instead belonged to a grey goshawk (a non-threatened species that was observed during surveys).**'

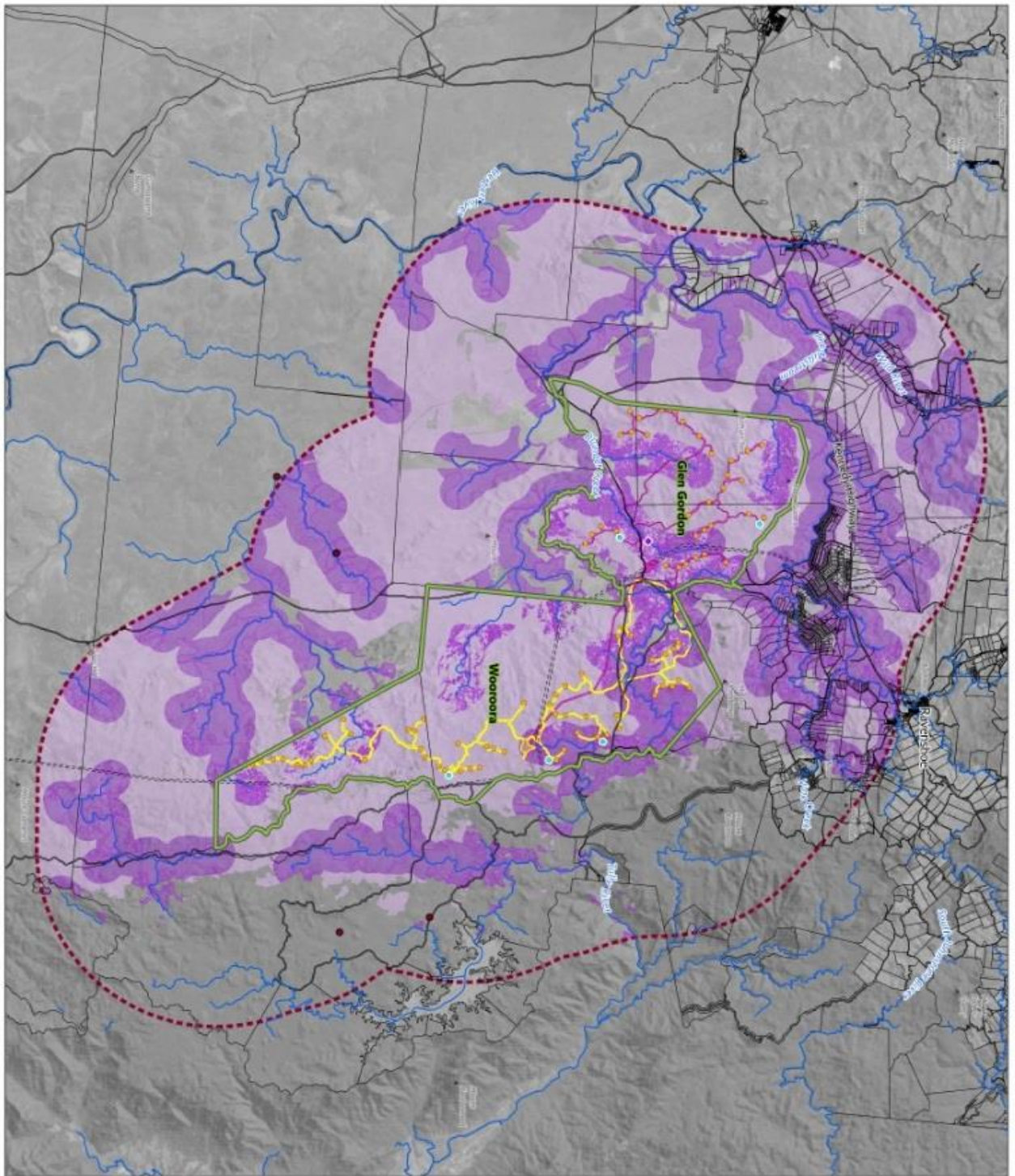
- ❖ **So, to summarise by the first account photographs were sent to recognised Red Goshawk experts. That story is maintained in the second account though is expanded on from 'a number' of experts to four. By the third account the photos were no longer sent to recognised Red Goshawk experts, but rather 'recognised bird specialists.' Keep in mind the 2<sup>nd</sup> and 3<sup>rd</sup> version are from the same document the draft PER!**
- ❖ **One of the few details that remains unchanged throughout is that the occupation of one of the four was a QPWS ranger. However what he said markedly changes. In the initial version he 'confirmed the nest as belonging to the Red Goshawk.' In the 2<sup>nd</sup> version he stated the nest was 'likely to belong to the red goshawk'. By the third version he'd 'agreed the nest resembled that of a red goshawk'.**
- ❖ **In version one we have one confirmed Red Goshawk nest ID and two possible. In version two we have one likely, and two possible. (In the 2<sup>nd</sup> version it is advised that the fourth expert did not respond with an opinion). Then miraculously - in the same document, we have a completely different version! In version three one expert said it resembled a red goshawk nest, two said it was a possibility and one was certain that it was not a red goshawk but instead belonged to a non-threatened species! How wonderfully convenient!**





**RED GOSHAWK HABITAT MAP DRAFT PER**

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**Chalumbin Wind Farm**  
Observations and Potential Habitat for Red goshawk

**Figure 4.22**

- Project Area Boundary
- Study Area
- Turbine
- Met-mast
- Clearance Envelope
- Stage 1
- Stage 2
- Watercourse
- Survey Observation
- Threatened Fauna Record (ALA Wildlife)
- Nesting Habitat
- Foraging Habitat
- Lot Boundary
- Easement

Date: 12/10/2022      Author: TOD  
 Project: PFU-004      Review: NOD

Scale: 1:200,000@A3

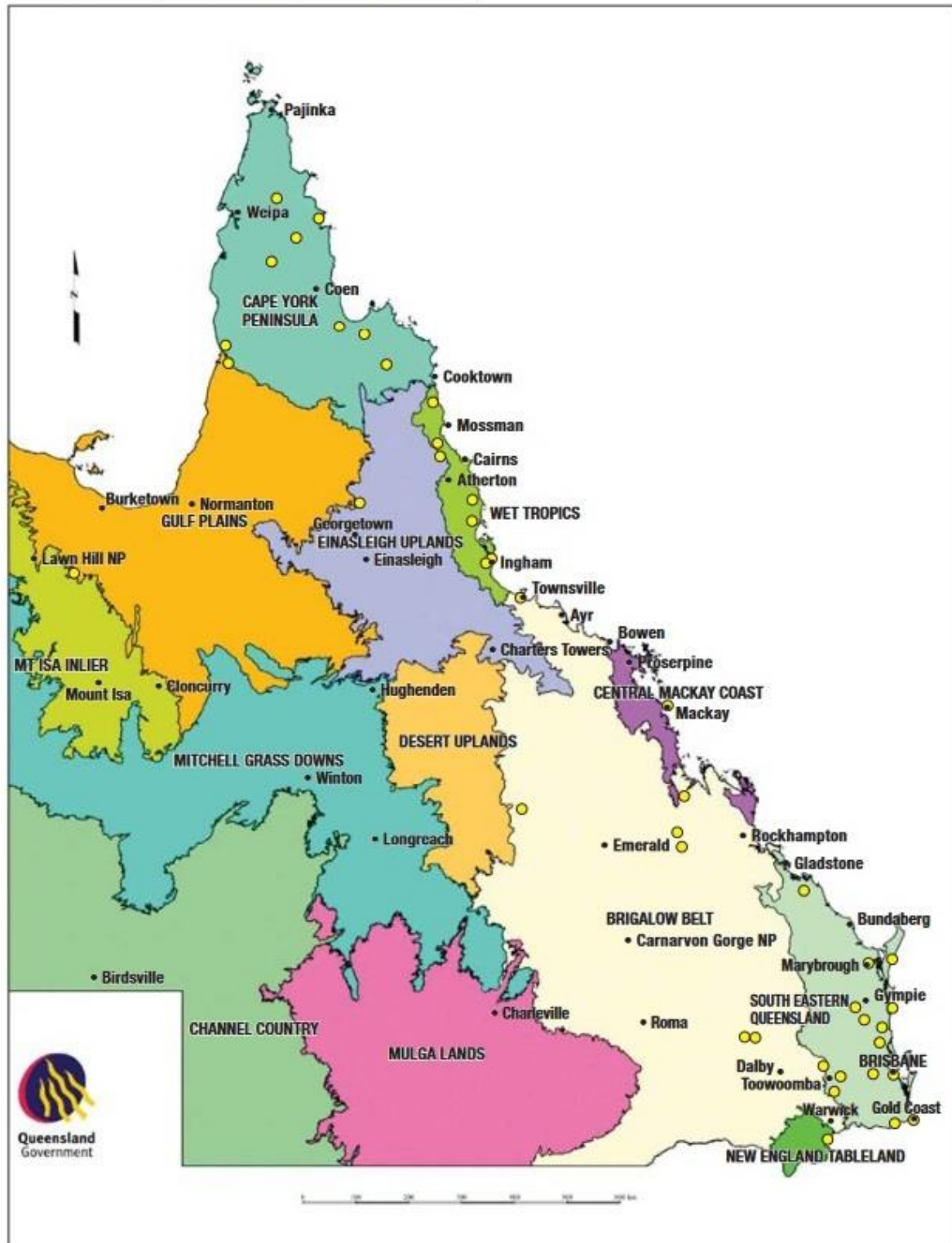
0      5      10 Km

North  
 Mount Garnet      Jamunale      Urup      Fossilhill

© Ark Energy - Department of Resources (2022)  
 Environment and Heritage (2022) Map of Land Australia (2018)  
 Topical Geographics, © State of Queensland (Department of Resources) 2022

Path: C:\projects\GIS\ArkEnergy\Documents\Projects\Baurum\PFU-004 - Chalumbin\GIS\Cartography\1\_PRR\_Submission\11\_PRR\_Submission.aprx

(Source: *Distribution, status and habitat of the Red Goshawk *Erythrotriorchis radiatus* in Queensland* G. V. Czechura<sup>1</sup>, R. G. Hobson<sup>2</sup> and D. A. Stewart)



**Figure 1.** Red Goshawk records in Queensland, incorporating the survey results of this study. Source: *Qld DERM Red Goshawk conservation management profile* (prepared by S. Ryan, 2006) overlain on the *Bioregional Map of Queensland V0001* (courtesy of Qld DERM).

#### 4.6.5 White-throated Needle-tail

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

- The white-throated needle-tail (*Hirundapus caudacutus*) is listed as Vulnerable and Migratory under the EPBC Act, and Vulnerable under the NC Act. It is listed globally as Least Concern on the IUCN Red List. It is covered by CAMBA, JAMBA and ROKAMBA.
- The Action Plan for Australian Birds 2020 lists as Vulnerable, based on evidence of ongoing decline since the 1950s; this decline is thought to be continuing because of a decline in habitat quality on the breeding grounds (which are all outside Australia)
- The white-throated needle-tail is widespread in eastern and south-eastern Australia. It is believed that the entire migratory population moves from the northern hemisphere into Australasia during the non-breeding season.
- It is local and uncommon throughout much of its range. It is recorded in all coastal regions of Queensland, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland. It is mostly on and east of the Great Dividing Range from north of Cooktown to the New South Wales border.
- The species breeds in northern Asia and **spends the non-breeding season (typically Oct – Mar inclusive) in Australia where it is almost exclusively aerial, occurring from heights of less than 1m up to more than 1,000 m above the ground.**
- Occurs over most types of habitat including cleared areas, most often recorded above wooded areas.

##### 4.6.5.2 Known Threats

- **The major threat to the species in Australia appears to be wind turbines.** The high mobility of the species means that their daily foraging flights may intersect many wind farms in the course of an Australian summer, while the lateness with which they cease feeding in the evening means that they are unlikely to see those turbines they encounter

##### 4.6.5.3 Survey Effort

- An initial bird census was undertaken in January 2021. Following this, five BUS surveys have been undertaken at 21 sites across the Project area (June 2021, Oct 2021, Jan 2022, Apr 2022 and Aug 2022), as described in Section 4.2.2.3. Total survey effort to date of 177 person hours.
- DoE 2015a indicates that surveys for white-throated needle-tail are undertaken as late as possible in the evening; afternoon BUS were undertaken between 3pm and 6pm, which is as late as observer visual acuity will generally allow for without artificial lighting.

##### 4.6.5.4 Project Area Habitat Assessment

- There are a number of historical records of white-throated needle-tail within the Study area, to the north, south and east of the Project area (ALA).
- One white-throated needle-tail was observed during the March 2021 field surveys. The specimen was found deceased within the existing transmission line corridor.
- No habitat mapping has been undertaken for white-throated needle-tail as this species could occur in any airspace over the Project area. It is a migratory species that occurs in Australia only during the summer months but is highly aerial and only rarely alights while in Australia.
- Potential roosting habitat for the white-throated needle-tail includes trees with dense canopies and hollow-bearing trees on ridgelines.
- There are no dense vegetation communities within the Project area and therefore no potential roosting habitat for white-throated needle-tail.

#### **WHITE-THROATED NEEDLETAIL STATUS, POPULATION, ECOLOGY & HABITAT PER RESPONSE [4.6.5.1]**

- ❖ It is a damning indictment on the ineffectiveness of the surveys used, that only a single specimen of this species was observed – albeit a dead one found on the ground. This graphically illustrates how the BUS surveys utilised were manifestly inadequate. The small number of BUS locations (21) over such a large area (2646.74 acres / 1071.1ha), were insufficient to gain an accurate depiction of MNES species that inhabit the area.
- ❖ As wind turbines are the biggest threat to this species and considering the stated migration of the entire population from the northern hemisphere, it is likely to be a significant casualty to turbine blade strike. As signatories to international conventions that cover migratory species, a cumulative assessment of the impacts of existing & all planned wind turbine developments needs to be undertaken.



- ❖ **The corpses of dead birds will attract large birds of prey, that in turn will be at risk of being killed by the blades.**

### Koala 4.7.3

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

- The koala – (*Phascolarctus cinereus*) combined populations of QLD, NSW and the ACT listed as Endangered under the EPBC Act; however, as per the PER Guidelines, this species is assessed for the Project as Vulnerable. The koala is listed as Endangered under the NC Act. It is listed globally at the species level as Vulnerable on the IUCN Red List.
- **The koala was declared an endangered species under the EPBC Act on 12 Feb 2022; however, the PER Guidelines stipulate that any listing events that occur after the controlled action decision (received on 10 August 2021) do not affect the assessment and approval process. Therefore, the koala is assessed under this PER through its former vulnerable listing under the EPBC Act.**
- Endemic to Australia, range extending from NE Queensland to the SE corner of SA. The listed species range spans the inland and coastal areas of Queensland north to the Herberton area, extending westwards into hotter and drier semi-arid climates of central Queensland, NSW and the ACT.
- Koalas are widespread in QLD, occurring in patchy and often low-density populations across the different bioregions.
- The koala inhabits a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by species from the genus *Eucalyptus*.
- Diet is restricted mainly to *Eucalyptus* species; it may also consume *Corymbia* and *Angophora*.
- Distribution is determined by specialist food, habitat and environmental requirements; habitat suitability models indicate that koalas are best suited to locations where the mean maximum summer temperatures are 23-26°C and mean annual rainfall ranges from 700-1500 mm.
- As a species, koalas are reported to utilise more than 400 different tree species for their food and habitat requirements, with different tree species varying by habitat type and location across their range.
- Primary food species differ across habitats and may be as few as two at a particular location. Koala browsing preferences show regional differences which are influenced by the chemical profiles and water content of different target food leaves.
- Koala habitat is broadly defined by the availability and nutritional quality of food trees, presence of suitable resting trees and microclimates, age structure of vegetation, history and impediments to dispersal.
- Habitat critical to the survival of the species should consider the following factors:
  - Whether the habitat is used during periods of stress (e.g. flood, drought or fire);
  - Whether the habitat is used to meet essential life cycle requirements (e.g. foraging, breeding, social behaviour).
  - The extent to which the habitat is used by important populations;
  - **Whether the habitat is necessary to maintain genetic diversity and long-term evolutionary development;**
  - Whether the habitat is necessary for use as corridors to allow the species to move freely between sites used to meet essential life cycle requirements;
  - **Whether the habitat is necessary to meet the long-term future of the species through reintroduction or re-colonisation;** and
  - **Any other way in which habitat may be critical to the survival of the species.**
- The Conservation Advice states that it is currently not practicable to identify by description and to provide spatial info on the habitat critical to the survival of the koala, due to insufficient knowledge.
- For conservation of the listed koala, it will be imperative to maintain populations that:
  - Have the potential to act as source populations to adjacent areas of suitable, or potentially suitable, habitat;
  - **Exist in areas of climatically suitable refugia during periods of environmental stress, including droughts, heat waves and long-term climate change;**
  - Are genetically diverse;
  - Are disease-free and/or exhibit low rates of infection with important pathogens;
  - Contain genes which may confer adaptation to current and future environmental stressors; and
  - **Are geographical or environmental outliers within the species range**
- Current efforts to assess and identify important populations across the range are hindered by a lack of comprehensive, unbiased data.
- A National Recovery Plan for the listed population was published in March 2022 (DAWE 2022b).

#### 4.7.3.2 Known Threats

The Recovery Plan (DAWE 2022b) identifies the following as the main threats to the species:

- Climate change;
- Land use change resulting in habitat loss and fragmentation;
- Forestry;
- Altered fire regimes;
- Mortality from vehicle strike and predation by dogs; and
- Disease – of koala themselves and of koala habitat.

#### 4.7.3.3 Survey Effort

- As described in Section 4.2.2.3, spotlighting for nocturnal fauna including koala was undertaken for a total of 103 person hours.

#### 4.7.3.4 Project Area Habitat Assessment

- There are three previous records for koala within the Study area (ALA), as shown in Figure 4-27; however, no evidence of koalas was observed on site during field surveys.
- Both landholders report never having seen koalas on their properties and its occurrence on the Yourka Nature Reserve, immediately to the south, is rare (the species was recorded there for the first time in a decade in October 2020).
- The Project area is not a stronghold for any koala population and if koalas are present within the Project area, it is likely to be on a very sporadic basis and/or in low numbers.
- The following tree species have been identified as locally important koala trees within the Einasleigh Uplands and/or Wet Tropics koala management bioregions and were recorded within the Project area:
  - Eucalyptus crebra;
  - Eucalyptus exserta;
  - Eucalyptus grandis;
  - Eucalyptus melanophloia;
  - Eucalyptus resinifera; and
  - Eucalyptus tereticornis.
- The following tree species have been identified as ancillary habitat trees within the Einasleigh Uplands and/or Wet Tropics koala management bioregions and were recorded within the Project area:
  - Corymbia citriodora;
  - Corymbia intermedia;
  - Corymbia tessellaris;
  - Eucalyptus platyphylla;
  - Eucalyptus portuensis; and
  - Lophostemon confertus.
- Koala habitat in the Project area has therefore been mapped in Figure 4-27 as remnant and regrowth vegetation communities containing these locally important koala tree species or ancillary tree species.
- The Chalumbin Wind Farm will result in 843.81 ha of habitat being cleared.

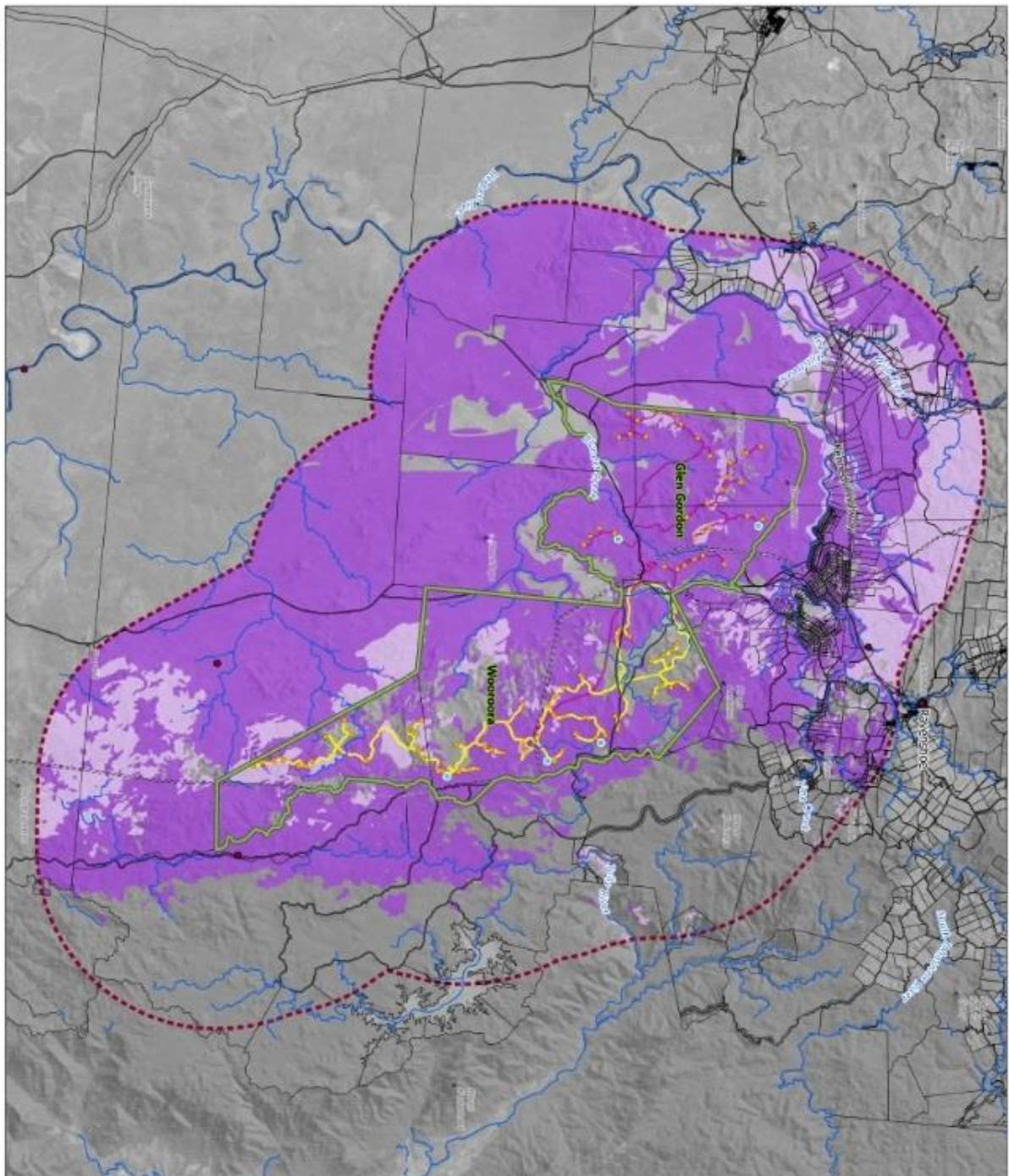



#### KOALA, POPULATION, ECOLOGY & HABITAT PER RESPONSE [4.6.5.1]

- ❖ The survey method utilised involved just 103 hours of spotlighting, from a vehicle to cover 2646.74 acres (1071.1ha). Koalas are notoriously secretive, and it would not be expected that in an area such as this with a low population density, that the results would be anything other than as published. The developer likes to say in briefings that 'in spite of all the investigation' over 2 years no Koalas have been found. A more accurate way to put it would be a little over 4 days, no Koalas were found – because that is what this survey figure equates to.
- ❖ Koala expert Roger Martin is quoted as saying *"It would be reasonable to suggest that koalas are all through the eucalypt country on the western edge of the Wet Tropics and that the only reason they haven't been seen on the Chalumbin site is that no one has looked very hard."* [Source: email correspondence]
- ❖ The photograph of the healthy male Koala taken at Yourka Reserve 8/10/20 is well known. The photograph was captured by the Yourka Reserve Manager using a thermal monocular. The photo taken through this piece of equipment has recorded GPS coordinates, date, time etc., Its authenticity is not in dispute. Yourka Reserve is immediately adjacent to the development area.
- ❖ The idea that there is one lone Koala in the wider area is preposterous. This area is within the northern known limit of their range. The guidelines for the conservation of this species outlined in the draft PER state that for conservation of the listed koala, it will be imperative to maintain populations that are geographical or environmental outliers within the species range.
- ❖ The habitat within the development area combined with Yourka reserve and surrounds should be regarded as key to the ongoing survival of this outlying geographical population.
- ❖ The statement that both the land holders report never having seen koalas on their properties, is highly subjective and should not have been included as evidence. There is a significant financial incentive to the developer for Koalas to not be found in the area. That incentive also very much applies to the landholders who face the windfall, of being paid to have turbines and infrastructure on their properties.
- ❖ Koala expert Roger Martin states: *"The fact that most of the koala populations on the western edge of the Wet Tropics are in low abundance does not mean that they are not viable populations or that they are unimportant. On the contrary, in the current scenarios of increasing temperatures...they are extremely important populations. The modelling suggests that with + 2 deg C rise in temperature the higher altitude (900 metres and above) eucalyptus forests will be the only habitats in which koalas will survive in the far north."* [Source: email correspondence]. The draft PER acknowledges and shares this view stating *'For conservation of the listed koala, it will be imperative to maintain populations that: exist in areas of climatically suitable refugia during periods of environmental stress, including droughts, heat waves and long-term climate change.'* [Source: email correspondence].
- ❖ It is clear therefore, that the preservation of this habitat is absolutely critical in ensuring the survival of the Koala in northern QLD as rising temperatures associated within climate change dramatically restrict and eliminate its ability to survive elsewhere.

**KOALA HABITAT MAP**

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**ARK ENERGY**


**Altexo**

Chalumbin Wind Farm  
Potential Habitat for Koala

**Figure 4.27**

- Project Area Boundary
- Study Area
- Turbine
- Met-mast
- Clearance Envelope
- Stage 1
- Stage 2
- Threatened Fauna Record (AA/WildNet)
- Locally important koala trees
- Ancillary habitat trees
- Watercourse
- Lot Boundary
- Easement

Date: 12/10/2022 Author: TOO  
 Project: FW 004 Environment: NOD



Scale: 1:250,000 (A3)

0 5 10 km

#### 4.7.7 Northern Greater Glider

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

- The northern greater glider (*Petauroides minor*) was recognised as a species and listed as Vulnerable under the EPBC Act on 5th July 2022. It is also listed as Vulnerable under the NC Act. The northern greater glider is still considered a subspecies of the greater glider (*Petauroides volans*) on the IUCN Red List, which is listed as Vulnerable and with the population believed to be decreasing.
- The northern greater glider occurs in the wet-dry tropical region of north-eastern Australia, including the WTWHA.
- Distributed from around Townsville northwards to the Windsor Tablelands, however the distribution is patchy with some isolated subpopulations.
- The broad extent of occurrence is unlikely to have changed appreciably since European settlement, however the area of occupancy has decreased substantially, mostly due to land clearing. This area is probably continuing to decline due to further clearing, fragmentation, edge effects, bushfire, climate change and some forestry impacts.
- The northern greater glider has an elevational range from sea level to 1200 m asl.
- **It is thought that the population is declining due to loss of habitat and, particularly, loss of appropriate denning habitat.**
- The northern greater glider is largely restricted to eucalypt forests and woodlands. It is typically found in highest abundance on **high elevation, wetter sites in open woodland to open forests, containing relatively old trees and abundant hollows**. It is likely that only a proportion of forest in potential habitat areas is suitable for the species, as the structural attributes of the forest overstorey and forage quality it relies on vary considerably across the landscape.
- It is primarily folivorous, with a diet mostly comprising eucalypt leaves and occasionally flowers. It feeds from a range of eucalypt species and favours forests with a diversity of eucalypt species due to seasonal variation in its preferred tree species.
- During the day, the northern greater glider shelters in tree hollows with a particular preference for large hollows (>10 cm diameter) in large, old trees at least 8 m above the ground.
- Greater gliders require hollow-bearing myrtaceous trees (dead or alive) or non-myrtaceous trees (dead) with a diameter at breast height (DBH) of over 30 cm, and that the species preferentially forages in trees with a DBH greater than 40 cm. A study identified that trees with a DBH of at least 60 cm were most likely to contain hollows of a suitable size for greater gliders. Verma et al developed allometric relationships between tree height (or crown projection area) and DBH for individual and clumped Eucalyptus species; scatter plots for individual trees with a DBH of 60 cm illustrate heights ranging from 10- 30 m across the five species surveyed, with the allometric regression curve predicting a tree height of approximately 15 m.
- **Once habitat trees are lost from the system, the length of time required for the development / recruitment of replacement habitat trees appropriate for the species is prohibitive.**
- **Hollows develop very slowly in Australian eucalypts, with minimum times of 150-260 years from germination to the beginning of hollow development.**
- Home ranges are typically relatively small and are larger for males (2.5 ha) than for females (1.3 ha).
- Typically 4-6 different dens are used by individual animals within their home range per month although this can be as few as 2 dens per hectare in the north of its range.
- In the north of its range (including in the vicinity of the Project area), forest red gum (*Eucalyptus tereticornis*) is favoured for denning and 2 dens per hectare are used.
- Habitat critical to the survival of the northern greater glider may be broadly defined as:
  - Large contiguous area of eucalypt forest which contains mature hollow bearing trees and a diverse range of the species' preferred food species particular to that region;
  - Smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonisation;
  - Cool microclimate forest/woodland areas (e.g. protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes);
  - **Areas identified as refuges under future climate change scenarios;** and
  - Short-term or long-term post-fire refuges (i.e. unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas
- An important population can be defined as one that occurs:
  - **In a defined geographical area containing critical habitat;**
  - **In areas where the species persists in relatively high density or abundance at a regional level;**
  - **Where its habitat provides refugia in times of stress or in response to threatening processes (particularly where other nearby populations have substantially declined or may be expected**

to do so in the future); and Populations that are isolated or occur at the margins of the species' range, that may be important for maintaining genetic diversity and evolutionary adaptation.

#### 4.7.7.2 Known Threats

- Key threats to the northern greater glider are climate change, land clearing, timber harvesting, inappropriate fire regimes, entanglement in barbed wire fencing and predation by feral cats.
- **Loss and fragmentation of habitat has already occurred in many parts of the species' range and the impacts of climate change will place increased pressure on its remaining habitat) A 'stark' and 'dire' decline of habitat suitable for the northern greater glider ('almost complete loss' ~ 90 %) has been predicted if there is a 3°C temperature increase.**

#### 4.7.7.3 Survey Effort

- As described in Section 4.2.2.3, spotlighting for nocturnal fauna including greater glider was undertaken for a total of 103 person hours across wet and dry seasons. Targeted habitat quality assessments for greater glider were also undertaken in a number of locations to demonstrate how habitat quality changes with elevation across the Project area, due to variability in bio-physical characteristics such as soil depth, soil moisture, aspect, etc.

#### 4.7.7.4 Project Area Habitat Assessment

- There are multiple prior records of greater glider within the Study area to the north, east and south of the Project area.
- Northern greater gliders were observed on both properties during the nocturnal spotlighting surveys. Across January 2021, March 2021 and June 2021, a total of 64 gliders were observed over a combined duration of 103 person hours.
- MacHunter et al. 2011 defined a large population as > 10 individuals per km of spotlighting transect or > 2 / ha or >15 per hour of spotlighting; following this, the population within the Project area (< 1 per hour of spotlighting) would not be considered 'large'.
- Surveys to date have focussed on lower lying parts of the site as ridgelines were difficult to safely access at night due to the poor condition of access roads across the two properties. These lower lying areas support the tallest trees with the highest abundance of hollows, and would be expected to have the highest abundance of greater gliders.
- Habitat for greater glider needs to provide attributes such as live and dead hollow-bearing trees for denning, feed trees, large trees for gliding and habitat connectivity across the landscape.
- An extensive study led by the Queensland Department of Environment and Science identified 24 REs within the Wet Tropics Bioregion that are confirmed habitat for northern greater glider and 28 REs within the Einasleigh Uplands bioregion.
- Following the above process, as per the Guide to greater glider habitat in Queensland (DES 2022), northern greater glider habitat within the Project area was mapped as follows (see Figure 4-31):
  - \* **Denning habitat:** Ground-truthed vegetation communities containing tree species characterising greater glider habitat and containing "large trees" at a density of >25 trees per ha for the Wet Tropics bioregion (lower quartile of 46.5 cm DBH based on  $LQ = \text{Mean} - (0.65 \times \text{SD})$ ) and >20 trees per ha for the Einasleigh Uplands bioregion; and as the Project area is located in a largely intact region, patch size was not considered as a defining attribute.
  - \* **Additional foraging habitat:** mapped as vegetation communities containing habitat trees species within a buffer area around denning habitat based on a conservative home range size of 12 ha.
- These habitat mapping rules were tested with a small program of detailed habitat quality assessments along four slope gradients within the Project area. While the diversity and total number of eucalyptus food trees exceeded the minimum requirement of six foraging trees per ha across all sites, there was greater density and diversity of Eucalyptus species in the lower slopes. The ecological dominant canopy and sub-canopy layers of the upper and mid-slope sites were of relatively small stature and DBH with little opportunity for large hollows to form and hence a lower density and smaller distribution of hollow-bearing trees with large hollows present on elevated slopes. Hollow-bearing trees inclusive of large hollows with diameters greater than 8 cm at least 8 m from the ground were more prevalent in alluvium associated communities with a considerably taller and more diverse ecological dominant layer, therefore representing higher quality of required habitat features in the lower slope assessment site.
- **The Project will result in the clearance of 534.0 ha of denning habitat and 368.6 ha of foraging habitat. (902.6ha / 2230.37acres combined). As the Project area represents a large contiguous area of eucalypt forest which contains mature hollow bearing trees and a diverse range of the species' preferred food species particular to that region, it can be considered as habitat critical to the survival of the northern greater glider.**

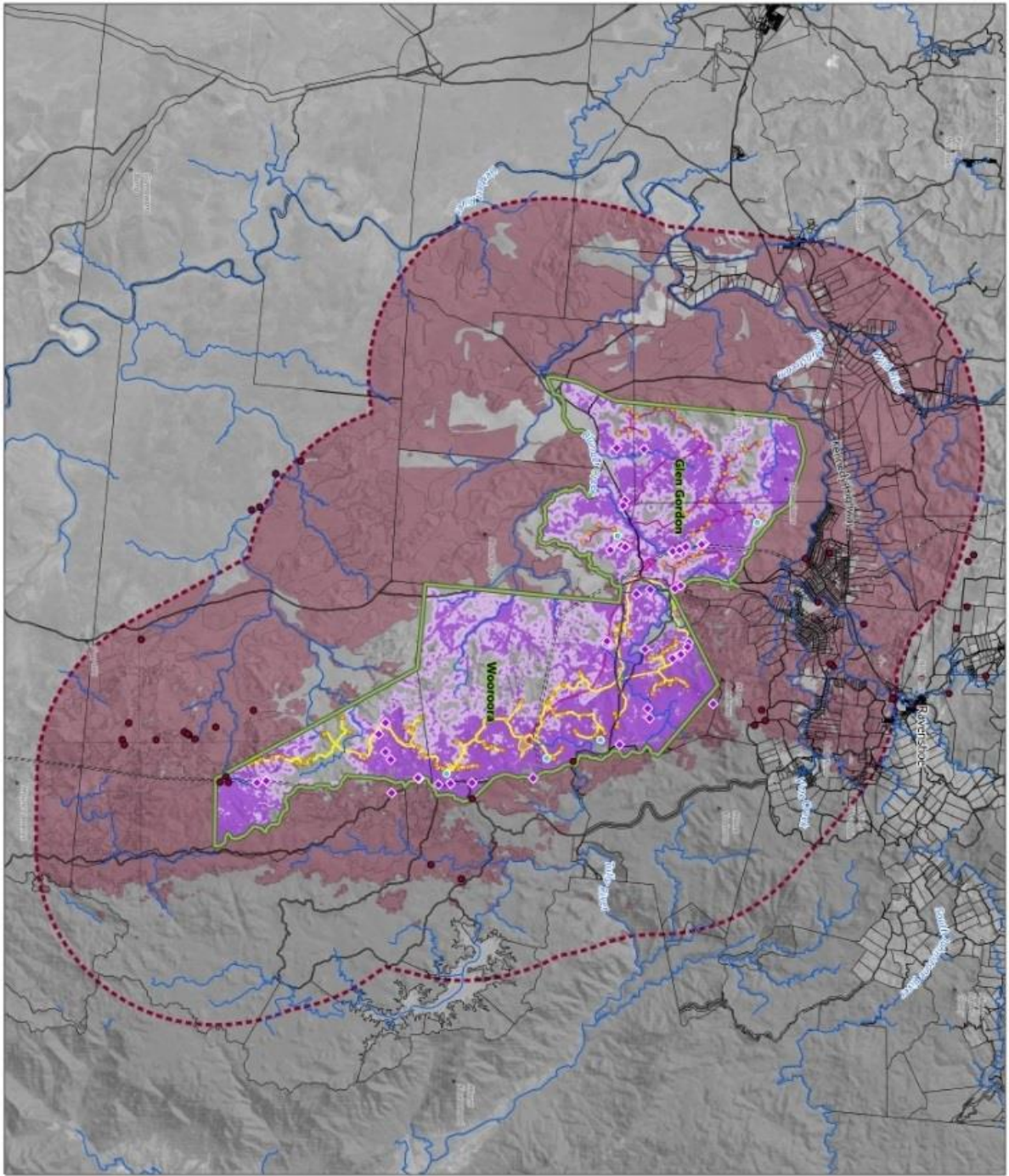
## **NORTHERN GREATER GLIDER – THREAT STATUS, DISTRIBUTION, POPULATION, ECOLOGY & HABITAT PER RESPONSE [4.7.7.1]**

- ❖ The northern greater glider has a very specific requirement for tree hollows for shelter. The PER states: *'Once habitat trees are lost from the system, the length of time required for the development/recruitment of replacement habitat trees appropriate for the species is prohibitive (TSSC 2016c). Hollows develop very slowly in Australian eucalypts, with minimum times of 150-260 years from germination to the beginning of hollow development (Harris and Maloney 2010).'*
- ❖ The trees that are to be bulldozed for the Chalumbin development cannot be offset by planting new trees. There are 260 years of reasons why. The PER details very specific requirements about the type and size habitat trees are required to be – including that they prefer hollows 8m above the ground. It could be inferred part of this would be in an attempt to avoid predators such as feral cats.
- ❖ The limited gliding distance of the species leaves it vulnerable to fragmentation as well as an increased risk of predation by feral species.
- ❖ Despite highly questionable survey techniques 64 gliders were observed. The developer tries to play down this figure and claims the population would not be considered 'large'. Immediately after making this statement there is a disclaimer: *'Surveys to date have focussed on lower lying parts of the site as ridgelines were difficult to safely access at night due to the poor condition of access roads across the two properties'*. This is a claim often repeated as justification for deficient survey procedures. I would submit that confining surveys to access tracks to begin with is a fundamental flaw. Surely, the more inaccessible areas, are by design, preferential as habitat for most shy, elusive species.
- ❖ The destruction of 902.6ha / 2230.37 acres of habitat, that includes habitat trees that require up to 260 years to regenerate cannot be compensated for with the use of offsets. Fake hollows chain sawed into trees and fake nesting boxes (as outlined elsewhere in the PER, along with the other measures outlined), are manifestly inadequate, and the cautionary principle must be applied to ensure the ongoing survival of the species. This critical habitat, which encompasses ancient trees so vulnerable to land clearing must be preserved.
- ❖ The habitat map and intersection with the development is truly shocking. By any reasonable assessment, the risk posed to this species is too great, and the development must not be approved.



# NORTHERN GREATER GLIDER HABITAT MAP

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**ARK ENERGY**

**Artrexo**

**Chalumbin Wind Farm**  
Observations and Potential Habitat for Northern greater glider

**Figure 4.31**

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

Date: 12/10/2022      Author: TOO  
 Project: PFI-004      Reviewed: NOD

Data sources:  
 Digital Cadastre Database - Department of Resources (2022)  
 Regional Ecosystem Mapping, WildNet - Department of Resources (2020)  
 Essement Geographics - State of Queensland (Department of Resources) 2022

Scale: 1:200,000 (8A3)

0 5 10 km

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#### 4.7.10 Spectacled Flying-Fox

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

- The spectacled flying-fox (*Pteropus conspicillatus*) is listed as Endangered under the EPBC Act and the NC Act. The spectacled flying-fox is listed globally as Endangered on the IUCN Red List.
- It occurs in north-eastern Queensland, between Ingham and Cooktown, and between the McIlwraith and Iron Ranges of Cape York. It occurs in Indonesia and PNG, as well as Far North Queensland.
- It is reported to have an upper elevation limit of 750 m for roosting but has been found feeding as high as 1,100 m.
- Approximately 50 roost sites have been identified in the Wet Tropics but only 10 are usually occupied at any point in time.
- The largest population of spectacled flying-fox is known from the area between Townsville and Cooktown any spectacled flying-fox within the Project area would be part of this population.
- The spectacled flying-fox is associated mainly with rainforests, with most camps occurring in or near (within several kilometres of) rainforest areas. However, it will forage across a wide range of vegetation types, including mangroves, Melaleuca forests, eucalypt forests (including *Eucalyptus* spp., *Corymbia* spp.), gardens and orchards.
- It will forage up to 50 km from the camp in a night although more typically mean foraging distance from the camp is 11.8 km.
- The EPBC listed TEC, Mabi Forest (Complex Notophyll Vine Forest is considered a key habitat for the species.
- Spectacled flying-foxes are highly mobile and have complex and irregular movement patterns primarily determined by seasonal nectar flows
- **The species plays a vital role in pollination and the dispersal of rainforest seeds and is considered an important value of the WTQWHA.**

##### 4.7.10.2 Known Threats

- The Conservation Advice (TSSC 2019b) and Recovery Plan (DERM 2010) for the spectacled flying-fox identify the following threats to the species:
  - Climatic factors including cyclones and climate change;
  - Habitat loss and fragmentation due to land clearing;
  - Culling and persecution at orchards and camps;
  - Tick paralysis – this is a significant threat in the Southern Atherton Tablelands;
  - Birth abnormalities including cleft palate syndrome;
  - Mortality associated with entanglement or collision with barbed wire, powerlines and fruit netting;
  - Secondary poisoning through chemicals used in agriculture;
  - Habitat degradation due to myrtle rust and fire exclusion.

##### 4.7.10.3 Survey Effort

- Surveys for spectacled flying-fox were undertaken in accordance with the Survey Guidelines for Australia's Threatened Bats (DEWHA 2010a) as described in Section 4.2.2.3.
- A total of 1,260 person hours were spent undertaking daytime searches for camps and feeding signs (the observation of which was hampered by extensive ground cover), and 103 person hours were spent undertaking night-time surveys for individual flying-foxes, split evenly across wet and dry seasons in 2021. Note that this survey effort is for the entire Project area whilst most camps are typically observed in or near (within a few kilometres of) rainforest, which is only present in a few isolated locations along the eastern boundary of the Project area.
- In addition, 440 person hours were spent undertaking flora surveys to identify food trees across the Project area.

##### 4.7.10.4 Project Area Habitat Assessment

- The National Flying Fox Monitoring programme (DAWE 2022d) reports a spectacled flying-fox camp at Malan, east of Ravenshoe and just outside the Study area (see Figure 4-34).
- The Project area is approximately 30 km from this camp (and hence within the foraging range of the species).
- In February 2021, between 2,500 and 9,999 spectacled flying-fox were recorded at this camp.
- The National Flying Fox Monitoring programme identifies two further flying-fox camps just outside the 50 km foraging range of the species from the Project area: a little red flying-fox camp at 40 Mile Scrub, approximately 55 km to the south-west (> 50,000 little red flying-fox recorded in February 2017) and a mixed camp of little red and spectacled flying-foxes at Tolga, 50 km to the north (between 2,500 and 9,999 spectacled flying-fox recorded in November 2021)

- The desktop assessment also indicates that the species was recorded in the Ravenshoe Forest Reserve 1 in 1999.
- This is within the Study area, and abuts the Project area immediately to the north, see Figure 4-34. There is limited rainforest habitat within the Project area to support a camp, **but potential foraging habitat is widespread and has been mapped as all eucalypt forest and rainforest within the Project area.**
- The Project will result in the clearing of 976 ha of spectacled flying-fox foraging habitat

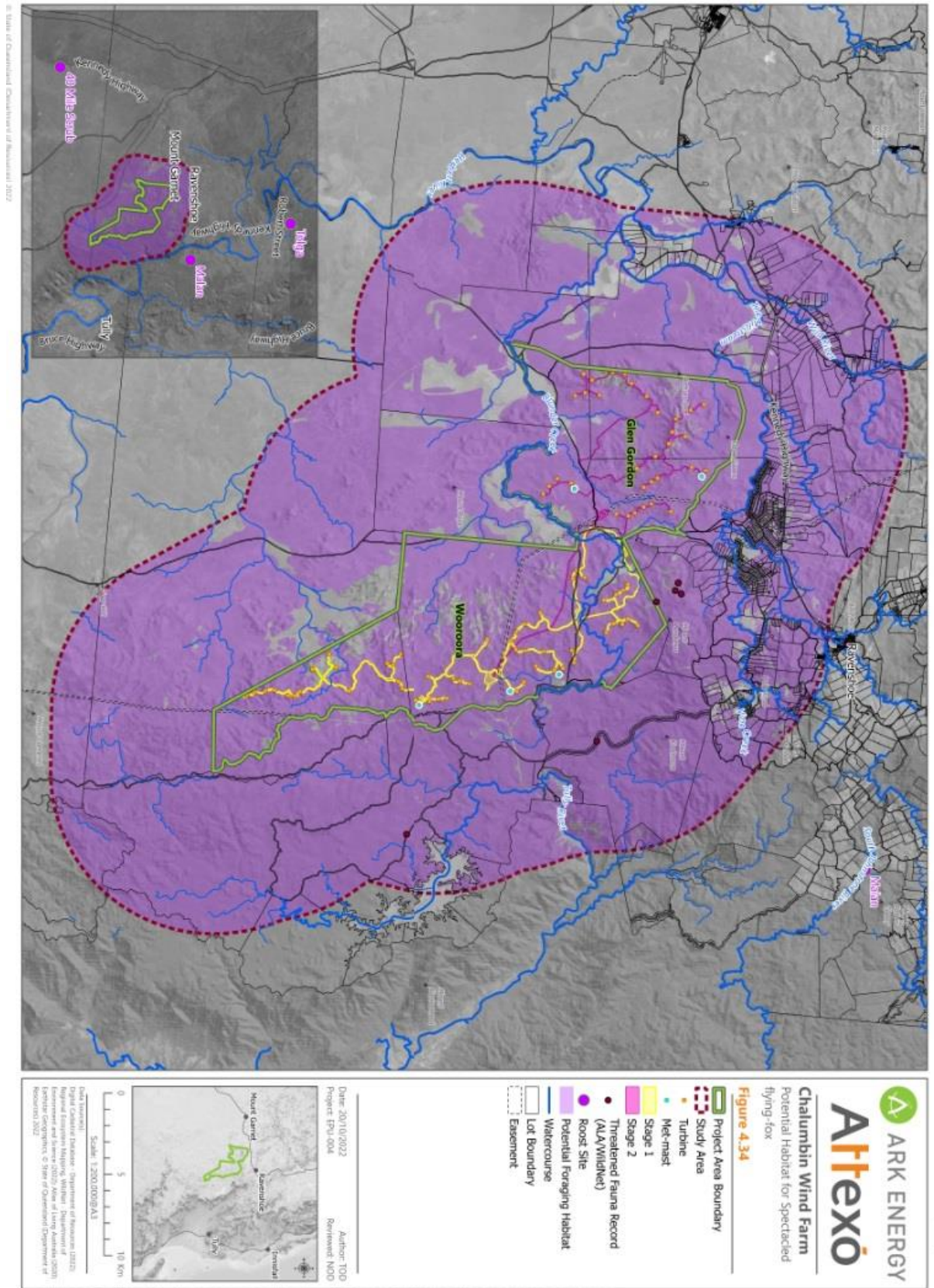
## **SPECTACLED FLYING FOX – THREAT STATUS, DISTRIBUTION, POPULATION, ECOLOGY & HABITAT PER RESPONSE [4.7.10.1]**

- ❖ Hidden away on page 264 is the following comment not made in this section: *‘There is potential for the Project to have a significant residual impact on the spectacled flying-fox through turbine collision and/or barotrauma’*. Barotrauma causes death in bats by rapid air-pressure reduction near turbine blades causing tissue and lung damage due to the expansion of air in the lungs that cannot be expelled. A study found that 90% of bat fatalities involved internal haemorrhaging consistent with barotrauma, and that direct contact with turbine blades only accounted for about half of the fatalities. [Source: <https://www.sciencedirect.com/>]
- ❖ The PER page 506 outlined the mitigation proposed in the event of bird strike: “If the Project does result in death to individual spectacled flying-foxes due to collision with a turbine during operation, offsets may be required. In accordance with the EPBC Act, these may take the form of payment into a fund to support research on the species”. This ‘we’ll see how it goes approach’ flies in the face of sound scientific study. This species is already under significant threat through habitat loss and urban encroachment. Any additional impacts that compound existing threats need to be fully independently assessed prior to development approval being considered.
- ❖ The fatality of the Spectacled Flying Fox around turbines would attract birds of prey, potentially compounding the issue with raptor turbine strike. In addition, it will attract ground dwelling scavengers to the site, notably including feral species such as cats and wild dogs, which is likely to increase their presence in the area.
- ❖ Although the term is notably omitted from the draft PER document, the Spectacled Flying Fox is in fact a Keystone Species. Keystone species play a critical role in defining their entire ecosystem. They disperse seeds when feeding and through their droppings. It is estimated that larger seeds may be dispersed over a range of 80km. The dispersal of seeds carried out by this species may be unique in terms of dispersal distance, deposition mode and quantity dispersed.
- ❖ They also play a role in the pollination of tropical rainforest and savanna plants/ Spectacled flying foxes regularly cross and feed in modified habitats means that they may have an important role in seed dispersal in isolated and/or small rainforest fragments. Foraging records suggest that the species feeds on fruits of 14 rainforest plants for which no other disperser is currently known. [Source: National Recovery Plan for The Spectacled Flying Fox <https://www.dcceew.gov.au> ].
- ❖ This is the species which has been at the centre of so much controversy in Cairns recently. Cairns council states: Spectacled Flying-foxes play a crucial role in the Australian eco-system - they are one of the most efficient pollinators and seed dispersers of native Australian forest trees. Despite this, there has been significant controversy regarding the attempted dispersal of Spectacled Flying Foxes by the council.
- ❖ A mass die off during a heatwave in Cairns in 2018 killed up to 5000+ individuals more than halving the population. [<https://www.abc.net.au/news/2020-05-18/cairns-spectacled-flying-fox-bat-relocation-conservation/12258596>]



- ❖ Cafenec goes as far as to state this species may in fact be critically endangered: *“Spectacled Flying Foxes are a very special part of Far North Queensland and are a key pollinator for our beautiful rainforests. They are currently under threat from loss of habitat, climate change and urban development. In 2019 they were listed as Endangered, however, the recent mass death in November 2018 were not considered in this listing. Experts tell us the numbers indicate Spectacled Flying Foxes should be listed as Critically Endangered. Despite the stress on the population of these important creatures, they continue to face on going and unnecessary threats from human activity, particularly development and ongoing dispersal attempts from the Cairns Regional Council.”*
- ❖ With this species in clear conflict in heavily built up urban areas, it is incomprehensible that a critical population such as this colony, East of Ravenshoe - well outside of population centres would be put at threat.
- ❖ The development area is within their feeding zone and this habitat must be protected to ensure the survival of the species.

# MAP OF SPECTACLED FLYING FOX HABITAT



#### 4.10 WET TROPICS OF QUEENSLAND

##### 4.10.1.1 Overview

- The Wet Tropics of Queensland World Heritage Area 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.**
- 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.
- **Wet Tropics is also recognised as an area possessing outstanding scenic features, natural beauty and magnificent sweeping landscapes.**
- The Wet Tropics provides the only habitat for numerous rare species of plants and animals. There are 380 plants and 102 animal species in the Wet Tropics that are considered rare or threatened.
- Fringing the rainforests are tall, open forest, and tall, medium and low woodland. The sharp demarcation between the rainforest and adjacent sclerophyll vegetation is a unique feature.
- **The Wet Tropics rainforests contain an almost complete record of the major stages in the evolution of plant life on earth.**
- These rainforests are floristically and structurally the most diverse in Australia.

##### 4.10.1.2 Outstanding Universal Value

- The Wet Tropics of Queensland was inscribed as a natural World Heritage Area in 1988.
- 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. The wet sclerophyll forest that forms a narrow band on the western edge of the rainforest is very rich in vertebrate species with at least 227 species in only 72,000 ha. This high diversity but low regional endemism is due to this habitat being an overlap zone between rainforest and dry sclerophyll forests and woodlands.

##### 4.10.1.3 Integrity

- At the time of its inscription the WTQWHA was identified as being an essentially intact ecosystem with low levels of human impact.
- However, a substantial amount of lowland forest had been cleared for agricultural purposes. A number of human disturbances that cumulatively detracted from the overall natural integrity were scattered throughout the property and included infrastructure such as transmission lines, access roads, abandoned mine sites and more extensive areas which had been selectively logged. However, the evaluation also noted that these disturbances accounted for only a small proportion of the total area of the property. In addition, other local management issues that needed attention included invasions of exotic plants, animals and forest diseases.
- **A number of threatening processes still impact the overall integrity of the property, including invasive species, fragmentation, and altered hydrological and fire regimes. In addition, a key emerging threat to the integrity of the property is climate change, as with even a small increase in temperature, large declines in the range size for almost every endemic vertebrate species confined to the property are predicted.**

##### 4.10.1.4 Protection and Management

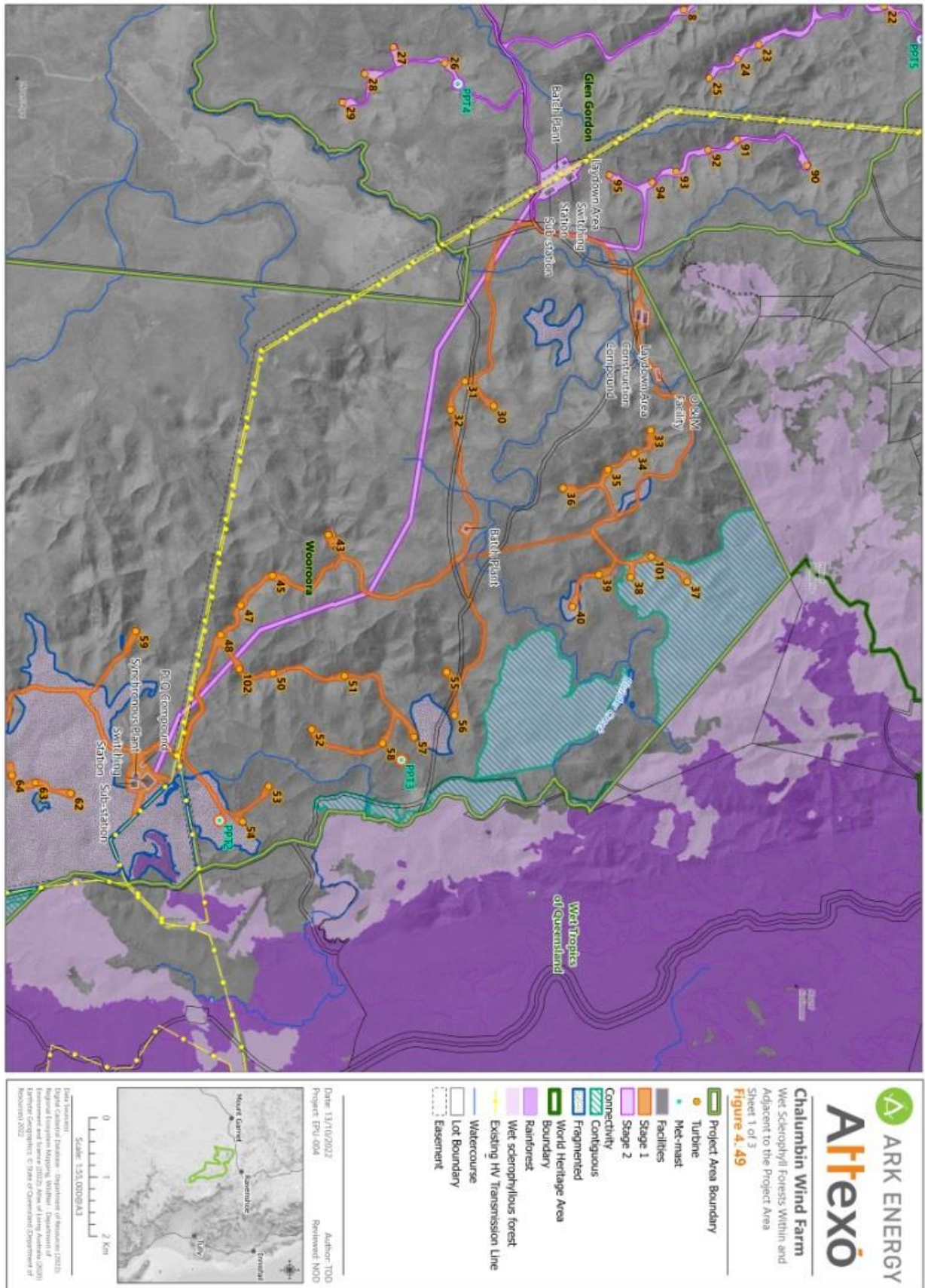
- The WTW Periodic Report to the World Heritage Committee (WTMA 2011) identified that there was no buffer zone around the property at the time of its inscription and that a buffer zone was not considered necessary, with the boundaries of the property being adequate to maintain the property's Outstanding Universal Value.
- The EPBC Act provides an extra protection mechanism for all World Heritage properties in Australia. **Under the EPBC Act, any action that has, will have or is likely to have a significant impact on the World Heritage values of a World Heritage property must be referred to the responsible Minister for consideration. The EPBC Act applies whether the activity is inside or outside of the boundaries of a World Heritage property.**

#### 4.10.1.5 Species Associated with the Values of the WTQ in Proximity to the Project Area

- The Project area is located adjacent to, but outside, the WTQWHA as illustrated in Figure 4-43 and there is limited rainforest habitat within the Project area. **The Project area contains habitat for species that use habitat within the WTQWHA and are therefore considered values of the WTQWHA.**
- The PER Guidelines required the specific assessment of a number of species that are particular values of the property, along with wet sclerophyll forest. Including:
  - Green Eye Tree Frog
    - Were observed near creeks at two locations within the Wooroora property, towards the boundary with the WTQWHA.
  - Herbert River Ringtail Possum
  - Macleay's Fig Parrot
  - Lumholtz's Tree Kangaroo
    - One adult & one juvenile were recorded on camera within a small patch of rainforest within the project area, close to WTWHA boundary
  - Rufous Owl
  - Tube Nosed Insectivorous Bat
  - Wet Sclerophyll Forests
    - Wet sclerophyll forests are characterised by very tall eucalypt trees (and their close relatives) which form the upper canopy layer. These trees typically range in height from 10 m to over 30 m and canopy cover can vary from 50 % to 80 %. The trunks of these trees tend to be straighter than those of other eucalypts, and their leafy parts are often concentrated in the top third of the tree. The understorey of wet sclerophyll forest can contain shrubs and small trees (often with rainforest species) or may be grassy with scattered shrubs.
    - Within the Wet Tropics region, wet sclerophyll forests are dominated by rose gum (*Eucalyptus grandis*), red stringybark (*E. resinifera*), white stringybark (*E. acmenoides*), pink bloodwood (*E. intermedia*), brush box (*Lophostemon confertus*) and turpentine (*Syncarpia glomulifera*).
    - Variation in species composition and concentration within these forests relates to soil type, rainfall and fire frequency.
    - **There is striking contrast in the structure between the adjoining rainforest and wet sclerophyll forests of north Queensland.** The tall open forests on the drier western margins of the rainforest are significant as part of an evolutionary continuum of rainforest and sclerophyll forests.
    - **Wet sclerophyll forests located within the boundary of the WTQWHA form part of the values of the WTQWHA under Criterion ix where "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" and Criterion x where "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".**
    - Wet sclerophyll forest is not a listed threatened community under the EPBC Act and is not endangered under the VM Act; rather the corresponding Regional Ecosystems are either Of Concern (REs 7.8.15, 7.8.16, 7.12.52, 12.2.4, 12.3.2 and 12.8.8) or Least Concern (REs 7.12.21, 7.12.22, 7.12.27, 12.8.9 and 12.11.2).
    - The distribution of wet sclerophyll forests within and adjacent to the Project area is shown in Figure 4-49 . **Approximately half of the wet sclerophyll forests within the Project area are fragmented from other wet sclerophyll forests within the WTQWHA by existing electricity transmission infrastructure and associated access roads, with evidence of edge effects (such as weed incursion) noted during field surveys.** There are approximately 13,600 ha of wet sclerophyll forests mapped by the Queensland DoR within the broader Study area (comprising a 10 km buffer around the Project area). Vegetation surveys have ground-truthed approximately 3,582 ha of wet sclerophyll forests within the Project area, of which 1,853 ha are contiguous with similar vegetation communities within the WTQWHA and 1,728 ha are fragmented by existing areas of disturbance



**WET SCLEROPHYLL FOREST MAP**



## 4.10.2 National Heritage Values

### 4.10.2.1 Overview

- In 2007, the Wet Tropics of Queensland was added to the National Heritage List. 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.
- National heritage defines the critical moments in Australia's development as a nation. It also encompasses those places that reveal the richness of Australia's diverse natural heritage.

### 4.10.2.2 Indigenous Values

- In November 2012, Indigenous heritage values were formally recognised as part of the National Heritage Listing for the WTQ, **acknowledging that rainforest Aboriginal heritage is unique to the Wet Tropics that represents a remarkable and continuous Indigenous connection with a tropical rainforest environment.**
- **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.
- The Aboriginal Rainforest People developed a **specialized and unique material culture to process toxic and other plants. These cultural practices are the expression of the technical achievements that made it possible for Aboriginal people to live year-round in the rainforest.** Traditions established by creation beings about the toxicity of plants and the techniques used to process toxic plants are unusual in an **Australian context and are of outstanding heritage value.**
- **There are a number of traditions that describe how creation beings created and instructed rainforest Aboriginal people about the foods found in the rainforest and how to make them edible. These traditions are inscribed in the landscape at particular named places. These places and traditional law provide the conceptual framework that underpins the rainforest Aboriginal people's technical achievement in processing toxic plants.**
- **The Indigenous values of the WTQ National Heritage Place are not definitely mapped. Indigenous people are the primary source of information on the value of their heritage and should be consulted on a proposed action that may significantly impact on the listed Indigenous heritage values of the place and/or on a protected matter that has Indigenous heritage values (such as a listed threatened species).**
- There are **two key cultural aspects** of the National Heritage List criteria for the Wet Tropics of Queensland. Both of these key values identified in the National Heritage List **extend beyond the boundaries of the Wet Tropics WHA and into the Project Area.**
  - Criterion (f), relates to the permanent occupation of the rainforest, which was possible through the use of fire to alter vegetation communities and the development of a unique and specialised material technology to process toxic nuts.
  - Criterion (i) describes the traditions inscribed in the landscape by creation beings as they instructed rainforest Aboriginal people about the foods and how to make them edible

### Jirrbal Cultural Landscape

- The proposed Chalumbin Wind Farm lies within the traditional lands of the Jirrbal Aboriginal people, one of five Wet Tropics rainforest groups that make up the Dyrirbal Aboriginal language, all descendants from a single ancestor group. Dyrirbal speaking country is an area of land incorporating coast and land between the Russell and Tully Rivers, and the Evelyn Tableland, composed primarily of tropical rainforest environments, but also include wet and dry sclerophyll, savannah, riverine, mangrove estuaries and offshore island environments.
- As consultation and engagement progresses through the feasibility study process, more is learned about the cultural landscape of the Project Area. **The consultation and engagement continues to identify cultural sites, stories of creation beings movements across the Project Area, and places of importance to Jirrbal people today.**



- The National Heritage List criteria describe the characteristics of a ‘Cultural Landscape’.
- Cultural landscapes should contain:
  - **“Cultural properties that represent the combined works of nature and man.**
- **This section presents characteristics of the Jirrbal cultural landscape. Oral traditions also include Jirrbal intangible cultural heritage on their beliefs, traditions, customs, stories, and other non-physical cultural practises and knowledge, cultural heritage values that are a highly significant component of the Jirrbal cultural landscape.**
- Historical evidence shows some of the management methods Jirrbal people applied to shape and maintain their cultural landscape. Campsites and rainforest tracks were regularly burnt to keep them clear of vegetation, and the existence and maintenance of open grassy sclerophyll pockets, often on the fringe of the rainforest, allowed for the establishment of semi-permanent camp sites and for large inter-tribal ceremonial gatherings to take place. Fire was used to keep the rainforest understory clear from lawyer vine and other unwanted vegetation in important food collecting areas.
- Each group managed the country that belonged to them, managing the rainforest and other resources, constructing campsites on the rainforest fringe or in open pockets within the rainforest, and on elevated areas near creeks and rivers in the dry country, creating a landscape mosaic of human behaviour across different types of country. Access to running water was always a priority when choosing a campsite. During the wet season, Jirrbal people on the Evelyn Tableland would settle in their large semi-sedentary campsites, collect, process and store an abundance of food and invite neighbouring groups who travelled up to the Tableland on well-established tracks from the coast and hinterland, along ridges, creeks and rivers.

#### Characteristics of significant values associated with national heritage values

- Engagement with Jirrbal knowledge holders, site inspections, review of previous work and research from Technical Advisors identified a number of significant cultural site types that contain heritage values similar to those protected by the National Heritage List in the Wet Tropics WHA.

#### Pockets

- ‘Pockets’ are a unique component of the rainforest Aboriginal cultural landscape and an example of how rainforest Aboriginal people used fire and weeding to manage and alter their rainforest home, including the deliberate use of fire to alter vegetation communities. ‘Pockets’ were large cleared grassy open Eucalypt woodland patches within the rainforest environment that were created and maintained by rainforest people to create open spaces for **living, ceremonial and other activities**. Large open tracks were maintained through the rainforest, connecting the pockets.
- Archaeological and oral historical evidence confirm that some traditional sites were still used by Jirrbal people up until the 1930 and 1940s. Archaeological investigations at an open camp site located on the banks of the upper Tully River, (the section of the Tully River now inundated by Koombooloomba Dam), have revealed low-level evidence for human presence 8000 years ago, with Aboriginal occupation sporadic until c. 2500-1500 years ago.
- **Pockets would have existed along Blunder Creek, Limestone Creek and the Herbert River and at the homesteads of Wooroora and Glen Gordon. Kara Outstation was a known pocket that was taken over by the Robinson family for pastoral activities, a common practice in the early days of European arrival.**

#### Story places

- During assessments and engagement with the Project, a number of Jirrbal knowledge holders shared aspects of the storied landscape with the Technical Advisors. Details of the stories and the knowledge holders are held by Wabubadda Aboriginal Corporation, the Native Title Party and the proponent and include:

#### Arthur’s Seat

- Arthur’s Seat is a story place known as Djigirrdjigirr, associated with the Willy Wagtail. Djigirrdjigirr is not just the outcrop known as ‘Arthur’s Seat’ (which is just outside of the Project area), but also the surrounding outcrops to the south, north, west and east including the large rocks that sit at the base of the outcrop.
- ‘The Last Stand’ reportedly took place at Djigirrdjigirr (Arthur’s Seat) in colonial times. Few details were provided, but it is believed that 90 Jirrbal people were massacred on and around Arthur’s Seat during the early phase of contact.
- Senior Jirrbal people described feeling and hearing the presence of the Ancestors in parts of the Project area. The escarpment around Arthur’s Seat and below Arthur’s Seat to the northeast and southwest, Blunder Creek and other places were noted as places where the Ancestors reside. One informant, described hearing the ‘Old People’ that reside around Arthur’s Seat from the highway at night.

- Key information on story places, particularly on ridgetops in and around the Project area, were provided by a informant for the Scoping Study but due to ill health the WAC and Technical advisors have not been able to obtain permission to include this information in the PER. The info is held by Wabubadda Aboriginal Corporation.
- An informant identified Wild River, Blunder Creek, Woodleigh, Mandalee, Millstream and Herbert River as important locations in the past and continue to be significant places that Jirrbal people visit today.
- An informant described the turtle story that crosses the Project area via the rivers and watercourses. The story describes how the turtle came to live and breed in the rivers.

#### Walking tracks and campsites

- Jirrbal people moved around their traditional country using established tracks that linked people to their neighbours, to resources, to story places (walking tracks often followed the movements of the creation beings), cultural sites and economies. In the rainforest, clear and open tracks were maintained between major campsites, generally following routes along ridge tops and over low saddles.
- The Kareeya powerline follows one of these walking tracks. Aboriginal informants referred to tracks in previous studies. One of the tracks referred to went from the top of Tully Falls to near the site of Kareeya power station at the base of the gorge. Other tracks went east to west, linking Tully Falls to Kirrima and Millaa Millaa. Many of the pack tracks marked on early survey maps and plans coincide with Aboriginal walking tracks. There is no doubt these maps are referring to Aboriginal campsites and walking tracks.
- The pack track (later the mail run) crossing Wooroora and Glen Gordon Stations on old maps is thus the extension of an Aboriginal walking track from Echo Creek, leading to a section of the Tully River near the old Culpa goldfield, continued on to Koombaloo Pocket and out into the 'dry' country to the west. This same track was used by Edmund Kennedy in 1848. The approximate route of the track is relatively well known. From a base camp near the junction of Cochable Creek, the expedition ascended the Cardwell Range in the vicinity of Mt Theodore. They crossed the Upper Tully River in the vicinity of Urumbal Pocket, crossing Carron Creek, Nitchaga Creek and eventually Blunder Creek.
- Jirrbal people had access to both rainforest resources in the east, and resources of the wet and dry sclerophyll forests to the west. The zone between the wet and dry, the wet sclerophyll zone, is well known to contain large Aboriginal campsites. Murubun rock shelter, the oldest dated occupation site to the rainforest in Jirrbal country, is in close proximity to the Project Area. The archaeological record at Murubun revealed stone artefacts linked to toxic plant processing, including fragments of slate grinding stones known to have been used in the processing of yellow walnuts. The evidence from Murubun clearly demonstrates that Jirrbal people utilised resources from a wide range of environments, traded lithic materials with other groups, and processed rainforest resources in locations outside of the rainforest.
- Over 800 artefacts were collected from the surface of one site on the (then proposed) Kareeya powerline in 1985. In 2021, the Jirrbal survey team had some discussion about what such a large artefact scatter would represent. People clearly spent a lot of time at this location, the artefacts representing a comparatively large Jirrbal open campsite before European settlement. It is possible that the road and the powerline follow old Jirrbal walking tracks and that the camp was located where the two tracks met. This is an example of what is likely to be found remaining from a large camp in the Project Area, particularly on the flat banks of the rivers and creeks, which are likely to have remains of large and small campsites, bora grounds and culturally modified trees.

#### Supermarket Ecosystems

- The 'little green pockets' along the creeks were highly prized camping areas for Jirrbal people. These areas have a high potential for archaeological remains, particularly artefact scatters and culturally modified trees. The little green pockets were described by senior Jirrbal people as supermarkets for the Old People. These areas provide important Jirrbal resources such as grasses for weaving, plant food and animals. One example of how rainforest Aboriginal people manipulated vegetation communities with fire (NHL criteria f). The common attributes of these areas were described by Jirrbal fieldwork participants:
  - Contain edible grass seeds, such as lomandra.
  - Large eucalypt and bloodwoods with hollows for possums and gliders.
  - Often on the rainforest edge and ecotone.
  - Contains yams, as seen by vines growing up the trunks of trees, usually gum trees.
  - May have grasses for weaving, such as lomandra.
  - Provides access to wet (rainforest) and dry (open woodland) areas and resources.
  - These areas were supermarkets at the right time of year.
- The environment was managed by Aboriginal burning in the past. When fire ceases ecosystems may be taken over by vine understory. Slow mosaic burns were used in the rainforest to protect important food trees and other vegetation from hot fires, to keep tracks and campsites clear of encroaching rainforest for easy travel, and to alter the vegetation to create areas with food resources. In the dryer country, cool burns were used to prevent wildfires, as a hunting strategy to 'flush' out kangaroos and other marsupials through the creation of areas with green grass.

- The little green pockets are different to the living and ceremonial pockets described above. These describe 'supermarket ecosystems' that were managed using fire for resources.

## 5.0 IMPACT ASSESSMENT

### 5.1 Potential Construction Impacts

Throughout the construction phase the Project has the potential to impact MNES values via the following:

- Vegetation clearing resulting in loss of habitat;
- Habitat fragmentation and reduced connectivity;
- Fauna injury or mortality during vegetation clearing and potential entrapment in trenches when installing underground powerlines;
- Fauna injury or mortality due to vehicle strike;
- Wildlife disturbance due to dust, noise, light and vibration emissions;
- Reduced water quality due to erosion and sedimentation;
- Potential spills of hazardous materials;
- Introduction or increased prevalence of pests and weeds due to increased vehicle movements and vegetation clearing;
- Increased risk of bushfire due to potential ignition sources on site associated with increased activity;
- Greenhouse gas emissions; and
- Potential disturbance of Aboriginal cultural heritage.

### 5.2 CLEARING OF MNES HABITAT LIKELY TO HAVE A SIGNIFICANT RESIDUAL IMPACT

#### Magnificent Brood Frog

- Habitat in project area: 19,979.46 acres / 8085.4 ha
- Area of habitat impacted: 297.76 acres / 120.5ha
- Significant residual impact: LIKELY
- Offset required? Yes

#### Masked Owl

- Habitat in project area: 74,933.96 acres / 30324.7 ha
- Area of habitat impacted: 2536.042 acres / 1026.3ha  
This figure is also stated as: 1041.2ha (2572.86 acres) [page 148 PER]
- Significant residual impact: LIKELY
- Offset required? Yes

#### Koala

- Habitat in project area: 62,348.15 acres / 25231.4 ha
- Area of habitat impacted: 2085.10 acres / 843.81 ha
- Significant residual impact: LIKELY
- Offset required? Yes

#### Northern Greater Glider

- Habitat in project area: 57579.013 acres / 23,301.4 ha
- Area of habitat impacted: 2194.05 / 887.9 ha
- Significant residual impact: LIKELY
- Offset required? Yes

#### Spectacled Flying Fox

- Habitat in project area: 71389.48 / 28.890.3 ha
- Area of habitat impacted: 2412 acres / 976.1ha
- Significant residual impact: LIKELY
- Offset required? Yes

## CLEARING OF MNES HABITAT LIKELY TO HAVE SIGNIFICANT RESIDUAL IMPACT PER RESPONSE [5.2]

In addition to the species outlined above, we believe the assessments of two other species have been misrepresented as NOT LIKELY to cause a significant residual impact. These include:

### NORTH QUEENSLAND LACE

- Habitat in project area: (claimed) 468.02 acres / 189.4 ha
- Area of habitat impacted: (claimed) 7.66 acres/ 3.1ha

### SURVEY INADEQUACIES

- ❖ This is a fully aquatic species with non-rigid leaves. It typically lives in water with a moderate-high flow and typically moderate – high turbidity, particularly following heavy rain that adds volume to the water system. The species can only be reliably identified when the water level is at the minimum, following extended periods without rain. This also coincides with a greatly reduced level of turbidity making identification easier. Even so, a mask for underwater observation is required in order to confirm positive identification in many cases. This plant from above can resemble other aquatic species. In addition, it is worth noting that presumptions are inferred from the study method that are false. The following statement is made in the draft PER:  
*'As the species flowers between the months of Sept and April (Calvert 2016), this survey period is considered appropriate.'*
- ❖ This statement is concerning for a number of reasons. Firstly it infers that flowers could be used as an identification tool from the banks at a time of peak flow, and secondly that it implies the flowers occur above water level. Flowers could be used as part of the identification process but not in the month the survey work was undertaken in, and certainly not following the level of rain which had fallen over the previous month. It is also worth noting that flowering does not occur throughout this period.
- ❖ Rainfall in Feb 2021 is stated to be 293mm, and while the measurement recording for Jan 2021 is stated as inaccurate, the description of the *"cyclonic conditions experienced on site"*, (draft PER page 102) create a clear picture of the scale of the rain for this time of the year. Jan 2022 is stated to be 289mm and although a figure for Feb 2022 is not stated, it can reasonably be considered that it was likely significant. It would be impossible, with the dramatically increased volume of water flowing through target waterways, combined with increased turbidity – to see this plant. It does not sit upright in the water but rather 'flows' [for a lack of a better word] with the leaves supported by and going in the direction of the water flow. If the plant is removed from the water, the leaves will collapse down – they cannot support their own weight.
- ❖ In addition, even if the surveys were carried out at an appropriate time (an extended period without rain and with no other disturbances causing turbidity), the method and time dedicated is manifestly inadequate. As outlined, above, in order to properly assess this plant, it would require survey members working in the water and following the waterway through it. Creek bank observation is not accurate – this is magnified by the circumstances described in the draft PER which include *'dense coverage of Lantana'* in some areas.'
- ❖ The draft PER contradicts itself by supplying three different durations in which the survey work was carried out. Depending on which page you read it is stated to be either 5,6 or 7 days. [Page 125 / 105 / 101 respectively]. It does not give any confidence that sound procedures have been followed if the duration cannot even be correctly stated. That aside, to survey 40km of waterways in 5 – 7 days to the standard required is simply not possible.
- ❖ In addition to all the above, section 5.6.22 of the draft PER (page 291) refers to known habitat of this species as the site of potential bridgeworks if an alternative access road is chosen. The draft PER states *"any North Queensland Lace located in the footprint of disturbance would be translocated out of the temporary disturbance area."* This suggests a profound lack of understanding of this species. It is not easily removed – attempts to do so invariably result in leaves being ripped off but the tuber remaining in situ.

- ❖ In summary, the survey work carried out, and by definition the understanding of what is required to survey this plant are manifestly inadequate. The survey was undertaken at the wrong time, by an unsatisfactory method, over too short a duration - for the presence of this species to be identified. The approval of this development must not be granted on the basis that the threat to the MNES listed Endangered plant North Queensland Lace has not been assessed to any reasonable standard.

## CLEARING OF MNES HABITAT LIKELY TO HAVE SIGNIFICANT RESIDUAL IMPACT PER RESPONSE [5.2]

### RED GOSHAWK

- Habitat in project area: (claimed) 74923.09 acres / 30,320.3 ha
- Area of habitat impacted: (claimed) 2549.49 acres / 1031.74 ha

### SURVEY INADEQUACIES

- ❖ The level of contradiction outlined in relation to the identification are so confound, as to suggest a deliberate attempt to defraud the Australian government. The fact is, a nest was found in in Jan 2021 which was confirmed by photos sent to a Red Goshawk expert (QPWS ranger) as belonging to the species. Two other experts who were sent the photos stated it 'possibly' belongs to the species. *[MNES Report 22/06/21 page 92]*

In the draft PER, two alternate versions are told, both of which contradict the above report, and each other. The second version slightly downplays the QPWS ranger who now has gone from confirming the identification of the nest to saying it was 'likely'. The statements of the other two experts that the nest could 'possibly' belong to the species remains unchanged. It is stated however, that photos were sent to a fourth species expert who did not respond. *[Draft PER page 114 03/11/22]*

In the third version, in the same document, the following version is told with significant alterations. The QPWS ranger now only agreed that the nest 'resembled' that of a red goshawk. The view of the other two remain unchanged. What is startling, is firstly, in this account the experts (three plus one who didn't respond), have now been downgraded to 'recognised bird specialists'. A significant and consequential downgrade. What beggars belief, however, is that in this case, the fourth party this time has responded and was certain the nest belonged to the non-MNES listed species the Grey Goshawk!! How wonderfully convenient! It's almost like this was part of a story engineered to achieve the outcome desired by the developer – project approval..

- ❖ The species is consistently stated to be secretive, elusive and notoriously difficult to locate. A 2010 report titled Distribution, status and habitat of the Red Goshawk in Qld states '*these raptors are difficult to locate.*' The Australian government survey guidelines for Australia's Threatened Birds states the species is '*Very secretive. Generally silent..*' and '*Presence most likely detected by location of nests*'. The National Recovery Plan for the Red Goshawk states: '*The red goshawk is a solitary and secretive bird that is generally silent. Even when nesting, red goshawks are inconspicuous; they do not usually reveal themselves by flying off in alarm when approached.*'
- ❖ The survey results of a study undertaken in into the distribution of the Red Goshawk in QLD\* show known sightings in the Einasleigh Uplands bioregion and in the Wet Tropics bioregion. The Chalumbin wind farm project area is located along the boundary of those two bioregions. In a 1999 survey Red Goshawks were encountered at 17 localities, and credible reports were received from a further six localities, across the Wet Tropics, Einasleigh Uplands and lower Cape York Peninsula bioregions. Of these, pairs were recorded at five localities (including one with a fledgling), and suspected at a further three. Three nests (one active) were found Einasleigh Uplands and Cape York Peninsula bioregions. Red Goshawks were recorded in all nine provinces of the Wet Tropics Bioregion, four of six in the Einasleigh Uplands Bioregion. The population was estimated in the survey report to be in the order of 25–30 pairs in the Wet Tropics and Einasleigh Uplands bioregions. It is worth noting the extensive home range of this species of up to 200km. *\*[Distribution, status & habitat of the Red Goshawk *Erythrotriorchis radiatus* in QLD G. V. Czechura et al]*
- ❖ It is certainly the case that the nest found in Jan 2021 could indeed belong to the Red Goshawk. It may have been abandoned (temporarily or permanently) for a variety of reasons, including but not limited to the increased movement of people on and around the project area including in the vicinity of the nest.

- ❖ According to the PER (page 261) the area of habitat to be impacted is 2549.49 acres / 1031.74 ha. The recommended survey time is stated as 50hrs per 50ha area making the survey time 1032 hours. Instead, just 443 hours of surveying in total was carried out.
  - ❖ The National recovery plan for the Red Goshawk states that: *'Habitat critical for red goshawk survival needs to contain all known sites for nesting, food resources, water, shelter, essential travel routes, dispersal, buffer areas, and sites needed, or the future recovery as defined by the EPBC Act.'* [National recovery plan for the red goshawk *Erythrotriorchis radiatus*].
  - ❖ Habitat critical to the survival of the species was mapped in the MNES report (22<sup>nd</sup> June 2021), but was not part of the PER submission. The precautionary principle must be applied in the assessment process of this species.
  - ❖ The Red Goshawk has not been accurately assessed for MNES purposes under the EPBC Act, and as such approval for the Chalumbin Wind Farm development cannot be granted.
- 

#### 5.2.2 Habitat Fragmentation & reduced connectivity

- ❖ Terrestrial habitat connectivity will be reduced – Northern Greater Glider particularly vulnerable. Max distance it can glide across canopy 100m. 150-260 years from germination to the beginning of hollow development for shelter.
- Developer claims in 20yrs woodland habitats are anticipated to revegetate. They will then be bulldozed again for decommissioning.

#### 5.2.3 & 5.3 Fauna Injury / death

- Injury / death from:
  - Tree clearing
  - Vehicle strikes
  - Turbine strikes / collision risk – migratory birds / raptors / microbats  
Carcasses around base turbines attract raptors
  - Barotrauma – sudden change in air pressure around blades damages tissue including lungs – air haemorrhaging Micro bats / flying fox / birds

#### 5.2.5 Noise & vibration

- Blasting for construction pads and access roads -cave dwelling parts susceptible vibration impacts

#### 5.2.7 / 5.2.8 Erosion, Sedimentation & Hazardous Materials

- Impacts on water quality:
  - Excavations & earthmoving
  - Changes / reduction in water flows - Magnificent Brood Frog highly vulnerable / WTWHA GBR
  - Reduction in water flow
  - Sedimentation in headwaters to Great Barrier Reef
  - Accidental release of pollutants including chemicals / oils / hydraulic fluid etc
  - Contaminate run off
  - Changes in the hydrology through alteration of surface flows and stormwater runoff, including obstruction of flow. This can result waterlogging.

#### 5.2.9 Pest & Weeds

- Increased weeds / weed incursion
- Increased in feral species. Dead animals from turbines strike attract feral cats / dogs

#### 5.2.10 & 5.3.8 Bushfire Risk

- Increased fire risk flammable liquids
- Clearing loss of ground cover combustible materials
- Potential of the clearing of wet sclerophyll forest vegetation, to lead to an increased risk of bushfire impacts to the rainforest areas and outstanding universal values of the WTWHA. The wet sclerophyll forest vegetation acts as a bushfire buffer and the removal of this vegetation in certain locations may lead to parts of the WTWHA being exposed to elevated fire risk



### 5.211 Greenhouse Gas Emissions

- Loss carbon sequestration through clearing

### 5.3.9 Disruption of Visual Amenity and Outstanding Universal Values of the WTQWHA

- Turbines will be visible from certain locations beyond the boundary of the Project area.
- Landscape impacts include physical changes to the landscape, as well as perceptual changes in the character of the landscape.
- Impacts on areas designated for their scenic or landscape qualities
- Impacts on visible impact on WTQWHA

### 5.4 Potential Decommissioning Impacts

- At end of developments operation life infrastructure will be decommissioned & **'site rehabilitated to facilitate continuation of the current land use (i.e. grazing)'**.
- Decommissioning = removal of all above-ground infrastructure : turbines, overhead transmission lines, switch stations, etc. Buried infrastructure not removed.
- Impacts vehicle movements.
- Spread of weeds and risk of bushfire.
- Some clearing of rehabilitated road verges to facilitate the movement of large equipment, to be determined by a swept-path analysis at the time.
- Any clearing of rehabilitated areas would be rehabilitated again on completion of decommissioning

### 5.5 Cumulative Impacts

- Cumulative impacts on MNES can be defined as the additional effects caused by a proposed action in conjunction with other similar developments.
- A number of wind farm projects and the Northern QREZ augmentations are in operation, in construction or are being planned within the Tablelands region and have the potential to result in cumulative impacts when considered alongside the Project.

#### Magnificent Brood Frog

- Low likelihood of occurring Mt Fox, Mt Emerald,
- Unlikely to occur Upper Burdekin
- Confirmed at Kaban - Significant Residual impact – no figure provided
- Recorded at Chalumbin - Significant Residual impact 120.5ha habitat loss

#### Masked Owl

- Low likelihood of occurring at Mt Fox
- Moderate likelihood of occurring Kaban, Mt Emerald SRI unlikely
- Recorded Upper Burdekin SRI unlikely
- Recorded - Significant Residual impact 1026ha habitat loss

#### Red Goshawk

- Moderate likelihood of occurring at Kaban SRI unlikely
- Moderate likelihood of occurring at Mt Fox loss 131ha SRI unlikely
- Moderate likelihood of occurring Mt Emerald 57ha loss SRI unlikely
- Recorded at Upper Burdekin significant residual impact 379ha breeding & 505 ha foraging habitat loss
- Not recorded Chalumbin loss 1031ha potential habitat no SRI

#### White Throat Needletail

- Highly likely to occur at Kaban
- Recorded Mt Fox, Mt Emerald, Chalumbin
- Potential to occur Upper Burdekin

#### Koala

- Moderately likely to occur Kaban, Mt Emerald – SRI unlikely
- Moderately likely to occur Mt Fox 54ha loss potential habitat – SRI unlikely
- Recorded Upper Burdekin – potential significant residual impact 861ha habitat loss
- Not confirmed Chalumbin - significant residual impact 843.8ha

#### Northern Greater Glider

- Confirmed at Kaban – SRI unlikely
- Recorded at Mt Fox - 54 ha habitat loss – impact listed as not significant with proposed mitigation
- Recorded Upper Burdekin – significant residual impact loss 853ha
- Recorded Chalumbin – significant residual impact loss 888ha

#### Spectacled Flying Fox

- Confirmed at Kaban – SRI unlikely
- High likelihood Mt Fox – SRI no
- Confirmed Mt Emerald – loss 57ha habitat SRI – no
- Recorded Upper Burdekin SRI – unlikely
- Recorded Chalumbin loss 976.1ha habitat SRI – no?!

## WTQWHA & Natural Heritage Place

- Negligible – Chalumbin

## **CUMULATIVE IMPACTS – OTHER WIND FARMS PER RESPONSE [5.5]:**

- ❖ Charts provided in the PER are subjective and differentiating terms and with no actual analysis carried out on the cumulative impacts

### **MAGNIFICENT BROOD FROG**

- ❖ Given the extremely limited range of this species and the fact that all known habitat is regarded as critical to survival, the cumulative effect of both these developments on this species needs to be considered as part of assessing the approval for Chalumbin.

### **RED GOSHAWK**

- ❖ Due to the reasons outlined elsewhere in this document, it is not accepted that the destruction of 1031ha will not have a significant residual impact on the species. When combined with the significant residual impact at Upper Burdekin the total area of habitat loss is 1915ha / 4732.1 acres.
- ❖ This is a significant area of habitat to lose by any scale. Given the historical records of Red Goshawk including breeding records in the bioregions of Chalumbin, the sizeable impact of this combined habitat needs to be assessed as part of the approval process for Chalumbin.

### **WHITE THROAT NEEDLETAIL**

- ❖ This largest threat to this species is stated at being collision with wind turbine blades. With this in mind, cumulative impact on this species needs to be considered.

### **KOALA**

- ❖ The combined area of habitat loss of Chalumbin and Upper Burdekin is 1704.8ha / 4212.65 acres.
- ❖ This is a significant area of habitat to lose by any scale. The size of the habitat to be destroyed nearly double the significant residual impacts posed looking at these developments in isolation. With elevated habitats providing refuges with the impacts of climate change, the importance of these populations can not be understated. The cumulative effect of this habitat loss must be assessed as part of the approval process for Chalumbin.

### **NORTHERN GREATER GLIDER**

- ❖ The combined area of habitat loss of Chalumbin and Upper Burdekin is 1741ha / 4302.11 acres.
- ❖ This is a significant area of habitat to lose by any scale. The size of the habitat to be destroyed nearly double the significant residual impacts posed looking at these developments in isolation. With elevated habitats providing refuges with the impacts of climate change, the importance of these populations cannot be understated. The cumulative effect of this habitat loss must be assessed as part of the approval process for Chalumbin.

### **SPECTACLED FLYING FOX**

- ❖ The PER states the destruction of 976.1ha of habitat for this keystone species is not a significant residual impact. This defies belief. The species was listed as endangered in 2019, however that did not take into account the mass death estimated at 5000+ individuals in Cairns in 2018. [<https://cafneec.org.au/spectacled-flying-foxes/>]
- ❖ This species is under immense pressure in cities from the encroachment of suburbia on their fragments of remaining habitat – parks and reserves. It is therefore incomprehensible, that the destruction of such a vast area of foraging habitat (and by default seed dispersal), of a recognised rural colony, is not deemed a significant residual impact.

## 5.6 Facilitated Impacts

- Facilitated impacts are those which result from actions (including actions by third parties), that are enabled by the development.

### 5.6.1 Construction of New High Voltage Powerlines

- Industrial Wind Farms seeking to enter the national electricity market must obtain approvals from AEMO , Powerlink or Ergon to provide an agreed amount of electricity into the NEM.
- The capacity for the existing network to convey this electricity depends on how much electricity is produced by the generator, the specifications of the transmission infrastructure that the generator is connecting to, and the existing (and future) generation and load throughout the NEM.
- This means that the ability for existing transmission infrastructure to convey electricity generated by Chalumbin Wind Farm will depend on the infrastructure, the scale and magnitude of surrounding generators, and electricity use. T
- The capacity within these transmission lines is reported on annually in Powerlink's Transmission Annual Planning Report (TAPR).

- There are two 275 kV transmission lines that connect the Chalumbin substation to the Ross (Townsville) substation. Each of these lines are expected to have approximately 500 MW of capacity. Powerlink has recently upgraded the existing Ross to Woree 132 kV line to be a 275 kV this is also expected to have approximately 500 MW of additional capacity. Collectively, these three transmission lines would provide approximately 1,500 MW of line capacity between Ross and Woree.
- Kaban Wind Farm has capacity of 157 MW + the battery storage system at Kaban is 100 MW (unlikely to be discharging if wind generation is at its peak). Therefore, the existing 275 kV transmission lines between Ross and Woree contain ample capacity to connect the maximum generation output from Kaban Wind Farm (157 MW plus 100 MW) and Chalumbin Wind Farm (602 MW).
- The Northern QREZ is slated for AEMO and Powerlink investment to encourage additional renewable energy generators in this region. This means further network capacity being added to the Northern QREZ in 2031. These upgrades will likely occur with, or without, the Chalumbin Wind Farm.
- The CWF will not facilitate further impacts on MNES through augmentation to existing infrastructure.

#### 5.6.2.1 Northern Access (Wooroora Road)

- 14x Pinch points with potential impacts. This includes the loss of 1.09 ha endangered flora. *Corymbia clarksoniana*

#### 5.6.2.3 Accommodation Facility

- CWF is currently investigating potential off-site accommodation facility options for 250 to 350 construction workers. Whilst no location has yet been identified, CWF is committed to ensuring that the facility – if established – will be sited and constructed in a manner that will not have a significant impact on MNES.

#### **FACILITATED IMPACTS – ACCCOMODATION FACILITY PER RESPONSE [5.6.2.3]:**

- ❖ **A facilitated impact that will have a devastating impact on the local community is the displacement of locals from the residential housing market in order to accommodate workers for the Chalumbin Wind Farm development. The area is in the grip of a housing and homelessness crisis. Many individuals and families are being made homeless as the supply of available rental accommodation continue to shrink, and prices continue to rise. There is no capacity in the housing market to accommodate the workers for this development. The only way houses can be made available, is through the developer giving financial incentive to property owners, and in so doing displacing locals. It is critical to the wellbeing of the community, that an accommodation compound capable of housing all workers, is listed as a condition of development approval for Chalumbin Wind Farm.**

#### 6.0 Avoidance Mitigation & Management Measures

##### Avoidance

- WTWHA
- Rainforest
- Arthurs Seat & other known Cultural Heritage Areas
- Potential Goshawk Nest – 1000m between nest and turbine

#### **AVOIDANCE PER RESPONSE [6.0]:**

- **Jirrbal community members have stated that Significant areas of Cultural Heritage have not been recognised, mapped, and are unknown to the developer. The failure to consult with all Jirrbal people has created a scenario where Sacred Sites and other areas of immense Cultural importance are not known or recognised in the PER . This development will result in the desecration of Cultural Heritage Areas. This development must not be allowed to proceed until ALL Jirrbal people have been properly consulted and have had the opportunity to advise on areas of cultural significance.**
- **An avoidance area of just 1000m surround the potential Red Goshawk nest is manifestly inadequate and poses significant risk of bird strike and other disturbance to the species.**

#### Design Changes following Wet Tropics Management Authority 6.1.6

- WTMA reviewed draft Per early 2022. Key comments made their way into DCEEW adequacy review.
- **WTMA authority wants the avoidance of all wet sclerophyll vegetation entirely** or demonstrate how ecological function is maintained despite impacts.
- **The wet sclerophyll forest vegetation is considered by WTMA to be reflective of many of the outstanding universal values associated with the WTQWHA; there are strong interrelationships between patches inside and outside the WTQWHA and it provides an important ecological function in the broader landscape as a buffer to the rainforest environments within the WTQWHA.** Although not limited to the WTQWHA, the wet sclerophyll forest vegetation is viewed by WTMA to be of high value within the Project area for this reason.

- **Clearing and fragmentation of vegetation may lead to:**
  - Exacerbating fire risk in the WTQWHA;
  - Exacerbating weed and pest animal spread, contributing to ecosystem change in the WTQWHA;
  - Prevention of east/west movement of endemic fauna species throughout the landscape (from and into the WTQWHA).
- Reduced impacts by a further 31% (52.5 ha) of wet sclerophyll forest, including complete avoidance of the southernmost patch of wet sclerophyll forest within the Project area
- Committed to maintenance of landscape ecological function through design and implementation of key fauna movement enabling infrastructure, with a particular focus on the wet sclerophyll forest areas;
- Made additional commitments in relation to design and implementation of an appropriate fire regime for the Project area, and a pest animal and weed management program for the Project area.
- **It should be noted that the wet sclerophyll forest vegetation within the Project area could not be entirely avoided by the CWF.** The large central patch of wet sclerophyll forest vegetation within Wooroora is located in a critically important part of the site from a Project design perspective. The area extends significantly west from the WTQWHA boundary and is intersected by the existing high voltage transmission line running north/south through the Project area. The area is of varied topography and **includes locations of highly productive wind resource. Beyond this patch to the west, the environment becomes constrained through the rocky pavement shrub complex habitat and such areas are not suitable for Project infrastructure. The area is also important to allow the connection of the southernmost Project infrastructure to the rest of the Project. For these reasons, the wet sclerophyll forest vegetation has not been completely avoided by the Project design. However, the Project has taken the WTMA feedback on board.**

#### **AVOIDANCE WET SCLEROPHYLL FOREST /WTMA VIEWS PER RESPONSE [6.1.6]:**

- **All areas of Wet Sclerophyll Forest should be avoided, with suitable buffers retained around these areas.**
- **The environmental significance of these habitats is outlined in the Wet Tropics Management Authority submissions as is their value due to their buffering effects against bushfires.**
- **Wildlife corridors must be preserved to prevent further fragmentation and disruption to animal movement.**

#### **6.2 Construction Phase**

##### **6.2.1 Vegetation Clearing**

- Pre-clearance surveys will be undertaken by a suitably qualified ecologist to:
  - identify GPS locations of any protected plants noting details for each individual, including a health assessment;
  - identify and mark all hollow-bearing trees;
  - identify and mark any other active breeding places such as nests, burrows etc.;
  - identify suitable release sites; and
  - identify presence of weed species.
- A suitably qualified fauna spotter-catcher will be present during all clearing activities. The fauna spotter-catcher will be responsible to check an area immediately prior to any clearing for; presence of any native fauna including searches of all potential habitats such as terrestrial microhabitats and hollows, etc.
- Any captured species (excluding koalas) will be relocated to an agreed release site. The fauna spotter-catcher will then advise the ground staff as to measures that need to be taken to avoid impacts on breeding places and fauna species.
- Specific threatened species pre-clearance activities within the Project footprint will include:
  - canopy searches in suitable foraging tree species for koala; and
  - inspections of suitably sized hollows for the presence of greater glider.
- Sequential clearing will occur. Key steps as part of sequential clearing are summarised below:
  - the first phase will consist of removing understorey vegetation and smaller juvenile trees only. Juvenile trees are under 4 m in height or trunk circumference of less than 31.5 cm at 1.3 m above the ground. No hollow-bearing trees will be cleared in Phase 1;
  - after 48hrs the second phase can commence which is to clear the remaining larger trees, including those with hollows. Trees with small hollows will be cleared using the “slow drop” technique. The tree will be brought down slowly by the machine and mulch put underneath to soften the fall. They will then be inspected by the fauna spotter-catcher to ensure no wildlife remain in the hollow. Where practicable, fauna will be caught, and released into suitable recipient sites once clearing has stopped.
  - if any native fauna are injured they will be taken to a local vet/wildlife carer for treatment.
  - it is important the clearing is done in such a way that arboreal fauna are given the opportunity to disperse from the area once clearing has commenced under their own volition. To encourage this to occur, no habitat trees will be isolated (either singly or in groups) and instead dispersal corridors will be left in place that link vegetation with clearing areas to adjacent areas of retained habitat. Such corridors could consist of a single row of trees no more than 30-40 m apart that will act as ‘stepping stones’.
  - any confirmed koalas will be identified by putting flagging tape and/or marking spray on the tree they are in, and any nearby trees with overlapping crowns or those trees that may impact the koala’s tree during felling will not be cleared until the koala has moved from the area under its own volition. In most situations the koala

will move from the area overnight.

- fell trees away from retained areas of vegetation where practicable. Where trees unavoidably fall into retained areas, leave in-situ to mimic natural tree fall and provide habitat for ground-dwelling fauna.
- micro-habitats such as fallen logs and rocks will be moved into adjacent habitat.

#### **CONSTRUCTION VEGETATION CLEARING PER RESPONSE [6.2.1]:**

- ❖ **It is manifestly inadequate that a single fauna spotter will be charged with trying to locate species in areas to be cleared. It is absurd to suggest that one fauna spotter will be able to identify potentially impacted individuals prior to the demolition of vegetation.**
- ❖ **A sizable team of spotters would be required, all suitably qualified in understanding the species they are targeting. This applies for all MNES listed species. Of note, due to the size and difficulty in location Magnificent Brood Frog, experts in this species must be involved at all times leading up to the clearing, when destruction to habitat areas occurs and afterwards.**

#### **6.2.2 Habitat Fragmentation**

- The following measures will be implemented to mitigate and manage impacts of fragmentation as much as practicable during the construction phase:
  - All fencing on site, including security fencing, will incorporate design measures to allow for the movement of fauna. Fencing design must consider allowing fauna to move through or over it and will not use barbed wire.
  - Installation of glider rope crossings and glider poles in areas of confirmed glider habitat with a clearance width of 50 m or greater to maintain habitat connectivity.
  - Nest box installation to be undertaken where active dens are identified within the Project footprint to compensate for loss of denning resources.
  - Minimise clearing widths and where feasible install measures to assist fauna safely move across these areas to adjacent habitats. This may be reducing vehicle speeds to minimise chance of vehicle strike, establish rope crossings at key fauna corridors (such as watercourse crossings).
  - Install fauna exclusion fencing around some infrastructure such as the substation if there is a high risk of fauna species being impacted.
  - Undertake staged clearing of native vegetation, and retain habitat trees where practicable, to minimise impacts to native fauna species.
  - Implement weed and pest control across the Project area to reduce degradation of habitats and edge effects as a result of the Project.

#### **FRAGMENTATION PER RESPONSE [6.2.2]:**

- ❖ **The installation of artificial nesting boxes do not compensate for the destruction of 160-250 year old hollow trees used for habitat by Northern Greater Gliders and other species.**
- ❖ **The installation of rope crossings is insufficient in offsetting the damage done by fragmenting areas that prevent the normal movement of species in particular the Northern Greater Glider which is restricted in the distance it is able to glide.**
- ❖ **There are no details provided by the developer on the what, when and how in relation to weed and pest control relative to reducing the impacts of fragmentation.**

#### **6.2.7 Erosion and Sedimentation**

- The following measures will be implemented to mitigate and manage impacts of erosion and sediment as much as practicable during the construction phase:
  - **Erosion in active construction areas cannot be eliminated but can be controlled.**
  - CWF commits to avoiding all ground-disturbing construction activities during the highest rainfall months of January, February and March – thereby minimising the risk of larger erosion events impacting exposed soils.
  - As a minimum standard, access tracks will be constructed in accordance with EHP publication: “Erosion control on property roads and tracks—managing runoff”.
  - Creek crossing locations will seek to take advantage of existing gaps in the riparian corridors as far as practicable. Work in creek crossings will be carried out in periods of no flow where practicable.
  - Design on site infrastructure to ensure water flows are not impounded or concentrated (e.g. culverts, diversion ditches, etc.).
  - No equipment or materials will be stored across flow paths.
  - The extent of the area required to carry out the permitted activity must be limited to the minimum area necessary to reasonably carry out the works.
  - Waterway crossings will be designed in accordance with accepted development requirements for waterway barrier works wherever practicable to ensure fish passage is not impeded.
  - Watercourse crossings will be designed to maintain flow and minimise the increase in flow volume or velocity.

- Constructed access tracks (e.g. culverts or splash-through crossings) must be provided with a scour apron and cut off wall on the downstream side sufficient to prevent bed erosion.

### **EROSION AND SEDIMENTATION PER RESPONSE [6.2.7]:**

- ❖ **Despite the avoidance, the mitigation and minimisation techniques, the Chalumbin Wind Farm development is highly likely to create significant erosion and sedimentation that will flow into surrounding waterways. This will have significant impacts on water quality and impact on a myriad of aquatic species. These are headwaters that ultimately lead to the Great Barrier Reef. The cumulative impact on the increased sedimentation, and nutrient load must be considered.**

## 6.3 Operational Phase

### 6.3.2 Collision Risk

- The following measures will be implemented to mitigate and manage impacts from bird and bat collision risks as much as practicable during the operational phase:
  - A Bird and Bat Management Plan (BBMP) is prepared and provided for implementation prior to the operation of the wind turbines. The BBMP outlines a monitoring program, identifies if any threatened species are significantly impacted and defines a strategy that manages and mitigates any significant impacts on these species.
  - The availability of perches in the vicinity of turbines will be reduced.
  - Lighting of turbines will be limited – it is the advice of a specialist aviation consultant that wind turbines associated with the Project do not require lighting.
  - Use of onsite deterrents such as ultrasonic devices will be investigated.
  - The presence of standing water in the vicinity of turbines will be minimised.
- Operational monitoring for the site utilisation of birds and bats will be undertaken and compared to baseline data. Triggers for adaptive management will be included. Annual bird and bat utilisation surveys will be undertaken in line with Project approval conditions as part of monitoring to assess whether the Project area continues to be used by species and assess any changes in abundance that may influence BBMP risk ratings.
- A regular carrion removal program will be implemented.

### **COLLISION RISK PER RESPONSE [6.3.2]:**

- ❖ **Collision monitoring must be carried out by independent, suitably qualified persons, such as a local environmental organisation. Given the dishonesty exhibited by the developer throughout the process, it is highly likely to the extreme, that any confidence could be placed on stated strike data without independent observation and confirmation. Use of camera devices with live feed to record strike data should be listed as a requirement for development approval.**
- ❖ **The use of any and all available deterrent devices should be contingent upon development approval.**
- ❖ **The PER states monthly targeted inspections to search for carrion that may attract species vulnerable to turbine strike such as raptors. This is manifestly inadequate, and a regulated regime must be stipulate as a condition of development approval.**

## 7.0 Rehabilitation

- Rehabilitation of the areas disturbed by construction but not required for operational activities forms a critical element of the Project's efforts to minimise the extent and duration of impacts to MNES and the broader values of the Project area.
- The Project has made an industry-leading commitment to rehabilitate temporary construction disturbances and retain only the minimum footprint required for safe operations of approx. 107.3 ha.
- A key focus of the rehabilitation program will be to rehabilitate habitat for those MNES assessed as having a significant residual impact including koala, masked owl, northern greater glider and spectacled flying-fox (at least 80%) and magnificent brood frog (at least 70%), with a goal to rehabilitate 70 % of all other areas.
- The Project has made a commitment to rehabilitate these areas above and beyond the requirement of direct and indirect offset requirements, taking into account the sensitive Project setting adjacent to the WTQWHA.
- The purpose of the rehabilitation program is to facilitate the re-establishment of native ecosystems that are self-sustaining in the long-term and provide comparable habitat value to the pre-construction ecosystems. As the majority of the Project area currently supports remnant vegetation, this means the intention is for rehabilitated vegetation communities to have reached remnant status by the end of the operational lifetime of the proposed wind farm (approximately 30 years), as determined by comparing the rehabilitated vegetation communities with



published benchmarks for the relevant regional ecosystems

### **REHABILITATION PER RESPONSE [7.0]:**

- Definition: Rehabilitation – noun: the action of restoring something that has been damaged to its former condition

#### **MAGNIFICENT BROOD FROG:**

- ❖ **Magnificent Brood Frog eggs are laid on moist soil in or near a seepage, usually under vegetation. After hatching, the tadpole makes its way down the seepage or is washed into first order streams where development continues in small pools. Therefore, seepages are critical to the breeding and therefore the ongoing survival of this species. Regrowth forest uses more water than old growth and therefore has the potential to reduce seepages. As such there is no way to rehabilitate Magnificent Brood Frog sites. If revegetation causes existing breeding sites to no longer function, due to the depletion of water and deletion of seepages, this habitat no longer exists. As Magnificent Brood Frog habitat, by definition can not be rehabilitated, all known and potential habitat must be avoided in the development. [A seepage is a moist to wet area where water (usually groundwater) reaches the soil surface from an underground aquifer].**

#### **NORTHERN GREATER GLIDER:**

- ❖ **Northern Greater Glider habitat is very specific. Eucalyptus trees with hollows at least 8m above the ground. Hollows develop very slowly in Australian eucalypts, with minimum times of 150-260 years. As states in the PER: Once habitat trees are lost from the system, the length of time required for the development of replacement habitat trees appropriate for the species is prohibitive. Therefore it is by definition impossible to rehabilitate the Northern Greater Glider habitat in less than 160 years. Claims that the developer will rehabilitate the area within 30 years are false.**

### **REHABILITATION – GENERAL**

- ❖ **Rehabilitation – noun: the action of restoring something that has been damaged to its former condition. By definition it is not possible for any of the habitat at Chalumbin to be rehabilitated. The habitat includes all intertwined ecosystems including soil microbes that all play a critical role in the function, make up, and inter-connectivity of the area as a whole. Revegetation can occur – rehabilitation can not. You can restore a car. It will never be exactly the same as original but it can be close. The greater the amount of money spent the closer it can be. That is because the core of the car still exists. The inner and outer layers are just being restored. In contrast, the bulldozing of habitat removes all core elements. Buying a new car is not restoration, and similarly revegetating is not rehabilitation.**
- ❖ **The cumulative impacts of the loss of habitat for food, shelter and breeding will have a significant impact on MNES and non-MNES listed species, and a flow on effect throughout the wider environment. The 20-30 years before some of the revegetation reaches maturity leaves a significant gap in the requirements of MNES. In some cases, MNES species will simply not survive – Magnificent Brood Frog.**

## **8.0 Significant Impact Assessment**

### **8.1.2 The Biodiversity Convention**

- Established following 1992 Rio Earth Summit
- Signatories must implement National Biodiversity Strategy & Action Plan (NBSAP)
- Australia's Biodiversity Conservation Strategy 2010-2030 = NBSAP
- Three main values:
  - The conservation of biological diversity
  - Sustainable use of the components of biological diversity
  - Fair & equitable use of the components of biological diversity

### **8.1.3 The Apia Convention**

- The Convention on the Conservation of Nature in the South Pacific (APIA Convention) Commits signatories to taking action for conservation, utilisation and development of natural resources of the South Pacific region through careful planning and management for the benefit of present and future generations.
- In order to pursue the objective of the Convention the Parties:
  - agree to maintain lists of indigenous fauna and flora in danger of extinction and to give such species as complete protection as possible (art. 5)

- For context, the APIA Convention was suspended with effect from 13 September 2006; however, it is still relevant to take Australia's previous obligations under the Convention into consideration.

### **THE BIODIVERSITY & APIA CONVENTIONS PER RESPONSE [8.1.2 & 8.1.3]:**

- ❖ Despite claims to the contrary, the Chalumbin Wind Farm is inconsistent with international obligations under both the conventions. This primarily relates to the destruction of habitat critical to the survival of the Magnificent Brood Frog. It is without a doubt that article 5 of the Apia convention relating to giving fauna in danger of extinction as complete protection as possible, is incompatible with the CWF development. CWF is also incompatible with one the main objectives under The Biodiversity Convention - The conservation of biological diversity.

### **8.3 LISTED THREATENED FLORA SPECIES**

#### **NORTH QUEENSLAND LACE POTENTIAL SIGNIFICANT RESIDUAL IMPACTS PER RESPONSE [8.3.1.1]:**

- ❖ The habitat clearance assessment fails to take into account the impacts of the alternative access route, and the associated bridgework required, which will have a direct impact on the species.
- ❖ The PER states: *'The detailed design of the watercourse crossings is yet to be undertaken,'* Approval of this development should be contingent on best practice conditions being put in place in relation to the construction of all water crossings including minimising and revegetating cleared riparian zones and ensuring populations of this endangered species are avoided.
- ❖ The Significant Residual Assessment is fundamentally flawed: It states the SRI criteria's of 'reducing the range of occupancy of the species' and 'adversely affect habitat critical to the survival of the species' as unlikely. Yet the survey work carried out was manifestly inaccurate (as described elsewhere) – to the point of having no survey value. In addition, the population at the bridge crossing at the proposed alternative route, has not been included in this assessment.

#### **MAGNIFICENT BROOD FROG POTENTIAL SIGNIFICANT RESIDUAL IMPACTS PER RESPONSE [8.4.2.3]:**

- ❖ The revegetation outlined as a proposed mitigation is invalid as outlined under PER response 7.0.
- ❖ SIGNIFICANT IMPACT CRITERIA: Lead to a long-term decrease in the size of an important population of a species. Developer: Unlikely. It is incomprehensible that the developer has assessed this as unlikely. The reduction in seepage that will be caused by this development will have a direct impact on the habitat suitable for breeding. Due to the limited range and very small area in total occupied by this species, every population is critically important in ensuring its survival. It is likely therefore, that the opportunity cost lost in not preserving all known habitat is likely to lead to a long-term decrease in this important population. This is compounded when taking into consideration the cumulative impacts of the Kaban wind farm on this species.
- ❖ SIGNIFICANT IMPACT CRITERIA: Fragment an existing important population into two or more populations: Developer: unlikely. The population will without doubt be fragmented by land clearing, construction and infrastructure.
- ❖ SIGNIFICANT IMPACT CRITERIA: Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. Developer: unlikely. The clearing of habitat described in the PER will, without doubt modify, destroy, remove, and decrease the availability and quality of habitat to the extent the species is likely to decline.
- ❖ SIGNIFICANT IMPACT CRITERIA: Interfere substantially with the recovery of a species. Developer: Unlikely. At present there is no recovery of this species – the opposite is occurring. Developments are encroaching on its restricted known habitat putting its ongoing survival at risk. The Magnificent Brood Frog Working Group was denied repeat access to the site. The inference being the landowner did not want impediments to the financial gain of development approval.
- ❖

#### RED GOSHAWK POTENTIAL SIGNIFICANT RESIDUAL IMPACTS PER RESPONSE [8.5.3.3]:

- ❖ **SIGNIFICANT IMPACT CRITERIA:** Reduce the area of occupancy of an important population. Developer: unlikely. As discussed previously the precautionary principle should be applied. The level of deception on the part of the developer regarding the nest compounds and aggravates this factor. There is no doubt that using the precautionary principle, it is highly likely that the area of an important population will be impacted.
- ❖ **SIGNIFICANT IMPACT CRITERIA:** Adversely affect habitat critical to the survival of the species. Developer: unlikely. As outlined elsewhere in the PER and taking into consideration known breeding populations recorded within the bioregions of the development, a species that can travel for up to 200km from within its home range, the development is likely to adversely affect habitat critical to the survival of this species.
- ❖ **SIGNIFICANT IMPACT CRITERIA:** Disrupt the breeding cycle of an important population. Developer: unlikely. In addition to the above, the work carried out in surveys may have already disrupted the breeding cycle of an important population – either by accident or design. Using the precautionary principle that the nest found is a Red Goshawk Nest, it is highly likely the development will disrupt the breeding cycle of an important population. (All known populations of this species are important as per National Recovery Plan).
- ❖ **SIGNIFICANT IMPACT CRITERIA:** Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. Developer: unlikely. For all the reasons outlined elsewhere, it is highly likely the development will modify, destroy and decrease the availability of habitat to the extent that the species is likely to decline.
- ❖ **SIGNIFICANT IMPACT CRITERIA:** Interfere substantially with the recovery of a species. Developer: unlikely. As outlined elsewhere, and using the precautionary principle, and therefore taking into account the nest, this development is likely to interfere substantially with the recovery of the species.

#### KOALA SIGNIFICANT RESIDUAL IMPACTS PER RESPONSE [8.6.3.3]:

- ❖ **SIGNIFICANT IMPACT CRITERIA:** Interfere substantially with the recovery of a species. Developer: unlikely. The cumulative impacts of climate change need to be taken into consideration. Dire predictions on the contraction of areas where this species will be able to survive, means that high elevation habitats are of critical importance to the species recovery. This habitat is critical for the future survival of the species. Therefore, the destruction of this land will have a significant residual impact by interfering (substantially), with the recovery of the species.

#### NORTHERN GREATER GLIDER SIGNIFICANT RESIDUAL IMPACTS PER RESPONSE [8.6.3.3]:

- ❖ **SIGNIFICANT IMPACT CRITERIA:** Lead to a long-term decrease in the size of an important population of a species. Developer: Unlikely. The development areas contains habitat critical to the survival of the species, including of note 150-260+ year old trees with hollows of the size and type used for the species. The destruction of that very specific habitat along with a reduction in inter-connectivity between trees it can reach through gliding, will result in significant deterioration to the quality of the habitat. The installation of nest boxes does not offset the damage done by this clearing, which is exacerbated taking into account the specific height and size of the trees this species is known to favour. Taking into consideration the up to 260 year time frame for replacement for lost denning trees, it is likely the development will lead to a decrease in the size of this important population of the Northern Greater Glider.
- ❖ **SIGNIFICANT IMPACT CRITERIA:** Fragment an existing important population into two or more populations: Developer: Unlikely. By removing trees of the size, type and age required by the species, and reducing the space between trees within the distance it can glide, this has a real likelihood of fragmenting the population. The use by the species of the rope crossings proposed cannot be assumed in order to mitigate the loss of the destruction of this critical habit. The development therefore is likely to fragment the population.
- ❖ **SIGNIFICANT IMPACT CRITERIA:** Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. Developer: unlikely. For the reasons outlined above, and in addition taking into account the loss of foraging habitat, the destruction of 150-260+ year old trees and associated clearing is likely to remove and decrease the availability of the quality of habitat. The artificial nest boxes proposed are not comparable to the quality of the original habitat.

- ❖ **SIGNIFICANT IMPACT CRITERIA:** Result in invasive species that a harmful to a vulnerable species becoming established in the vulnerable species habitat. Developer: unlikely. The removal of 150-260+ year old trees of the height and size favoured by the species, combined with understorey clearing and a reduction in the density of trees from which the species can glide, is likely to make it significantly more vulnerable to predation by feral cats. Mitigation measures proposed are insufficient to address this issue, and therefore it is likely that the development will result in invasive species becoming more established around Northern Glider Habitat due to their vulnerability and easy targeting as prey.

**SPECTACLED FLYING FOX SIGNIFICANT RESIDUAL IMPACTS PER RESPONSE [8.7.3]:**

- ❖ **SIGNIFICANT IMPACT CRITERIA:** Interfere substantially with the recovery of a species. Developer: unlikely. This species is under immense pressure from human encroachment and loss of habitat. The destruction of 976.1 ha of foraging habitat, which should be regarded as critical to the survival of the species, along with construction development related impacts are likely to interfere substantially with the recovery of the species.

**8.10 Wet Tropics of Queensland National Heritage Place**

- Approval under the EPBC Act is required for any action occurring within, or outside, a National Heritage place that has, will have, or is likely to have a significant impact on the National Heritage values of the National Heritage place. An action is likely to have a significant impact on the National Heritage values of a National Heritage place if there is a real chance or possibility that it will cause:
  - One or more of the National Heritage values to be lost;
  - One or more of the National Heritage values to be degraded or damaged; or
  - One or more of the National Heritage values to be notably altered, modified, obscured or diminished.

**8.10.3 Indigenous Heritage Values**

**8.10.3.1 Engagement with Jirrbal People**

**INDIGENOUS HERITAGE VALUES – ENGAGEMENT WITH JIRRBAL PEOPLE PER RESPONSE [8.10.3]:**

- ❖ **Jirrbal community members have made it clear, that they have been excluded from the engagement process. That began at the Sept 16<sup>th</sup>, 2021 ‘community information session’, and the damage inflicted on Jirrbal attendees including Elders was profound.**
- ❖ **The developer made it crystal clear at that meeting that their concerns and input was not welcome, and they were treated with disdain. In the context of the Australian First Nations peoples being denied their right repeatedly for over 200 years the compounding trauma of this event cannot be understated. The view has been expressed by many that Wabubadda does not represent their interests and they have not been consulted.**
- ❖ **It has further been stated that there are Sacred Sites, and areas of Cultural Significance that overlap the Wet Tropics of Queensland National Heritage Place.**
- ❖ **As the developer acknowledges in the PER, further information about Cultural Heritage is still being revealed. How then, can a development be allowed to proceed, that will impact upon not only on places of immense cultural significance to Jirrbal people, but that are so important they are on the Wet Tropics of QLD Natural Heritage Register.**
- ❖ **The development can not be accurately assessed for approval until all sites of Cultural Heritage significance to Jirrbal people are known, recognised and are mapped. As the developer acknowledges that this process is ongoing, the development can not even be assessed by the Minister as it is incomplete and therefore can not be approved.**

**10.1 Environmental Offsets Policy 2012**

- Where a proposed action is assessed as having the potential for a significant residual impact (SRI) on a MNES, following consideration of measures to avoid or minimise the potential impacts, environmental offsets are required in accordance with the Commonwealth EPBC Act Environmental Offsets Policy 2012.

- This policy states that an environmental offset must “deliver an overall conservation outcome that improves or maintains the viability of the protected matter as compared to what is likely to have occurred under the status quo.”

#### 10.8 Water Act 2000

- The purpose of the Water Act 2000 (Water Act) is to protect rivers, creeks or other streams in which water flows permanently or intermittently. A person must not take or interfere with the flow of water in a watercourse, lake or spring without an authorisation or entitlement under the Water Act, issued by the Department of Regional Development, Manufacturing and Water (DRDMW).
- Approvals under the Water Act only apply to watercourses as defined in the Act as a river, creek or other stream, including a stream in the form of an anabranch or a tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events.. **Watercourse determinations are undertaken by DRDMW and for the Project area the one “watercourse” defined under the Water Act is Blunder Creek.**
- Water related development is regulated by the Water Act in conjunction with the provisions of the Planning Act. This includes:
  - Riverine Protection Permit - a permit to excavate or place fill in a watercourse, lake or spring will be required should the works not comply with the “Riverine Protection Permit Exemption Requirements” (WSS/2013/726 v2.01 dated 13 November 2019). The Riverine Protection Permit (RPP) exemption requirements set out area limit and vegetation requirements. It is expected that a RPP will be required for the crossing of Blunder Creek associated with the Project.
  - Operational Works for taking or interfering with water from a watercourse, lake or spring or from a dam constructed on a watercourse lake or spring. This may be required for construction works across waterways within the Project area.
  - **Water Licences are authorities to take water and/or interfere with water. Such a licence may be required for water sourced by the Project’s construction contractor.**

#### 10.14 Tablelands Regional Council Planning Scheme and Local Laws

- The Project will require secondary permits and approvals from Tablelands Regional Council (TRC), following receipt of the primary MCU and OPW development permit. These are subject to ongoing discussion and scoping with TRC, but may include (depending on the construction contractor’s selected methodology):
  - Development Permit for MCU – for borrow pits, **temporary batching plants** and possibly a construction accommodation facility;
  - Development Permit for Reconfiguring a Lot – associated with the lease for the Project over the Glen Gordon (freehold) property, as leases of 10 years or greater in duration are considered to be assessable development under the Planning Act;
  - Development Permit for OPW associated with a MCU – for earthworks, access works and stormwater works; an
  - Permit under Local Law No. 1 – alterations or improvements to local government controlled areas and roads, for upgrade works to and within the Wooroora Road corridor

### **CONSULTATION (11.0)**

#### **CONSULTATION SUMMARY OVERVIEW PER RESPONSE [11.0]:**

**The developer has provided false, and misleading information in the draft PER regarding the consultation that has occurred, the nature of that consultation and the willingness of the developer to actively engage in consultation.**

**This includes:**

- 1. Failing to engage in open consultation by refusing to facilitate or attend open community consultation meetings. [ref: page 2 onwards]**
- 2. Providing incomplete, false, and misleading information in photo montages, press releases and photos.**
- 3. Providing false information in briefings to individuals and organisations including making the claim that Koalas had not been seen at Yourka Reserve for a decade. [page 4]**
- 4. The ‘Chalumbin Wind Farm local ‘Information Hub’ is routinely closed during the extremely limited published opening hours.**

5. Treating community members including Jirrbal Elders with complete disrespect and utter disdain at the Sept 16<sup>th</sup>, 2021 'community information session'.
6. Providing a fabricated, account of what occurred at the Sept 16<sup>th</sup>, 2021 'Community information Session'.
7. Using the fabricated account of the Sept 16<sup>th</sup>, 2021, meeting as justification for not holding any open community meetings. This is as a blatant attempt to deceive the federal government.
8. Making misleading statements regarding the so-called 'Community Advisory group', including:
  - a. Failing to declare the chair of this declared 'voluntary' organisation is being paid.
  - b. Failing to declare the business interests of the chair, as founder and managing director of a company that provides 'tailored services' to renewable energy clients including 'Strategic advice to fast-track project approvals.'

As such:

- The developer has not adhered to the principles of the framework they claim to rely on in the consultation process.
- The developer has not complied with and is in breach of with the Clean Energy Council Best Practice Charter.
- The developer by their own definition has no social license to operate nor to proceed with the development.
- The developer in a sustained, and deliberate manner, has avoided consultation to protect their own interests - development approval.
- Chalumbin Wind Farm PTY LTD / Epuron / Ark Energy have all clearly failed to meet the threshold required for community consultation based on their own and prescribed definitions.
- The Australian government defines fraud as: 'Dishonestly obtaining a benefit, or causing a loss, by deception or other means.' (treasury.gov.au)
- To deceive by dishonestly misrepresenting the facts of the development, in order to gain community support, and development approval, potentially reaches this threshold.

### 11.1 Consultation Approach

#### 11.1.1 IAP2 Framework

The developer defines their approach to consultation as being informed by the [IAP2] framework. \*[International Association for Public Participation]

The IAP2 Core Values define the expectations of the process, and state that public participation:

- (a) Seeks out and facilitates the involvement of those potentially affected by or interested in a decision.
- (b) Seeks input from participants in designing how they participate.
- (c) Provides participants with the information they need to participate in a meaningful way.

The approach centres on achieving good community-based outcomes and can be described as genuine, timely, relevant, transparent and inclusive.

#### **CONSULTATION APPROACH – FRAMEWORK PER RESPONSE [11.1.1]**

The Developer has not adhered to the principles on the framework on which they claim to base their consultation approach.

Specifically, relating to the above points:

- a. The developer has failed to hold a single open consultation meeting. Far from seeking out, and facilitating the involvement, community members have been excluded from the process by the sustained and deliberate campaign by the developer to avoid proper, open community consultation forums.
- b. The developer has refused to organise, or even attend\*, any open community consultation forum throughout the entire process. Requests for meaningful, and transparent consultation through open forums have been declined. Therefore, the developer has prevented the participation of a significant percentage of the community. (\*Developer was invited to 4<sup>th</sup> Dec 2021 community meeting Ravenshoe Town Hall.)
- c. The developer has failed to provide the community, organisations, and other parties with complete, honest, and transparent information enabling them to be informed as required for participation in the process.



- d. The developer has not been genuine in seeking meaningful consultation with the community. Instead of engaging in open public forums, the developer has elected to instead hold private and small group meetings. This has excluded a large section of the community from participation. Information published by the developer is often spin, incomplete, misleading, and deceptive. The developer, by withholding information and misrepresenting facts, is in effect denying the community their right to participate in the consultation process. By refusing to participate in open consultation, the developer has excluded a sizable percentage of the community. The developer has breached the consultation framework they claim to adhere to.

#### 11.1.2 Best Practice Charter

As a signatory to the Clean Energy Council's Charter the developer claims to:

- Engage respectfully with the local community, including Traditional Owners of the land, to seek their views and input.
- Provide timely information and be accessible and responsive in addressing the local community's feedback and concerns. (PER 11.1.2)

#### **CONSULTATION APPROACH – BEST PRACTICE CHARTER PER RESPONSE [11.1.2]**

The developer has failed to adhere to its own charter. At the Sept 16<sup>th</sup>, 2021 'community information session', attendees including Jirrbal community members were treated with disdain. This had, and continues to have, a profound impact on the community. Jirrbal Elders that held very serious concerns about the development, Sacred Sites, and Cultural Heritage, were disrespected, ignored, and treated with utter contempt. Jirrbal Elders made it crystal clear that had not been consulted.

The refusal to hold or attend a single, open community consultation meeting, where community members could have their say, listen to other perspectives, and be collectively heard, fails the most basic assessment as having engaged respectfully. At all times, the developer has deliberately, and in a sustained manner, actively avoided transparent community consultation.

Emails sent to the email address provided by the developer have been ignored. The developer's 'local information hub' in Griggs Street, is routinely closed during the (extremely limited) stated opening hours.

#### 11.1.2 Best Practice Charter and Social Licence (continued)

The developer states: 'Ark Energy advocates a social licence to operate based on the accepted industry definition: "A level of acceptance or approval continually granted to an organisation's operations or Project by the local community."' (PER 11.1.2)

#### **CONSULTATION APPROACH – SOCIAL LICENCE PER RESPONSE [11.1.2]**

By their own definition, the developer clearly has no social licence to operate. A level of acceptance cannot be assumed when:

1. Consultation in an open, inclusive, transparent manner has not occurred at any stage of the process.
2. By deceiving the community through misrepresentation, omission and lies, the community has not had the ability to provide acceptance, as they have been denied readily available access to the facts of the case. In the absence of truthful information, approval for a social licence to operate cannot be claimed. Furthermore, any tacit approval given based on false information is therefore invalid and inadmissible.

#### 11.1.4 Principles

The developer claims to have observed the four key principles identified in the Clean Energy Councils guidelines as stated below:

##### 11.1.4.1 Openness

This means sharing relevant information about decisions and activities in a way that is:

- Clear, so any person can understand it.
- Accurate, so it is consistent and complete.
- Timely, so it is available when requested and can be used to make decisions.
- Honest, so information is available to avoid misleading assumptions.

#### **CONSULTATION APPROACH – OPENNESS PER RESPONSE [11.1.4]**

Epuron has lied and deceived the community by providing false, misleading, and deceptive information. This includes, but is not limited to:

- Creating photo montages, and publishing them, both through their website and in local papers, as well as in the window of their Ravenshoe office, that suggest the land at the development site is highly degraded, and largely cleared grazing land. No mention is made in press releases and PR spin that the sites are comprised of 95% remnant vegetation [EPBC Act referral 2021/8983 Chalumbin Wind Farm (section 3.7)].
- Publishing a full two-page advertisement in The Express newspaper 2<sup>nd</sup> Nov 2022 sub-headed PROJECT FACTS that provides a photo montage and three photos showing cleared, degraded land with little to no trees. Thereby falsely creating the impression that these photos are indicative of the development area. This has been carried out in a deliberate, and sustained manner in order to deceive the community. This information is clearly inaccurate, and incomplete. It therefore breaches three of the four principles of 'Openness' the developer claims to adhere to.
- Deceiving organisations and individuals in information sessions providing knowingly false information. Example - telling attendees at the Ravenshoe Chamber of Commerce 'project briefing' (Sept 20<sup>th</sup>, 2022), that Koalas had not been seen in the area for over a decade. *"I think one Koala was found on Yourka the property just to the south of the site maybe 10 years ago"*. This is despite well-known evidence existing of a male Koala photographed on the adjoining Yourka station two years ago (8/10/20). This Koala is specifically referenced in the developer's MNES report dated 22<sup>nd</sup> June 2021, and as such is well known to Epuron (now re-branded Ark Energy) staff involved with the Chalumbin development. (MNES report CWF volume C page 104).

There is significant community awareness surrounding Koalas, with widespread concern for their ongoing protection. This was amplified following extensive media attention regarding the change in their status to endangered in Feb this year. The Ark Energy representative who made this claim, holds a key senior position as Communications & Community Engagement Manager, with 20 years' experience working for large/multinational companies. This Manager is in charge of community consultation. It is beyond belief that a manager in this key role, and having given many prior briefings on the development, could have made this claim inadvertently, or as a once-off mistake. Was this a deliberate, wilful attempt to deceive the public in order to allay rising concerns about the impact to potential Koala habitat posed by Chalumbin? What other lies have been told behind closed door briefings, one-on-one and small group private meetings?

#### **11.1.4.2 Inclusiveness**

This involves identifying and interacting with all stakeholders to ensure their perspectives are understood and taken into consideration. This means that all relevant groups who are potentially affected by the Project have the opportunity to communicate their opinions, expectations, needs and concerns. Inclusiveness also means providing the appropriate channels and opportunities to participate in activities related to the Project and the decision-making processes.

#### **CONSULTATION APPROACH – INCLUSIVENESS PER response [11.1.4.2]**

By denying the community their right to be able to participate in a transparent, meaningful, and open process, the developer has made a deliberate and sustained decision to not be inclusive. By preventing the community from being part of the process through denying the individual and collective right to voice their concerns in an open, neutral venue, the developers have by design EXCLUDED a significant majority of the community. The actions and behaviour of Epuron staff at the Sept 16<sup>th</sup>, 2021, meeting failed the community. There was no inclusion. Attendees were excluded from having their concerns heard, their questions answered, or their input considered.

#### **11.1.4.3 Responsiveness**

This involves listening and responding to community concerns and needs, respecting that every individual has the right to ask reasonable questions about the Project and expect a response. It involves providing mechanisms to collect questions and provide answers in an open and timely manner. Responses are factual, reflect independent information and involve third parties where relevant.

#### **CONSULTATION APPROACH – RESPONSIVENESS PER RESPONSE [11.1.4.3]**

Many community members have not received responses to emails. The Grigg street 'Chalumbin Wind Farm local information hub' is regularly reported to be closed during stated opening hours. This concern is even noted in the April 2022 minutes of the developers Community Advisory Group. Community members that have signed up for emailed updates have not received any.

**As elements of briefings given to individuals and organisations have proven to be fictitious, is it incomprehensible that the same developer could claim to respond to private correspondence in a factual manner.**

#### 11.1.6 Goals and Commitments

The developer states their consultation goals as including:

- Ensure all stakeholders and the community are well informed and kept up to date on Project status and developments.
- Obtain feedback and provide ample opportunities for all stakeholders and the community to communicate their views, concerns, and aspirations for the Project.
- Address any stakeholder or community issues or concerns promptly.

#### 11.1.6 Goals and Commitments (cont.)

- Be proactive – connect with stakeholders and communities early in the process and regularly share information so they know what is happening.
- Be transparent – be honest and ethical in our dealings with all.
- Seek solutions – engage to understand and explore ways to minimise impacts and maximise the benefits of the Project.
- Be flexible and inclusive – ensure that our engagement provides opportunities for all stakeholders and community members to have access to information and Project personnel.
- Continually improve – evaluate the effectiveness of engagement and iteratively [repeatedly] adapt the approach and activities as required.

#### **CONSULTATION APPROACH – GOALS & COMMITMENTS PER RESPONSE [11.1.6]**

The developer has failed to inform a significant proportion of the community, by failing to facilitate or attend an open community consultation forum. As there has been no open forum, it remains impossible that all concerns and issues could be identified let alone addressed. By refusing to participate in the most open form of communication, they have chosen avoidance over connection. To claim the developer has been proactive is beyond belief. The developer has deliberately and in a sustained manner, deceived the community by publishing misleading photos, making misleading and incomplete statements, and by avoiding disclosing the full nature of the impacts posed. The developer has actively sought one on one and private meetings, in an opaque manner. In bypassing the transparency required to ensure due process, this has raised suspicions surrounding the motivation of the developer.

#### 11.3 Consultation to Date.

##### 11.3.1 Methods

###### 11.3.1.1 Dedicated Communication Channels

The developer has a dedicated email address info@chalumbinwindfarm.com.au and a 1800 number. These divert to members of the project team. Enquiries are responded to directly via telephone or email, generally within 48 hours.

#### **CONSULTATION TO DATE – DEDICATED COMMUNICATION CHANNELS PER RESPONSE [11.3.1.1]**

Emails are not replied to.

###### 11.3.1.2 Website & 11.3.1.3 Newsletters

The project has a website. Newsletter updates have been sent to subscribers.

#### **CONSULTATION TO DATE – WEBSITE & NEWSLETTERS PER RESPONSE [11.3.1.2 & 11.3.1.3]**

Community members that have subscribed to the developer's website update list have received no correspondence. Updates published on the website have been misleading and incomplete. Updates have been back dated, and in some cases revised and reposted many months, or a year after publication date. This includes the website update of 20<sup>th</sup> Sept 2021 outlining the developers account of what had transpired at the Sept 16<sup>th</sup> meeting. In addition to this post bearing no mention of what had actually occurred at that meeting, it has since been re-worded. When this revision occurred, a different date was subsequently put on the new post, making it undeniable the change had occurred.

###### 1.3.1.5 Local Media Inserts

Advertisements have been placed periodically in local newspapers

#### **CONSULTATION TO DATE – MEDIA INSERTS PER RESPONSE [11.3.1.5]**

Published material in newspapers has been incomplete, deceptive, misleading, designed as spin, angled to misrepresent the development as appearing to pose a substantially reduced threat to the environment.

Photomontages and images of cleared grazing land feature on published material. This has been designed to create the false impression that the land at the development site is highly degraded, and largely cleared grazing land. This has had

considerable success in misleading the wider community. No mention is ever made in media inserts that the sites are comprised of 95% remnant vegetation [EPBC Act referral 2021/8983 Chalumbin Wind Farm (section 3.7)].

#### 11.3.1.6 Community Information Sessions

Local drop-in information sessions have been held in Ravenshoe, in September 2021 and February 2022 to update the community, address concerns and collect feedback.

In accordance with the Queensland Chief Health Officer's COVID-19 orders, face-to-face information and drop-in sessions originally scheduled for July 2021 had to be delayed and rescheduled in September 2021. This session was an informal drop-in session over a two-hour period with information materials and representatives available to answer questions. At this initial session a number of community members expressed their frustration that a presentation was not provided, and it became evident that there were some community concerns about ecological impacts and Indigenous engagement that were necessary to address. The animated reactions of a small group of people put the safety of other attendees at risk and their behaviour also prevented all attendees from having the opportunity to speak, hear or be heard. Based on learnings from the first information session, the approach to the second round of information sessions was adjusted and these were offered as multiple smaller sessions with a presentation. The sessions were attended by key members of the Project team and specialist consultants. This format was welcomed as more inclusive and allowed for extensive discussion where each attendee could raise questions and have these addressed.

#### **CONSULTATION TO DATE – COMMUNITY INFORMATION SESSIONS PER RESPONSE [11.3.1.6]**

This is a blatant attempt to re-write history and in no way, presents an accurate depiction of what happened on the day. In fact, so far removed is this account from reality, that it would appear to seek to deliberately deceive the federal government department, and Minister Ms Plibersek. A statement surrounding what occurred at that meeting was published and circulated on the same day as the meeting. That statement was shared and endorsed as accurate by many people who had attended that day. That statement is supplied as an attachment to this document.

To summarise what actually occurred:

- A time was provided for the session at being 3:00. By 2:30 a significant number of community members were lined up outside on the footpath, on a hot day, waiting to be allowed in. Amongst those, were some visibly frail and elderly residents. At 2:40 a representative of Epuron came to the door and rudely declared "The meeting starts at 3:00!" At 3:00 when the doors were unlocked (the venue being a council owned public hall), attendees entered the room to find that not even a single chair has been setup! Community members took it upon themselves to bring out chairs so that everybody could have a seat, starting with the elderly.
- By 3:20 not a single word had been spoken by Epuron. Community members, by now a sizeable crowd, (in a large building), were seated and waiting for the community consultation meeting to begin. There were no microphones – there was no PA. At 3:24 an Epuron representative, who turned out to be the General Manager of QLD Development, but who refused to even provide his name, addressed the attendees. With anger brewing at the delays, the development manager very rudely stated there would be no presentation – it was simply an opportunity for people to look at information brochures and posters. There were five Epuron reps present who it was stated would only answer questions on a one-on-one basis!! At this point the dismay and anger was palpable.
- Epuron representatives then left the room, not because of any danger, as the post claims, but realising they had an audience who wanted to be heard and wanted answers. It was clear that telling people to look at posters was not going to cut it! Eventually, Epuron re-entered the room. What took place next defied belief. Jirrbal Elders that had very serious concerns about the development, their Sacred Sites, and the threats therein posed, were disrespected, ignored, and treated with utter contempt.
- It would be fair to say that the development manager (later identified post-meeting as being John Sadler), exhibited a shocking level of hostility towards Traditional Custodians, including Elders and did not want to answer their questions.
- Eventually a couple of questions were taken, one from a Traditional Custodian, the other from a Caucasian man, who ironically was one of only two of the estimated 100-130 attendees who raised their hand as being in support of the development.

- With it clear that Epuron’s definition of a community information session, was to not engage, to not consult, and not answer questions, it became clear the so-called ‘information session’ was in fact purely a box ticking exercise for the approval process.

The developer’s claim that small information sessions were held as a consequence of attendees putting the safety of others at risk is an utter fabrication. An email from Paul Stangroom, Epuron’s Development Director dated 27<sup>th</sup> Jan 2021, quotes:

*“The decision to hold a series of smaller information sessions is a response to the current health and safety risks related to COVID. Unfortunately this is out of our control and although a single event would be easier logistically, we are of the view that it would not be responsible to host a larger public gathering as you describe in Ravenshoe at this time.”* The email concludes by saying: *“We will of course revert to holding public information sessions at a later, more appropriate time.”*

No such meeting ever occurred.

The developer claims in the draft PER that these small sessions were ‘more inclusive’. The stated position, that by excluding people from attending, the developer was being more inclusive is an oxymoron. This claim is undeniably false.

The reality is the developer realised there was more opposition to this development than they had anticipated. In order to crisis manage the situation, future sessions would be held in a small office to limit the number of people in attendance. By not participating in open public forums, they could limit the negative publicity and media exposure, which was by this stage sizeable due to opposition within the community.

This has the added benefit of being able to speak to individuals, (without having independent witnesses present) to counter the spin, misrepresentation and lies.

The developer in a sustained, and deliberate manner, has avoided consultation to protect their own interests - development approval. In the draft PER document, Ark Energy has sought to absolve themselves of all responsibility for this decision, by creating fabricated accounts of what occurred at the Sept 16<sup>th</sup>, 2021, meeting.

#### 11.3.1.7 Local Information Hub

In February 2022, using local information sessions as the official opening, CWF established a local ‘information hub’ at 55 Grigg Street in Ravenshoe (see Plate 11-6). The hub has been open by a local member of the Project team on a weekly basis and by appointment

### **CONSULTATION TO DATE – LOCAL INFORMATION HUB PER RESPONSE [11.3.1.7]**

The local ‘information hub’ is regularly closed during the extremely limited stated opening hours. Community members have complained of going to this office repeatedly during opening hours to find the premises locked and unattended. This matter is well known in the community, even being outlined in the Community Advisory Group 22<sup>nd</sup> April 2022 meeting minutes.

#### 11.3.1.11 Feedback Mechanisms

##### 11.3.2 Community Advisory Group

The developer states In March 2022 they: established a Community Advisory Group, based on the Community Consultative Committee model where this is a requirement of the assessment regime, with a Terms of Reference, Charter, and Code of Conduct. The group has an independent chairperson and eight members including five community representatives, two representatives for the Traditional Owners and a representative for Tablelands Regional Council. The group meets every few months and provides an important forum to discuss topics of interest and collaborate on building greater community awareness and participation in the Project. The group has provided valuable feedback that affordable housing is important to the community and that the community has concerns with heavy vehicle traffic along Wooroora Road. In response to this feedback, the CWF Project team are investigating the feasibility of an alternate heavy vehicle access via Innot Hot Springs and a construction camp on or near the site. To date the group has met twice, in April 2022 and July 2022. The group will also be an important mechanism through which the representative cross-section of local interested parties can have input into the design and delivery of social outcomes, including the Project’s Community Benefit Program. CWF has committed to a generous and industry-leading Community Benefit Program. Funding streams that have been identified through initial consultation include a fund to support community-based initiatives, a social housing program to address housing stock sustainability issues, and funds for emergencies and natural disaster recovery in the region.

### **CONSULTATION TO DATE – COMMUNITY ADVISORY GROUP PER RESPONSE [11.3.2]**

The developer states the community advisory group is a 'voluntary' advisory group. In fact, the group Charter states, "membership of the group is voluntary, and no payment will be made for participation."

The developer further states 'the group has an independent chairperson.' The chair is the founder and managing director of a company called Sustainable Solutions Global (SSG). According to their website, SSG provides 'tailored services' to clients including: 'services to renewable energy clients.' One of the client benefits offered is quote: 'Strategic advice to fast-track project approvals.' [<https://sustainablesolutionsglobal.com>]

At the Ravenshoe Chamber of Commerce 'project briefing' on the 20<sup>th</sup> Sept 2022, Ark Energy admitted the 'independent' chair of the declared 'voluntary' group is in fact being paid.

The 'Community Advisory Group' is nothing more than a blatant attempt to tick the box on consultation. It offers no meaningful purpose other than on how to spend grant money which is contingent on development approval being obtained. This \$500000 grant is therefore a lever, being used to attempt to buy favour within the community. The advisory group is not representative, has met just twice, and no weight should be attributed to it as a consultative body. The independence of the chair is highly dubious, given her position as founder and managing director of a company that provides 'Strategic advice to fast-track project approvals', to renewable energy companies!

Emails sent to the chair questioning her independence, and requesting she release an interest register in April 2022 were not responded to.

The minutes of the 22<sup>nd</sup> April Community Advisory Group meeting reveal there is a declaration of pecuniary / conflict of interest. It is stated that 'all members have signed the appropriate paperwork' and have nothing to declare.

As a paid 'independent' chairperson in a declared 'voluntary' group, how could there be no conflict of interest to declare in carrying out the duties of this position, given her commercial interests?

It is misleading in the extreme to term the chair 'independent', it is deceiving to declare this as a 'voluntary organisation' when the chair is being paid. The developer has deceived the community and the 'Community Advisory Group' should be completely discounted by approval authorities as having any value whatsoever as a consultative body.

Chalumbin Wind Farm PTY LTD, Epuron and Ark Energy have all clearly failed to meet the threshold required for community consultation based on their own and prescribed definitions.

The Australian government defines fraud as: 'Dishonestly obtaining a benefit, or causing a loss, by deception or other means.' (treasury.gov.au)

To deceive by dishonestly misrepresenting the facts of the development, in order to gain community support, and development approval, potentially reaches this threshold.

The developer has aggravated the situation by misrepresenting and lying about what has occurred to the community and to the federal government. The draft PER has already been submitted to the federal Department of Climate Change, Energy, the Environment and Water three times. This is not a first draft!

The financial windfall Chalumbin Wind Farm will deliver to the developer, equates to hundreds of billions of dollars. The potential subsidies alone, based on a senate select committee report into wind farms, was conservatory assessed as being \$500000 per turbine per year. In the case of Chalumbin that equates to \$43 million PER year of taxpayer funded subsidies.

#### **11.3.3 Stakeholder Consultation Summary**

Consultation is documented in CWF's stakeholder and community engagement register. A summary of consultation with key stakeholders relevant to this PER is outlined in Table 11-1.

### **STAKEHOLDER CONSULTATION SUMMARY PER RESPONSE [11.3.3]**

The table includes a list of organisation and individuals stated to have received a 'project briefing'. There are no public consultation meetings listed as none occurred. As there is no way of knowing what was said in the majority of those briefings, we cannot comment in detail – they were framed to be private and small group sessions. What we do know, is in the very last briefing listed (Sept 2022), the developer made the extremely serious false claim that Koalas had not been seen in the area for a decade. In light of this, and all other deceptive, false, and misleading information provided by the developer throughout this process, it can be considered highly probable that fabricated information was supplied to participants in these briefings.



#### 11.3.4 Community Concerns

During consultation activities the Project team has received feedback from community members and sought to address questions around the following issues:

##### 11.3.4.1 Ecological impacts

Concerns about clearing of vegetation and potential Impacts on local wildlife, nearby protected areas and key species. CWF has a goal to rehabilitate 70 % of the impact footprint and a substantial offset package including dedication of land-based offsets much larger than the area of clearing for the unavoidable impacts on MNES assessed as having a significant residual impact and a substantial indirect offset of \$250,000 towards scientific research for the magnificent brood frog.

#### **COMMUNITY CONCERNS – ECOLOGICAL IMPACTS PER RESPONSE [11.3.4.1]**

**The replanting of 674.7 ha of land will require extensive resources and will likely take years. The destruction of remnant vegetation can not be offset by the replanting of seeds / seedlings. It is a fact that bulldozing this vegetation cannot be undone. Claiming offsets for existing land is absurd. \$250000 as an offset towards destroying critical habitat for an endangered species with an extremely limited habitat is untenable. Community concerns regarding ecological impacts have not been met.**

##### 11.3.4.2 Transport route

The transport route, potential upgrades and road modifications required and concerns about construction traffic disruption, particularly for residents of Wooroora Road. The feasibility of an alternative access route identified by Tablelands Regional Council and other stakeholders via Innot Hot Springs is under investigation.

#### **COMMUNITY CONCERNS – TRANSPORT ROUTE PER RESPONSE [11.3.4.2]**

**The alternate route is stated to be ‘under investigation’. There is no commitment under the draft PER to use the alternate route, and this route has a new set of environmental impacts that are not adequately represented in this document.**

##### 11.3.4.4 Aboriginal and cultural heritage

Concerns about consultation with Jirrbal community members who have a historical and ongoing connection to the Project area were raised.

#### **COMMUNITY CONCERNS – ABORIGINAL & CULTURAL HERITAGE PER response [11.3.4.4]**

The Guidelines for the content of a draft Public Environment Report – Chalumbin Wind Farm state that best practice consultation, in accordance with the Guidance for proponents on best practice Indigenous engagement for environmental assessments under the EPBC Act (2016) includes:

- identifying and acknowledging all relevant affected Indigenous peoples and communities;
- committing to early engagement;
- building trust through early and ongoing communication for the duration of the project, including approvals, implementation and future management;
- setting appropriate timeframes for consultation; and
- demonstrating cultural awareness

It has been clear throughout the process, that these guidelines have been breached. Many Jirrbal community members, including Elders with direct links to this land have been excluded from the entire consultation process.

This was displayed to all present at the Sept 16<sup>th</sup>, 2021 ‘community information session’ where:

- Jirrbal Elders that had very serious concerns about the development, their Sacred Sites, and the threats therein posed, were disrespected, ignored, and treated with utter contempt.
- The developer exhibited a shocking level of hostility towards Traditional Custodians and did not want to answer their questions.

Cultural Awareness has not been shown, with a shocking amount of key information as described by Jirrbal community members omitted, understated, or misrepresented in the document. This includes Sacred Sites, and areas of significant Cultural Heritage. Horrors including massacre sites, poisoning, murdering and displacing Jirrbal people at or near this site have not been accurately depicted.

The exclusion of a significant proportion of people from the consultation process, as exhibited at the Sept 16<sup>th</sup>, 2021, meetings, has had a significant and profound impact on Jirrbal participants. It has impacted the mental health, Cultural Health and wellbeing of many Jirrbal community members.

‘All relevant affected Indigenous peoples’ as defined by the guidelines, have neither been acknowledged or engaged with as is required under the Act.

The wider Jirrbal community have not been consulted. They have been excluded from the process. This is a damning assessment of the developer throughout the process, and authorities must not approve this development without hearing first-hand, what has transpired.

#### 11.3.4.5 Community benefits

Concerns about the benefits for the broader community such as access to affordable housing as raised by the Tablelands Regional Council, support in response to local disasters and emergencies and employment opportunities during construction and operations.

#### **COMMUNITY CONCERNS – COMMUNITY BENEFITS PER RESPONSE [11.3.4.5]**

The position that a portion of a \$500000 grant can, in any meaningful way assist with affordable housing is offset but the fact that up to 350+ construction workers will need to be housed during the development. The area is the grip of a housing and homelessness crisis. The only way accommodation can be made available to this influx of works would be through the displacement of locals. That is to say – they will be made homeless. The developer states they will investigate the construction of an accommodation compound. Absolutely no details of a compound are supplied – not even a location is identified. There is no prerequisite for the developer to build any compound whatsoever in the development application.

Far from being of benefit, this development will in fact place a significant number of local community members at risk of homelessness. Considering families, this figure could potentially involve as many as 1000 or more people.

#### 11.5 Future Consultation

Consultation with stakeholders and community members is ongoing and will continue throughout the stages of the development

#### **FUTURE CONSULTATION PER RESPONSE [11.5]**

As proper open, honest, transparent consultation has not occurred at any stage of the process, the exclusion of the community from being able to participate will continue. As the guidelines on consultation have not been met, and the charter breached, the consultation process should be deemed invalid as it fails to meet the threshold required under the EPBC Act. As such, the development should not be approved.

#### 12.0 Environmental Record of the Proponent

- CWF is a special purpose vehicle created for the Project, and is a subsidiary of Ark Energy Projects Pty Ltd (Ark Energy). Ark Energy is a leading Australian renewable energy company with a focus on the development of utility scale wind and solar projects across Australia. Ark Energy (through the former Epuron) has been developing renewable energy projects since 2003, with the successful permitting of over 4,000 MW of wind farm projects and over 400 MW of solar farm projects. Ark Energy is committed to avoiding, minimising and mitigating potential environmental impacts through the development of its renewable energy project portfolio. Ark Energy’s projects have a history of responsible environmental management.
- There are no past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment, or the conservation and sustainable use of natural resources against Ark Energy.
- Ark Energy aims to ensure that all of its developments meet industry best practice, and that development practices are continually improved. Ark Energy is a leader in the renewable energy industry’s best practice endeavours; contributing to the development of various government and industry guidelines, and taking a lead on project commitments. For example, Epuron was the first company in Australia to propose a community development fund as part of a renewable energy project, a commitment that continues to this day. This is a commitment that CWF is proposing in an industry-leading manner, as described in Section 13.1.3.
- For the Chalumbin Wind Farm Project, Ark Energy will commit the Project to a suite of management actions outlined in this PER and associated documents. The tendering process to award construction contracts for the Project will consider past environmental performance, environmental policy and environmental management systems.

#### ENVIRONMENTAL RECORD OF THE PROPONENT – PER RESPONSE [12.0]

- ❖ The 'Epuron' name and branding was retired in Oct 2022, before the draft PER was due to be released. Is this a coincidence?
- ❖ Epuron has a very bad track record around the country of ignoring the concerns of communities and by not consulting, instead holding 'information sessions', and refusing to consult. It appears to be a deliberate tactic by the developer to refuse to engage, and rather attempt to 'tick the box' on consultation. This can not be allowed to continue.
- ❖ Kerry Houston, secretary of Respect Stanley Peninsula – No Wind Turbines Inc. says *"I don't think Epuron like to hold town hall meetings, and instead do drop in sessions to divide and conquer. They have only had one drop in session in Stanley in 2018, and then in 2021 announced they were ready to lodge a development application and have another drop in session. "The community protested at the 2021 session! Their lack of engagement is amazing. We've complained to the Clean Energy Council about the charter they've signed. We don't think they are adhering to it."*
- ❖ The draft PER document has already been submitted to the federal Department of Climate Change, Energy, the Environment and Water three times. This is not a first draft.
- ❖ 'Fraud' is defined by the Australian Government as *'Dishonestly obtaining a benefit, or causing a loss, by deception or other means'*. A complaint is about to be filed with the Australian federal Police, relating to the conduct of the developer, and the fraudulent fabrication of information, in order to obtain development approval, and a financial windfall of billions of dollars.
- ❖ In addition, as taxpayer funded subsidies for wind farms are paid by the Australian government, this can be viewed as an attempt to gain financial advantage by deception. This too, will also form part of the complaint. Based on 2015 estimates, these subsidies over the life of the development could equate to 1.29 billion dollars.
- ❖ The developer Ark Energy, and their subsidiary Chalumbin Wind Farm PTY LTD, by their conduct throughout the process, as described in this document, has shown they are not a fit and proper entity, and should not be granted development approval.